

Voluntary Carbon Market Engagement

Exploring the Motivations for VCM Engagement Among Icelandic Corporations, their Carbon Credit Criteria and Preferences

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Abstract

Voluntary Carbon Markets (VCM) have emerged with the intention of supporting decarbonisation and carbon dioxide removal solutions around the world. However, and despite a rapid growth, the motivations and preferences of the demand side to engage in with the VCM have not been thoroughly studied before. Iceland, the focus of this thesis, exemplifies this trend. To address this knowledge gap, this thesis aims to understand why Icelandic corporations that are committed to reducing their emissions engage with the VCM and identify their criteria and preferences for carbon credits. From a methodological point of view, the thesis develops an analytical framework using existing theories and literature on VCMs, net zero adoption, business culture and organisational behaviour. Results from a survey and in-depth interviews are analysed with a directed content analysis. The findings reveal that Icelandic corporations are driven by corporate values and competitive pressures when engaging with the VCM. Their top criterion when purchasing carbon credits is that the credits are certified by a standardising body. Furthermore, Icelandic corporations committed to reducing their emissions seek to purchase removal credits that align with the corporation's values, and prefer to purchase carbon credits from local carbon projects. However, the lack of certified local projects available at reasonable prices drives them to purchase credits from international projects instead. An understanding of these factors is beneficial to project developers and local practitioners, as it allows them to adjust their operations and strategies to better fit the market's criteria. Findings also provide important lessons for policy makers aiming to strengthen the credibility and integrity of the VCM in Iceland. The thesis lays the foundations for future research by providing the necessary building blocks to understand the demand side of the Icelandic VCM.

Keywords: Voluntary carbon market, sustainability-driven enterprises, Iceland, 1.5°C emission target, corporate sustainability strategies

Executive Summary

Background and Problem Description

Iceland is a small island country that differs in some ways from other European countries; it relies heavily on exports of aluminium products, tourism services, and marine goods, and only a small proportion of the country's total emissions come from electricity generation. Furthermore, the country's largest source of emissions is from land use, land-use change and forestry, followed by aluminium, road transport, other industrial and chemical use, and fishing boats. While studies have been conducted on Iceland's carbon dioxide removal potential (Lal, 2009; Ragnheidardottir et al., 2011; Brnkalakova et al., 2021), which is abundant due to the country's geological composition and landscape, no studies have focused on the demand side of the market.

Global warming has already surpassed the 1,5°C threshold, and immediate action must be taken to prevent further risks and impacts. To understand how to limit global warming, the Intergovernmental Panel on Climate Change laid out different 1,5°C global warming pathways where a balance is struck between energy and resource demand, the rate of decarbonisation, and the dependency upon carbon removal. While mitigation pathways are driven by various complex dimensions (e.g., geophysical, institutional, technological, economic, socio-cultural), they all include to some extent or a large extent, the scale-up of carbon dioxide removals (e.g., afforestation). To support the cost-effective mitigation of greenhouse gas emissions globally, voluntary markets for tradable carbon credits have emerged, providing a trading platform for scaling up carbon dioxide removal options and other decarbonisation activities.

A few scholars have researched international corporations' motives to decarbonise and purchase carbon credits, but research on this topic is generally lacking and has not focused on the Icelandic market. Understanding the motivating factors in the Icelandic context, and the carbon credit criteria and preferences of Icelandic corporations will benefit local practitioners and carbon project developers, researchers, policymakers and other stakeholders to promote greater and more sensible corporate involvement in the Voluntary Carbon Market (VCM) in Iceland, which can help to scale up local carbon projects and increase carbon dioxide removals and decarbonisation potential in line with the 1,5°C target, as well as laying the groundwork for future research on the topic.

Aim and Research Questions

This research aims to understand what motivates Icelandic corporations, committed to reducing their emissions, to engage with the voluntary carbon market, and understand their criteria and preferences for carbon credits.

To achieve the aim of the research, the thesis is guided by the following research questions:

RQ1: What factors motivate Icelandic corporations, that are already committed to reducing their emissions, to engage with the voluntary carbon market?

RQ2: What criteria guide these corporations when selecting what carbon projects to purchase carbon credits from?

RQ3: What are these corporations' specific carbon credit preferences?

Methodological approach

About the methods employed for data analysis, an analytical framework was developed based on findings from the literature and theories. This framework comprises five themes (organisational behaviour, business culture, motivating factors for VCM engagement, carbon credit criteria, and carbon project criteria) and fifteen categories relevant to the themes.

The analytical framework was applied to a multiple case study of Icelandic corporations. By the thesis objective, the framework was designed to examine and enhance the current understanding of corporate engagement with the VCM in the Icelandic market context. The case corporations were selected based on their adoption of science-based targets or listing on the Nasdaq OMX stock exchange, in addition to their reporting on environmental impacts. This was deemed to be a suitable criterion for the selection of case corporations, as it was assumed that they may consider purchasing carbon credits as part of their strategies. A total of 18 Icelandic corporations were analysed.

Two main methods for data collection were employed. Firstly, a survey was conducted among the corporations to gain insight into the sustainability strategies employed by the sampled corporations, their engagement with the VCM, and the criteria they establish before purchasing carbon credits. Furthermore, the survey sought to ascertain the type of carbon projects they mainly purchase carbon credits from. Secondly, semi-structured, in-depth interviews were conducted with the surveyed corporations that had established clear net zero or emissions reduction targets. The aim of the interviews was to gain a deeper understanding of the corporations' motivations for engaging, or not engaging, with the VCM, their carbon credit criteria, and their carbon credit preferences. This was further augmented by the utilisation of secondary data derived from publicly available corporate documentation. The data was analysed using a directed content analysis, with the analytical framework serving as a guide during the coding process.

Main findings

Findings suggested that Icelandic corporations decide to engage with the VCM because they want to maintain the image of being first-movers and market leaders, and they want to inspire their customers and other corporations to do good. Furthermore, they believe the VCM to be an opportunity to contribute to CSR responsibilities by positively affecting the environment and the community, as well as supporting selected SDGs. Results also suggested that corporations are driven to engage with the VCM by competitiveness, as they believe that VCM engagement may keep them ahead of competing firms by doing things better or differently than other firms, resembling other firms' strategies to not fall behind, and in hopes of attracting the best employees and investors. Finally, the corporations engage with the VCM to achieve their net zero goals, strategically purchasing carbon credits today which they can potentially use to offset residual emissions in the future.

The research also found that a corporation's engagement with the VCM largely depends on how sustainability-driven the corporation's managers are. A corporation's sustainability ambition is, to a large extent, determined by the corporation's managers. As a result, the corporation's engagement with the VCM depends on the managers' level of ambition, their perception of sustainability and the VCM, and the corporation's actions are then determined by the managers' leadership style. As a whole, the thesis reveals that emissions reduction targets and VCM engagement are top-down management decisions.

After deciding to engage with the VCM, Icelandic corporations set criteria that the credits they purchase must meet. Most importantly, the credits they purchase must be certified by a standardisation body and validated by a third-party verification and validation body. Icelandic

corporations also seek to purchase credits from projects that are in line with their corporate values or that contribute to the same Sustainable Development Goals to which the corporation has committed to support. Icelandic corporations also prefer credits that generate environmental and/or social co-benefits, and when choosing between projects that meet their defined criteria, the price of the credits is the deciding factor, as corporations choose the cheaper option available. The findings reveal that Icelandic corporations place their trust in standardisation bodies. Once they have found projects that meet their purchasing criteria, they do not analyse the methodologies of the carbon projects or the standardisation bodies in detail but rather trust in the integrity of their work with and commitment to the VCM.

Regarding carbon credit preferences, Icelandic corporations prefer removal credits over reduction credits. However, findings also reveal that some choose reduction credits because they perceive they are more economical, i.e. in their opinion, reduction credits provide good benefits for a price they consider fair, as opposed to removal credits which are often sold at higher prices. Icelandic corporations prefer, at least initially, to purchase carbon credits from local carbon projects. Nonetheless, this initial preference is somehow constrained by their strict criteria of purchasing carbon credits that are certified by a standardising body. In practice, this means that many seek to purchase carbon credits from international projects instead due to the limited supply of certified Icelandic carbon credits available at reasonable prices.

Conclusions and Recommendation

The demand side of the VCM is a topic that has not been researched extensively before, especially in the case of Iceland. Unlike existing knowledge, the thesis reveals an important degree of heterogeneity regarding motivations to engage in the VCM. However, one can also recognise a degree of homogeneity when it comes to motivations, purchasing criteria and carbon credit preferences. The latter appears to be consistent with previous research that underscores the role of competitiveness, corporation values, and management style. In addition, while the economics of carbon credits are important for corporations, the demand for local carbon credits suggests –at least in principle– a preference for local co-benefits. However, to maximise the local VCM and trust among market players, carbon credit certification seems critical.

Overall, the findings lay the groundwork for understanding the market’s motivations to engage with the VCM and its carbon credit criteria and preferences, providing valuable insights which can be utilised by practitioners and policymakers, and expanded on by researchers. This research’s findings may be especially valuable for any entrepreneur seeking to develop demand for a carbon project in Iceland. The suggestions for future research include testing the analytical framework on a greater number of cases to get a better understanding of motivations for engaging with the market, and corporations’ criteria and preferences across different sectors, company sizes, and levels of ambition. Furthermore, future research could address certain policies or regulations that can support the internal carbon credit accreditation market, and related integrity and credibility.

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Abbreviations

CO₂ – Carbon Dioxide

IPCC – Intergovernmental Panel on Climate Change

GHG – Greenhouse Gas

CDR – Carbon Dioxide Removal

BECCS – Bioenergy with Carbon Capture and Storage

AFOLU – Agriculture, Forestry and Other Land Use

CCS – Carbon Capture and Storage

NDCs – Nationally Determined Contributions

VCM – Voluntary Carbon Market

NbS – Nature-based Solutions

EU ETS – European Union Emissions Trading System

MRV – Monitoring, Reporting, and Verification

TSVCM – Taskforce on Scaling Voluntary Carbon Markets

ICVCM – The Integrity Council for Voluntary Carbon Markets

tCO₂e – Tonnes of Carbon Dioxide Equivalents

VVBs – Validation and Verification Bodies

LULUCF – Land Use, Land Use Change, and Forestry

CCPs – Core Carbon Principles

ARR – Afforestation, Reforestation, and Revegetation

SDGs – Sustainable Development Goals

CSR – Corporate Social Responsibility

SBTi – Science Based Targets initiative

BVCM – Beyond Value Chain Mitigation

1 Introduction

1.1 Background and Significance

Global warming surpassed 1,5°C across an entire year, from February 2023 to January 2024 (Poynting, 2024; Icelandic Meteorological Office, 2024). Global warming of this degree will increase climate-related risks for natural and human systems, and the magnitude of the risks will be higher as global warming increases. Furthermore, global warming of 2°C, rather than 1,5°C, will have more negative impacts on biodiversity, ecosystems, and oceans' health, risks of heat-related morbidity and mortality will increase, more people will be exposed to poverty, and more (IPCC, 2018). Therefore, it is important that we aim to limit global warming to 1,5°C above pre-industrial levels. In 1,5°C global warming pathways, with no or limited overshoot, global carbon dioxide (CO₂) emissions should reach net zero around 2050 (Rogelj et al., 2018). These pathways involve different portfolios where balance is struck between energy and resource demand, the rate of decarbonisation, and the dependency upon carbon removal (IPCC, 2018).

In a special report on global warming of 1,5°C, the Intergovernmental Panel on Climate Change (IPCC) laid out the different global warming mitigation pathways that are compatible with the objective of limiting global warming to 1,5°C above pre-industrial levels (Rogelj et al., 2018). It is important to note that it is not possible to choose a single pathway to achieve a specific climate objective or greenhouse gas (GHG) concentration; the pathways are driven by the underlying development processes, feasibility dimensions, e.g. the feasibility of scaling up certain technologies, and societal choices, including what technologies are deployed and at what scale. Furthermore, socio-economic development, governance, consumption and global coordination influence the pathways greatly and could threaten achieving the objective of 1,5°C. The 1,5°C-consistent pathways are diverse, but share some common key characteristics including rapid decarbonisation of energy supply, i.e. upscaling of renewables and switching from fossil fuels to electricity, increased demand-side mitigation efforts, and scale-up of Carbon Dioxide Removal (CDR).

The IPCC defines CDR as negative emissions, i.e. activities that reduce CO₂ concentrations in the atmosphere (Arneth et al., 2019). In the mitigation pathways, the IPCC focuses on two CDR technologies: (1) Bioenergy with Carbon Capture and Storage (BECCS), and (2) net negative Agriculture, Forestry and Other Land Use (AFOLU) emissions (Rogelj et al., 2018). BECCS is a bioenergy technology combined with Carbon Capture and Storage (CCS), with capture rates differing among technologies (Rogelj et al., 2018).

Bioenergy is generated from an organic material called biomass, which comes from living organisms such as plants. The biomass is full of carbon that was absorbed by the organisms through photosynthesis, which is released during combustion when the biomass is used to produce bioenergy, including electricity and liquid fuel (International Energy Agency, n.d.; Rogelj et al., 2018). As stated before, capture rates vary among technologies, with higher estimated capture rates for the production of electricity and lower estimated capture rates for the production of liquid fuel. As a consequence, and considering that the supply of bioenergy may be limited, BECCS technologies with high CCS potential may be preferred when supply is limited, but BECCS technologies with lower CCS potential may be preferred when supply is greater due to the bioenergy's ability to replace fossil fuels in the transport sector (Rogelj et al., 2018).

On the other hand, CDR through negative AFOLU emissions, e.g. with afforestation and land restoration, is a readily available solution, although it is not free of risks and requires land that may be competing with other industries, e.g. agriculture, wood and biomass production for

bioenergy (Rogelj et al., 2018). The risk factors associated with CDR through negative AFOLU emissions, and other CDR technologies, include non-additionality, leakage, non-permanence, and over-crediting. These risk factors will be discussed in more detail in section 1.3. All 1,5°C-consistent pathways include CDR solutions to some or large extent, but the choice of type of CDR solution and the scale of its deployment varies and depends upon societal choices and preferences regarding the availability and acceptability of technologies, timing and stringency of climate policies and mitigation efforts, and the ability to limit baseline emissions (Rogelj et al., 2018).

The IPCC laid out two different scenarios on how CDR can have different functions in different mitigation pathways (Rogelj et al., 2018). On one hand, CDR can be deployed in the first half of the century, before reaching net zero emissions, to sequester CO₂ emissions to slow down the atmospheric accumulation of CO₂. This approach avoids overshoot, i.e. warming does not cross the 1,5°C threshold. On the other hand, CDR can be deployed in the second half of the century, after reaching net zero emissions, to create net negative emissions to reduce the atmospheric concentration of CO₂ and to bring warming back down to 1,5°C. This approach includes a temporary overshoot of the 1,5°C threshold (Rogelj et al., 2018). The latter scenario is more likely to realise due to recent temperature development, as mentioned earlier (Poynting, 2024). Additionally, the scalability of CDR before mid-century is limited, further supporting temporary overshoot pathways. However, the current understanding of the carbon cycle's response to net negative emissions is limited and uncertainty pertains to the ability of CDR to reduce temperature after overshooting 1,5°C (Rogelj et al., 2018). In non-overshoot mitigation pathways, i.e. mitigation pathways where CDR is deployed in the first half of the century, AFOLU CDR is highly utilised while BECCS is more strongly deployed in overshoot pathways that rely on CDR in the second half of the century. This is because current understanding and the available evidence suggest that avoiding overshoot requires some type of CDR and afforestation, a CDR technology that falls under AFOLU, is readily available. Alternatively, The BECCS technology is not as developed and more expensive; a large-scale deployment of CCS technologies depends on further technological development (Rogelj et al., 2018).

The Paris Agreement introduced Nationally Determined Contributions (NDCs) which reflect the Parties' national intentions to reduce national emissions, in line with the Paris Agreement's goal to improve global response to the threat of climate change by limiting global warming (*The Paris Agreement*, 2015). However, emissions reductions implied by NDCs are not stringent enough to comply solely with 1,5°C-consistent pathways. Cumulative CO₂ emissions, i.e. net emissions resulting from anthropogenic emissions and CDR, must also be kept below the remaining carbon budget (Rogelj et al., 2018). The carbon budget is the estimated net global cumulative anthropogenic CO₂ emissions, up until 2050, which would limit global warming to a given level, taking into account the impact of other anthropogenic emissions (IPCC, 2018). Put more simply, it is the amount of net cumulative CO₂ emissions permitted to limit global warming to 1,5°C. To enhance emissions reduction ambitions through increased efficiency by decreasing the variability of the marginal cost of emission abatement, Article 6 of the Paris Agreement allows voluntary cooperation of parties when implementing their NDCs (*The Paris Agreement*, 2015; Edmonds et al., 2021). This allows countries with higher marginal costs MC_h to reduce their costs by trading with countries that reduce emissions at any price below the MC_h of the purchasing countries, while countries with low marginal costs MC_l can increase their mitigation efforts and benefit financially by selling transferable credits to countries with high MC_h at any price above their MC_l (Edmonds et al., 2021). This reflects David Ricardo's classical economic principle of international trade and comparative advantage; countries can benefit from trade if each country exports the goods in which it has a comparative advantage, i.e. those goods produced with a lower opportunity cost compared to the other country involved in the trade (Krugman et al., 2018).

1.2 Cost-effective Implementation of Carbon Dioxide Removals

1.2.1 Voluntary Carbon Markets

Alongside compliance carbon markets¹, a voluntary carbon market exists. Although not as large as the compliance market, it is expected to grow vastly in the coming years and decades, reaching a market value of USD 5-50 billion by 2030 and USD 250 billion by 2050 (Blaufelder et al., 2021; Morgan Stanley, 2023; Boston Consulting Group, 2023; KPMG, 2024). While expected to grow in the coming years, it is pivotal to prioritise the annual reduction of net GHG emissions as the Voluntary Carbon Market (VCM) will not be able to reach the 1,5°C target alone (Mendelsohn et al., 2021). Nevertheless, carbon credits are traded voluntarily by individual market actors to increase CDR potential and drive decarbonisation, thus limiting cumulative CO₂ emissions to stay within the estimated carbon budget.

Carbon credits are also commonly referred to as carbon certificates and carbon units, but for simplicity, the term carbon credits will be used in this thesis. A carbon credit is a transferrable unit that represents either one metric tonne of CO₂ removed from the atmosphere or one metric tonne of CO₂ prevented from entering the atmosphere (American Carbon Registry, n.d.; Climate Action Reserve, n.d.; Gold Standard, n.d.; International Carbon Registry, n.d.; Verra, n.d.; Plan Vivo, 2020; Van Butsic, 2023). As this definition suggests, carbon credits can be classified as removal, reduction or avoidance credits², with credits that constitute CDR being classified as carbon removal credits. Additionally, carbon credits can be attributed to either Nature-based Solutions (NbS), e.g. negative AFOLU emissions, or technological solutions, e.g. BECCS.

1.2.2 Economic Theory

Coase (1960), the renowned economist, presented his theory on property rights in his paper on the problem of social cost, where he discussed the interrelation of negative externalities, transaction costs and willingness to pay. Later, this was known as the Coase Theorem, which states that by assigning property rights, a good obtains exclusion properties and the market is able to internalise externalities and thus limit government intervention and market failures (Perloff, 2015). In Figure 1-1, the Coase Theorem is modelled. Here, a producer pays a market actor a compensation for negative externalities resulting from a production of a good. The compensation equals the marginal societal damage, MD , i.e. the difference between societal marginal cost SMC and producer marginal cost PMC_1 ; $MD = SMC - PMC_1$. After paying the MD , the producer marginal cost curve shifts upward from PMC_1 to PMC_2 , which equals SMC as marginal societal costs have been internalised. Now, as the negative externalities have been

¹ Tradable permit schemes have been applied in various contexts by regulatory bodies, e.g. to address air pollution like in the US Acid Rain Program, to preserve fishing stocks with tradable fishing quotas, to support clean energy and promote renewables, and more (Serre, 2008). A commonly applied form of tradable permits are so called cap-and-trade systems, also known as allowance trading. In practice, an absolute cap is put on emissions and market actors are allowed to trade emission allowances under the cap (Ellerman, 2005; European Union, 2015). A well-known and established cap-and-trade system is the European Union Emissions Trading System (EU ETS), which enables the trading of emission allowances to ensure that the total emissions of certain sectors remain within a set cap (European Union, 2015). In principle, this approach should reduce emissions cost-effectively and efficiently, allowing more prepared corporations or sectors to benefit financially from the sale of allowances, whilst less prepared corporations or sectors buy allowances to obtain more time to adjust their operations. This should, in principle, ensure that emissions are cut where it is least costly to do so (European Union, 2015).

² Credits linked to projects that reduce the amount of GHG released into the atmosphere, such as projects that improve fuel efficiency and low-emission cookstove projects, are categorised as carbon reduction credits. Carbon avoidance is more complex but is based on avoided emissions had the carbon project not been funded. An example of avoided emissions is avoided deforestation (Friedmann & Potts, 2023).

internalised, the quantity produced has decreased from Q_1 to Q_2^* , where a socially optimum level of production is reached.

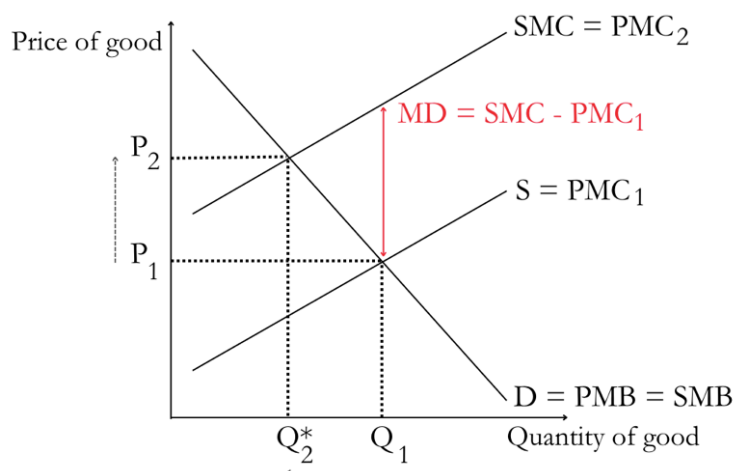


Figure 1-1. The Coase theorem

Source: Adapted from Gruber (2019)

Following Coase, Dales (1968) emphasised the importance of establishing ownership to assign prices to the right of use of an asset, stating that externalities would be minimised with established property rights and allocated price systems. Both Coase and Dales pointed out that objects are never owned, but rather the rights, and the rights themselves are limited by law (Coase, 1960; Dales, 1968). These papers lay the economic theoretical foundation of tradable permit schemes. Later, Baumol & Oates (1971), Montgomery (1972), and others wrote about the market of tradable permit schemes, arguing the impracticality of calculating a Pigouvian tax, an alternative economic method of dealing with negative externalities, as well as showcasing that an equilibrium exists in the market for emission licenses which minimises joint cost for all actors involved.

1.3 Corporate Engagement with the Voluntary Carbon Market

The VCM has faced criticism in the past, being attributed to carbon cowboys³ and phantom credits⁴ (Robbins, 2007; Macalister, 2007; Mendelsohn et al., 2021; Greenfield, 2023). Critics have claimed the VCM is merely a platform for corporate greenwashing, questioning the carbon projects' integrity, quality and ability to mitigate climate change, and stating that many projects would have been established in the presence or absence of carbon credits, meaning the projects prove to be non-additional (Robbins, 2007; Mendelsohn et al., 2021; Battocletti et al., 2023; Ghaleigh & Macinante, 2023; Greenfield, 2023; Wongpiyabovorn et al., 2023). Demonstrating additionality is the cornerstone of establishing carbon projects. When assessing a project's additionality, all alternative scenarios must be considered, both with and without the revenues generated by the project. If it is determined that the emissions sequestered, removed, or avoided would not have occurred without the revenues generated by the sale of carbon credits, then the project has demonstrated additionality (Miltenberger et al., 2021; BeZero, 2024). Along with

³ The term *Carbon Cowboy* has been used to describe carbon projects and offsetting schemes that enter the VCM for the sake of profiting financially, rather than to deliver on carbon removal, reduction and/or avoidance promises (Robbins, 2007).

⁴ Issued carbon credits that do not contribute to carbon reductions, removals or avoidance (Greenfield, 2023).

demonstrating additionality, projects must mitigate the risk of leakage⁵, over-crediting⁶ and ensure permanence⁷ (Mendelsohn et al., 2021; Ghaleigh & Macinante, 2023; Wongpiyabovorn et al., 2023; Battocletti et al., 2023; BeZero, 2024).

Some believe that future demand on the VCM will be driven by private corporations as a result of the many net zero pledges made by corporations (Kreibich & Hermwille, 2021). Furthermore, the demand for high-quality carbon credits may surpass the supply provided by carbon projects. This could be due to the difficulty of scaling up carbon projects as a result of the many barriers project developers face (Koh et al., 2021). Studies have shown that the primary obstacle faced by carbon project developers is the high cost associated with the early phases of projects' development. These costs include certification, conducting accurate baseline studies, and investments in high-quality Monitoring, Reporting, and Verification (MRV) solutions (Smith & Parkhurst, 2018; Koh et al., 2021; Miltenberger et al., 2021; David et al., 2022a; Pan et al., 2022, 2023). However, as will be more thoroughly explained in section 2.1, it is crucial to cover these expenses to guarantee the quality of the carbon projects. This is necessary to accurately report the amount of carbon sequestered, reduced or avoided.

It has been argued that corporates find the VCM difficult to navigate and the high transaction costs associated with VCM engagement make it difficult for corporate actors to participate in the market (David et al., 2022b). Transaction costs refer to all costs, both monetary and non-monetary, that are incurred when buying or selling a good or service (Downey, 2023). Search costs, which include the time, energy, and money spent while searching for other market actors to engage in business, are a type of transaction cost (Halton, 2022). On the VCM, transaction costs arise due to unclear guidelines, lack of liquidity, transparency, and pricing information, among other factors (Chen et al., 2021; David et al., 2022a). High transaction costs result in the VCM being difficult to navigate for corporate buyers (David et al., 2022a).

Moreover, carbon credit buyers are concerned about the quality of the credits they purchase, worrying that low-quality carbon projects may not have any real positive impacts, and might even have negative impacts on biodiversity, community, and the health of the environment. The lack of quality carbon projects increases the level of reputational risk the credit buyers are taking (Chen et al., 2021). This suggests that even though corporations are interested in purchasing carbon credits, they may refrain from doing so because of how difficult it is to distinguish high-quality carbon projects from the rest.

The quality of carbon credits will be conceptualised in section 2.1.

1.3.1 Main Market Actors

Many independent market actors operate on the VCM with different agendas. In Table 1-1, the main market actors are defined and their role in the VCM is explained.

Table 1-1. Main actors on the VCM

⁵ When the generation of a carbon credit results in an increase in GHG emissions outside of the carbon project, e.g. as a result of displaced activities (Battocletti et al., 2023; Wongpiyabovorn et al., 2023; BeZero, 2024).

⁶ When more credits are issued than the amount CO₂ equivalents (CO₂e) a project manages to remove, reduce or avoid, e.g. as a result of an inaccurate baseline assumption (BeZero, 2024).

⁷ Non-permanence is when the CO₂e removed, reduced, or avoided does not remain so for the committed time (BeZero, 2024). Projects mitigate the risk of non-permanence by implementing mechanisms that account for any potential project reversals, such as forest fires and natural disasters. (Battocletti et al., 2023; Wongpiyabovorn et al., 2023)

Market actor	Role on the market
Project financiers	Banks, firms, investors or other actors who lend or invest equity in carbon projects to help them get established.
Project developers	A person, corporation, or a consultant developing a project with the aim to reduce, avoid or sequester GHG emissions. Oversees the project at various stages. Can be the project owner, or a specialised service.
Carbon registries	A list of certified carbon projects, overseen by the respective standards organisation (standardising bodies). The registry includes the transactions of issued credits and their retirement (when they are used as offsets). Examples include Verra and Plan Vivo.
Validation and verification bodies (VVBs)	Third party auditors that validate and verify projects with regards to baselines, GHG emissions reduction or sequestration achievements and potentials, MRV methodologies, and more. VVBs certify that a project meets the respective standardising body's guidelines and criteria.
Carbon brokers	Brokers that arrange transactions with carbon credits on the VCM, connecting sellers with buyers.
Rating agencies	Independent actors that evaluate carbon projects with the aim to establish more credibility and trust in the VCM. Operate in a similar way as bond credit rating agencies, i.e. provide ratings on quality based on risk assessments.
Credit buyers	Individuals and firms seeking to purchase carbon credits to offset GHG emissions. Credit buyers can hold on to the credits, sell them to others, or retire them as offsets against their own GHG emissions. When a credit has been retired it can no longer be traded.
Others	Taskforce on Scaling Voluntary Carbon Markets (TSVCM) & The Integrity Council for Voluntary Carbon Markets (ICVCM).

Source: (Sylvera, n.d.; Chen et al., 2021; BeZero, 2024)

In this thesis, VCM engagement is defined as any engagement with actors operating on the VCM, some of which are listed above in Table 1-1. This means that any actor involved in the VCM is engaged in the VCM in one way or another. For example, corporations can engage with the VCM by purchasing carbon credits, providing financial support to project developers, engaging in Beyond Value Chain Mitigation (BVCM)⁸ activities, and more.

1.3.2 Corporate Motivation

Berger-Schmitz et al. (2023) studied what explains corporations' net zero adoption, strategy and response, and found that the decision to adopt net zero targets is both driven by competitive and institutional pressures, meaning that corporations could adopt net zero targets because they want to increase efficiency and/or to comply with societal expectations and policies. When mapping the observed corporations' net zero response pathways, Berger-Schmitz et al. (2023) define more robust targets as those characterised by the use of removals only after all other avenues for genuine emissions reductions have been exhausted, strict standards are applied to the purchasing and management of high-quality removals, and investments are made to the development of mitigation technologies, while shallower targets are characterised by more liberal use of removals and heavier reliance on future technology and removal mechanisms. Further, Lou et al. (2023) identified three main motivations that drive corporations to purchase carbon credits; (1) corporate carbon management and efficiency, (2) corporate market competitiveness, and (3) corporate values. In addition, they found that co-benefits serve as a value proposition, meaning that corporations, to a large extent, value carbon projects based on

⁸ BVCM is a mechanism developed by the Science Based Targets initiative that encourages corporations to reduce or remove GHG emissions beyond their own value chains, i.e. to go beyond value chain (scopes 1, 2, and 3) abatement (Scarlett Benson et al., 2024).

the co-benefits they generate and the co-benefits further motivate corporations to invest in the projects. They concluded that local co-benefits and increased finance to local communities were the determining factors when corporations decide what carbon projects they should invest in. Therefore, we can see that corporations engage with the VCM for different reasons. Furthermore, corporations have preferences for the type of carbon credits they purchase, such as those that generate local co-benefits. Corporate motivation for engaging with the VCM and carbon credit criteria and preferences will be further conceptualised in sections 2.2 and 2.3.

1.3.3 The Icelandic Market Context

Background and historical GHG emissions

Iceland is a Nordic country located where the North Atlantic Ocean meets the Arctic Ocean on the Mid-Atlantic Ridge, resulting in abundant volcanic activity, geothermal heat and harsh conditions. The geological conditions of the country and its landscape enable the electricity mix to most entirely consist of renewables; hydro (70,55%), geothermal (29,40%), wind (0,03%), fuel (0,02%), and solar (0,00%⁹) (Orkustofnun, 2023).

Due to Iceland's landscape, with highlands covering a large part of the country, the habitable areas are limited. The Icelandic population, which only accounts for around 390 thousand inhabitants, is distributed along the coastline of the island, with approximately 65% of the population living in the capital area; greater Reykjavík (Statistics Iceland, n.d.). Due to the distribution of the population and the country's landscape, as well as the abundance of affordable renewable energy, Iceland's primary exports are manufacturing goods (32%), including aluminium and aluminium products, tourism services (26%), and marine goods (20%)¹⁰ (Statistics Iceland, 2024a, 2024b).

In 2021, Iceland's total emissions¹¹ were 14,1 million tonnes CO₂ equivalents (tCO₂e), a 6% increase from 1990 (Umhverfisstofnun, 2023). The origins of emissions are divided into three categories; (1) Sectors that fall under the EU Effort Sharing Regulation¹², (2) Land Use, Land-Use Change and Forestry (LULUCF), and (3) Sectors included in the EU ETS. The second category, LULUCF, covers the largest portion of Iceland's emissions; 67%¹³ (Umhverfisstofnun, 2023). This differs from the rest of Europe, where LULUCF is generally net binding, i.e. generates negative emissions (European Environment Agency, n.d.-a, n.d.-b; Nordic Council of Ministers, 2020; Umhverfisstofnun, 2023). Figure 1-2 shows Iceland's emissions from 1990 – 2022, excluding LULUCF and international transport.

⁹ Production of solar power was 6 MWh in 2022, i.e. 0,000028% (Orkustofnun, 2023).

¹⁰ Calculated as percentages of total revenues generated from exports of goods and services in 2022.

¹¹ Excluding international transport, i.e. international flights and international shipping, but including LULUCF. LULUCF emission numbers for 2022 are not yet available, thus, total emissions for 2021 are shown.

¹² Domestic transport (excluding aviation), buildings, agriculture, small industry, and waste (European Commission, n.d.).

¹³ LULUCF emissions in Iceland have been rather steady over the past years, with only a 2% reduction in emissions since 1990. LULUCF emissions are disaggregated in the following categories: (61%) heathland, from which 90% comes from wetlands that have been drained for twenty years or more, (21%) cropland, (23%) wetlands, and (-5%) forestry (Umhverfisstofnun, 2023).

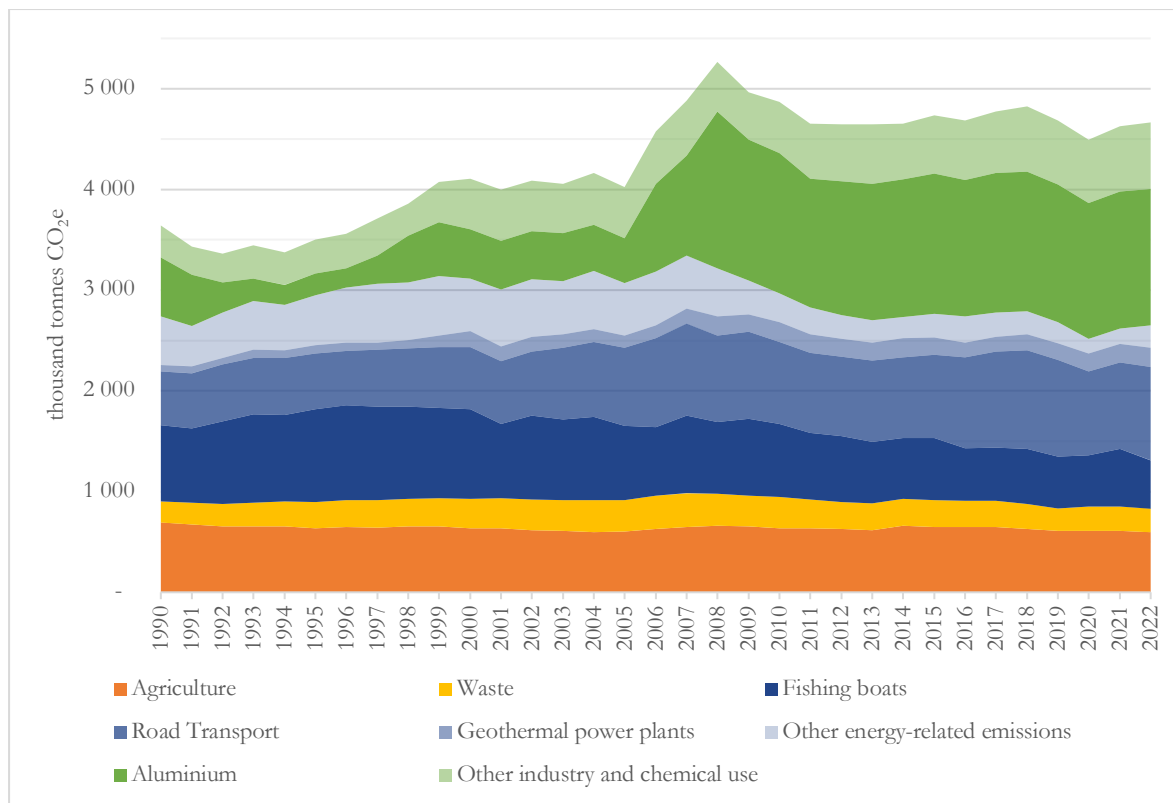


Figure 1-2. Iceland's emissions 1990-2022, excluding LULUCF and international transport

Source: (Umbverfisstofnun, 2024)

Icelandic business culture

Business culture refers to the characteristics that express the individuality and uniqueness of organisations. An organisation's business culture is the unique configuration of behaviours, values, norms and beliefs that explain how the organisation's groups and individuals get things done (Burnes & James, 1995). Icelandic organisations are characterised by a low power distance, i.e. flat organisational structures and low class differences. Icelanders address each other by their first names, and Icelandic managers view their superiors more as colleagues rather than bosses (Eyjólfsdóttir & Smith, 1996). Icelandic people favour individualistic characteristics; valuing individual excellence and personal initiatives and fostering entrepreneurship (Eyjólfsdóttir & Smith, 1996; Ministry of Higher Education, Science and Innovation, 2022). This has been more evident after the 2008 financial crisis, which affected Iceland greatly, with various initiatives being established, such as *Gulleggið*, an entrepreneurial competition in Iceland, *Íslenski Sjávarklasinn*, which supports start-ups in the blue economy, and the Icelandic Climate Fund, a fund that supports climate-related innovation projects (Gulleggið, n.d.; Íslenski Sjávarklasinn, n.d.; Rannsóknamiðstöð Íslands, n.d.). Despite fostering innovation, Icelandic businesses are more prone to what Eyjólfsdóttir & Smith (1996) define as the 'fisherman mentality'; short-term thinking, and slowness in adopting new management approaches.

Burnes & James (1995) state that in organisations where trust is a part of the culture, where change is the norm and people expect positive outcomes, managers do not need to worry as much about consulting and involving all employees in the decision-making process because people are already receptive to change. However, in organisations where change is not the norm, involving and consulting all employees in the change process is necessary to overcome suspicion and resistance, maintain trust and gain commitment. According to Eyjólfsdóttir & Smith's

(1996) definition of the ‘fisherman mentality’, the latter scenario applies to Icelandic organisations.

Iceland and the VCM

Purchasing carbon credits is becoming increasingly popular in Iceland and various carbon projects have been developed in Iceland in the past years¹⁴ (Hálfðánardóttir, 2023). Standards and guidelines have been created for organisations engaging with the VCM, including Staðlaráð Ísland’s [National Standards Body of Iceland] (2022) specification with guidance on carbon offsetting, and Umhverfisstofnun’s [Iceland Environment Agency] (2020) guidelines for public entities on emissions offsetting.

Studies have been conducted on the potential for developing carbon projects in Iceland, including Lal (2009), Ragnheidardottir et al. (2011), and Brnkalakova et al. (2021), all of which focus on the supply side of the VCM in Iceland. Less research has been done on the demand side of the market. Nikolakis & Guðjónsson (2021) studied corporate awareness and cooperation with local voluntary carbon projects in Iceland, concluding that larger corporations, with more resources to support carbon projects in practice, were more open to the idea of increased cooperation for voluntary carbon projects, but concerns about robustness prevailed. Their research focuses on supply and demand side cooperation. No prior research focuses solely on the demand side of the Icelandic VCM, i.e. why Icelandic corporations purchase carbon credits and what type of carbon projects they prefer.

1.4 Problem Definition

Existing literature demonstrates that corporations are motivated by competitive and/or institutional pressures to engage with the VCM (Berger-Schmitz et al., 2023). The primary reasons for this engagement are carbon management and efficiency, market competitiveness, and corporate values (Lou et al., 2023). Additionally, co-benefits are considered to be a value proposition (Lou et al., 2023). However, within the context of Iceland, no research has been conducted on what motivates corporations to engage with the VCM or what kind of carbon projects Icelandic corporations seek to purchase carbon credits from. This thesis aims to address these research gaps.

Understanding the motivating factors, criteria and preferences for carbon credits in the Icelandic context will benefit local practitioners, researchers, policymakers and other stakeholders to promote greater and more sensible corporate involvement in the VCM, which may help scale up local carbon projects and increase carbon dioxide removals and decarbonisation potentials in line with the 1,5°C objective. Improved understanding of corporations' motivations and their specific criteria and preferences for carbon credits in Iceland will enhance overall knowledge of the market, as well as enable carbon project developers to better understand the corporations' perspectives and criteria, and adjust their approach accordingly. Furthermore, it will allow corporations that engage with the VCM to reflect on their underlying reasons for doing so and to choose carbon projects that are most appropriate for their goals. Lastly, it may benefit Icelandic policymakers as they will better understand the local corporations' VCM engagement, allowing them to consider both in future policymaking, regulations, and standards setting.

¹⁴ Carbon projects developed and/or implemented in Iceland include Carbfix, Climeworks, Running Tide, Skógálfar, Yggdrasill Carbon (YGG), Carbon Iceland, and SoGreen.

1.5 Aim and Research Questions

This research aims to understand what motivates Icelandic corporations, committed to reducing their emissions, to engage with the voluntary carbon market, and understand their criteria and preferences for carbon credits.

To achieve the aim of the research, the following research questions will be answered:

RQ1: What factors motivate Icelandic corporations that are committed to reducing their emissions to engage with the voluntary carbon market?

RQ2: What criteria guide these corporations when selecting what carbon projects to purchase carbon credits from?

RQ3: What are these corporations' specific carbon credit preferences?

1.6 Scope and Delimitations

This research focuses on Icelandic corporations committed to reducing their emissions, their motivations for engaging with the voluntary carbon market and their specific carbon credit preferences. No geographical restrictions were applied when collecting relevant literature on corporate engagement with the VCM for the development of the analytical framework. When developing the analytical framework, articles on corporate motivation and VCM engagement older than five years of age were excluded. The VCM is evolving quickly, and older articles may no longer be relevant. Thus, articles published from 1 January 2019 were included.

1.7 Ethical Considerations

The selection of participants in this research is systematic and dependent upon their willingness to participate. Considering the research's aim, there is no cause to believe that participants will be disadvantaged or suffer damage upon participating in this research.

The main ethical consideration is the treatment and handling of data and the participants' private information. The corporations and their representatives will be anonymous upon their request. However, since Iceland is a small market other Icelandic market actors may be able to identify the corporations and their representatives based on their interview answers. Due to this threat, direct quotes will not be included in the thesis. Furthermore, the participants may withdraw their consent at any given time until the thesis is published. Interview participants will be given all information along with a consent form (Appendix I), which includes information regarding the intended use of the information collected, how it will be stored, consent to be audio-recorded for data analysis, and the option to remain anonymous. In the case participants request anonymity, the data collected will be anonymised upon transcription and the transcript file will be given a code name.

The research is not funded by an external organisation and no person other than the research's author is in the power to influence the research's analysis and results.

All work done by others will be appropriately cited according to the seventh edition of the American Psychological Association standard. The reference management software Zotero will be utilised for such data handling and citing.

The research design has been reviewed against the criteria for research requiring review by the Lund University Ethics Committee and has been found not to require a statement from the Ethics Committee.

1.8 Audience

This research will add to the pre-existing literature on corporate motivation to engage with the VCM, providing insights into a market where the subject has not been studied before and thus benefitting the academic community. In addition, this research will first and foremost benefit sustainability-driven professionals working in Iceland as the research will further strengthen the understanding of how Icelandic market actors interact on the VCM, providing valuable insights for both corporate actors and carbon project developers operating in Iceland. Furthermore, this work can be of interest to whoever is seeking to gain a holistic understanding of how the VCM operates in the Icelandic context, such as investors, consultants, policymakers, and others.

1.9 Disposition

In Chapter 2, a conceptual framework will be developed, where the corporate perspective will be further elaborated on. That will entail a more detailed discussion of what existing literature says about corporate engagement with the VCM, including different corporate motivations for engaging with the market, their interest in different carbon projects and their respective quality. Following the development of the conceptual framework, an analytical framework will be developed which will be used as a guide for data collection and analysis.

The research design will be outlined and explained in Chapter 3. In this section, both the methods for data collection and analysis will be explained.

In Chapter 4, the research findings will be presented and analysed.

Discussions will take place in chapter 5 where the results are compared with the literature and theories conceptualised in chapter 2. The findings will be reflected upon and an expert will be consulted. The analytical framework developed in section 2 is modified and updated according to the research findings, to better apply to the particular market under study. Then, the research's limitations will be reflected upon.

Finally, in chapter 6, the research questions will be answered and suggestions for future research will be outlined to conclude the thesis.

2 Conceptual Framework

This chapter aims to identify key factors and concepts that can help explain the motivation of corporations for engaging with the VCM and understand corporations' criteria and preferences for different types of carbon credits. The information gathered will be utilised to develop an analytical framework that will be presented at the end of the chapter. The analytical framework will later be used as a guide for data collection and analysis.

2.1 Defining the Quality of Carbon Credits in the VCM

Some carbon credit buyers are concerned about the quality of the carbon credits they purchase, and some market actors believe that low-quality carbon projects do not have any real positive impacts, e.g. by not contributing to any real emissions removals or reductions, and might even have negative impacts on biodiversity, community, and the health of the environment (Chen et al., 2021; Valiergue & Ehrenstein, 2023). Further, low-quality projects, together with a lack of market transparency, may increase the carbon credit buyer's level of reputational risk (Chen et al., 2021). However, defining the quality of carbon credits in the VCM has several conceptual and technical connotations.

The terms 'integrity' and 'credibility' have often been used in conjunction with and as a synonym for carbon credit quality. The Integrity Council for the Voluntary Carbon Market (ICVCM) developed a global benchmark for high-integrity carbon credits, with input from hundreds of organisations, called the Core Carbon Principles (CCPs) (The Integrity Council for the Voluntary Carbon Market [ICVCM], 2024). According to the ten CCPs, carbon credits are high-integrity if they have (1) an effective program governance, (2) tracked on a registry, (3) publicly available and transparent reporting, (4) independent third-party validation and verification, (5) the project is additional, emission reductions or removals are (6) permanent, (7) quantified, and (8) not double counted, (9) the carbon program confirms with, or goes beyond industry-established best practices on social and environmental safeguards, and (10) the program supports the net zero transition (The Integrity Council for the Voluntary Carbon Market, 2024). Credibility can be understood as "the quality of meriting belief or confidence" (Oxford Dictionary, n.d.). Some (Flanagin & Metzger, 2008) have understood it as 'believability' resulting from trustworthiness and expertise, and others (Denton et al., 2020), in the context of VCMs, have perceived credibility to be closely related to trust.

Broekhoff & Spalding-Fecher (2021) claimed that high-quality credits must meet the criteria of additionality, at the same time as emissions reductions are permanent and not overestimated or double counted. Additionality is a key term in any carbon market. It is defined as the condition where a carbon credit generated from a carbon project truly leads to emission reductions or removals that would not have occurred in the absence of the revenues generated from the sales of the carbon credit (Miltenberger et al., 2021; BeZero, 2024). Further, high-quality carbon credits should not be associated with mitigation actions that cause social and/or environmental harm, but rather, ideally, contribute to social and environmental co-benefits (Broekhoff & Spalding-Fecher, 2021).

Pan et al. (2022) concluded that the quality of forestry carbon credits, i.e. Afforestation, Reforestation, and Revegetation (ARR) credits, is determined by the project's ability to successfully overcome specific challenges and barriers. They identified three categories of challenges; methodological, socio-economic, and implementation challenges. Among the identified challenges, methodological challenges, including 'additionality', 'permanence', and 'leakage', were most frequently identified, followed by socio-economic challenges, consisting of 'transaction cost', 'price', 'social cost', and 'opportunity cost'. Lastly, implementation challenges were identified, with MRV as the main challenge of implementation.

Valiergue & Ehrenstein (2023) stated that the term ‘quality’ is often used to refer to attributes such as additionality, the use of standards, third-party verification, co-benefits and non-carbon benefits. Furthermore, they noted that the sequestration provided by ARR projects is only temporary as trees eventually die, and these activities may take place on land where people reside. Thus, it is imperative to establish a precise MRV system and to ensure the livelihoods of locals. Moreover, they stated that integrity must come from the demand side as well, meaning that carbon credit buyers must first quantify their emissions, implement measures to reduce them, and only then purchase quality carbon credits to compensate for residual emissions.

Huber et al. (2024) conducted a meta-analysis¹⁵ of previous research findings that address the topic of carbon credit quality. They identified fifteen quality criteria for carbon credits derived from thirty publications, the most notable ones being additionality (100%¹⁶), permanence (100%), baseline (97%), double counting (90%), and MRV (83%). Other criteria include leakage (80%), transparency (80%), registry (67%), and ex-post¹⁷ (58%).

From the quality criteria gathered from existing literature, it is apparent that the quality of carbon credits depends on the project's ability to meet its claims, such as by demonstrating additionality and permanence and mitigating risks of leakage, over-crediting, and other relevant factors. This means that a project issuing high-quality carbon credits uses a high-quality MRV system to report its impacts and that the results are verified by a third-party VVB. Furthermore, the quality of carbon credits depends on the project's ability to successfully generate co-benefits that foster local communities and the environment.

2.2 Corporate Motives for VCM Engagement

Corporations may seek to engage with the VCM for different reasons (Berger-Schmitz et al., 2023; Lou et al., 2023). Within the context of adopting net zero targets, competitive pressures are understood as pressures derived from a corporation's efforts to increase efficiency. Hence, competitive pressures may motivate a corporation to set a net zero target because it is economically rational as it may increase efficiency and profitability (Berger-Schmitz et al., 2023). On the other hand, institutional pressures are understood as pressures derived from a corporation's external social, political, and economic environments (Berger-Schmitz et al., 2023), suggesting that corporations may set net zero targets due to national net zero targets, carbon taxes, international treaties, and societal discussions. Additionally, Berger-Schmitz et al. (2023) argued that corporations may adopt net zero targets for reputational benefits, defining it as meeting different stakeholders' expectations, i.e. by responding to pressures from employees, customers, and investors. However, within the context of VCMs, some authors (Lou et al., 2023) have defined the motives for VCM engagement differently from 'competitive and institutional pressures', as Berger-Schmitz et al. (2023) did in the context of net zero targets, although they share some key ideas. Firstly, Lou et al. (2023) claimed that VCM engagement may be explained by a corporation's “carbon management and efficiency”, defining it as corporates engaging with the VCM as a way to meet their mitigation commitments, e.g. to reach their net zero goals, or to meet their voluntarily established emissions reduction targets. They emphasised that in these cases, the VCM can serve as a cost-effective final step to offset residual, hard-to-abate emissions when emissions reduction options become too costly or infeasible.

¹⁵ A meta-analysis is a research method that integrates the findings of multiple studies by evaluating their individual results and deriving an overall numeric index of the magnitude of those results. This allows for a summary of the results to be presented (Creswell, 2012).

¹⁶ Percentage of publications that mention this quality criterion.

¹⁷ Refers to carbon credits that are sold ex-post rather than ex-ante, i.e. sold after emission reductions or removals have realised. Issuing credits ex-ante increases the risk of over-issuance of credits (Huber et al., 2024).

Secondly, Lou et al. (2023) stated that a corporation's VCM engagement may be explained by "market competitiveness", which they defined as corporations using carbon credits as a way of branding to increase their market competitiveness and align their local and global market strategies. Lastly, Lou et al. (2023) argued that a corporation's VCM engagement may result from the corporation's values, meaning that the activity of purchasing carbon credits embodies corporate values, supports the United Nation's Sustainable Development Goals (SDGs), and supports the corporation's commitment to philanthropy.

2.3 Corporate Carbon Credit Preferences

Different corporate motivations and carbon credit purchasing behaviour are linked with local co-benefits (Lou et al., 2023). Co-benefits serve as a value proposition, meaning that corporations, to a large extent, value carbon projects based on the co-benefits they generate and the co-benefits further motivate corporations to invest in the projects. Benefitting local communities is among the top criteria of many corporations that engage with the VCM. When purchasing carbon credits, corporations also consider the quality of the carbon credits and the location of where the credits originate (Lou et al., 2023).

Carbon credits vary in types and the benefits they generate are various; some solely focus on GHG removal, reduction or avoidance activities, as defined in section 1.2.1, while other projects go beyond such activities and generate co-benefits. The co-benefits may include community improvements by providing career opportunities, cleaner water, enhanced air quality, or improved access to energy, healthcare and education, and other co-benefits may include biodiversity, ecosystem and habitat conservation (Chen et al., 2021). Consequently, carbon credits may be a part of corporations' broad sustainability or Corporate Social Responsibility (CSR) strategies, contributing to a range of benefits (Chen et al., 2021).

Carroll (1991) conceptualised CSR in four pillars; economic, legal, ethical, and philanthropic. First, firms have the economic responsibility to be profitable. Secondly, firms have a legal responsibility that is equally as fundamental as their economic responsibility; they must perform consistently with the respective government's expectations and comply with laws and regulations. Third, corporations must demonstrate ethical responsibility by acting in accordance with ethical norms by engaging in activities that are expected, or not engaging in activities that are prohibited by society, even though they are not codified in law. That means ethical responsibilities include all standards, norms and expectations customers, employees, the community, and other stakeholders regard as fair. Fourth, and finally, corporations should be good corporate citizens by engaging in activities that promote welfare or goodwill, such as donating money and/or time to arts, education, the community, etc. The main distinction between the third and fourth pillar; ethical responsibilities and philanthropic responsibilities, is that stakeholders expect corporations to act ethically, and desire corporations to engage in philanthropic activities. Meaning, that stakeholders do not consider corporations unethical if they do not engage in philanthropic activities, such activities are simply the 'icing on the cake'. It is also important to emphasise that according to this conceptualisation, CSR is not limited to philanthropic activities, but rather encompasses all four pillars, with the first three being the most important ones (Carroll, 1991). This conceptualisation of CSR is visualised in Figure 2-1.

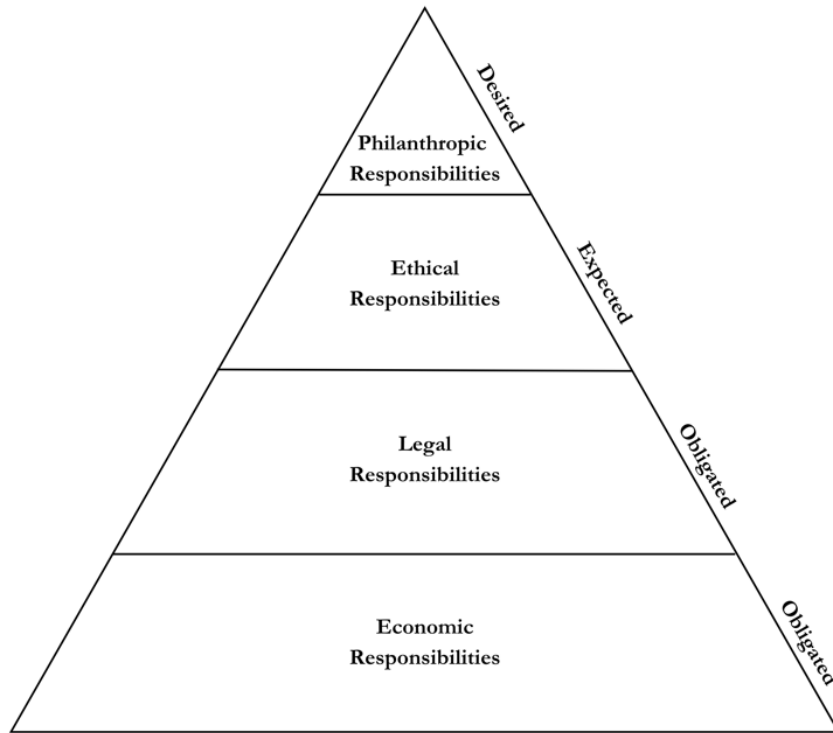


Figure 2-1. The Pyramid of Corporate Social Responsibility

Source: Adapted from Carroll (1991)

2.4 Organisational Behaviour Theories

It is now understood that corporations engage with the VCM for various reasons, but why is that the case? Organisation theories, namely the Behavioural Theory of the Firm, Resource-Based View, Resource Dependence Theory, Institutional Theory and Organisational Ecology, all have their explanations of incumbent firms’ modes of behaviour during a transition (Van Mossel et al., 2018). A transition can be understood as a deep structural change, involving an overall configuration of processes such as markets, consumer practices, and cultural meaning, driven by multiple actors, such as firms, policymakers and consumers (Geels, 2011). Sustainability transitions, e.g. a transition to low-emission or net zero economies, are purposive and goal-oriented, addressing a specific environmental problem (Geels, 2011).

The organisation theories explain how incumbent firms react to transitions based on set assumptions on the behavioural characteristics of firms (Van Mossel et al., 2018). Table 2-1 summarises the characteristics of incumbent firms according to the five different organisation theories listed above.

Table 2-1. Objectives of incumbent firms and their reaction to transitions, according to five organisation theories

Organisation Theory	Objective of incumbent firms	Characteristics
Behavioural Theory of the Firm	Achieve aspiration levels based on past performance and competitor’s performance	Firms adapt their routines and may imitate other firms’ routines. During a transition, firms may find it difficult to adapt to changes which require changes in routines or capabilities, and may find it difficult to un-learn routines.

Resource-Based View	Sustainable competitive advantage	Firms raise barriers to entry to prevent imitation of resources to maintain competitive advantage, and use dynamic capabilities to use resources more efficiently and effectively. During a transition, firms withhold information and resources from competitors to maintain competitive advantage. Firms are not resilient, as strategic resources are tied to the conditions in which they are used, and firms will not have retained the right type of dynamic capabilities.
Resource Dependence Theory	Reduce environmental uncertainties and external contingencies	Firms grow organically, i.e. from internal processes and resources, or merge with other firms on which they depend, to change their boundaries by absorbing external constraints. Firms form ties with other firms they depend upon and large firms may lobby for a regulatory environment which minimises their own uncertainties and dependencies. During a transition, firms may employ their strategies more strongly, i.e. growing, merging, forming ties and lobbying, to reduce uncertainties from external contingencies, and they may form alliance with new partners while strengthening their existing network.
Institutional Theory	Acquire legitimacy by adapting to the institutional environment	Firms become more similar over time due to multiple pressures and processes as they adopt features that are considered legitimate by the wider institutional environment. Firms may imitate other firms that are perceived successful or legitimate. During a transition, firms may engage in strategic behaviour and may manipulate institutional processes.
Organisational Ecology	Survive	Firms with established behaviour rarely change their core features; goals, technology and market strategies. Corporations have niches, and corporations that have narrower niches are specialists, while corporations with wider niches are generalists. During a transition, larger firms with more established behaviour suffer because they are less likely to change their behaviour. Specialists are more likely to fail since they are limited to few resources, while generalists are more likely to survive.

Source: Adapted from Van Mossel et al. (2018)

Despite how the different theories define the objective of incumbent firms or their assumptions on incumbent firms' characteristics, they all reject the neo-classical idea of firms acting fully rationally. The theories argue that firms act strategically, are self-interested, and choose their actions based on their objectives (Van Mossel et al., 2018). When reflecting on the corporations that are or are not committed to decarbonisation, the review of organisational theories reveals key elements for analytical consideration.

In the context of a low emission or net zero transition, the Behavioural Theory of the Firm suggests that firms could be driven by competitive pressures, as Berger-Schmitz et al. (2023) explain, and 'market competitiveness' as Lou et al. (2023) explain. This is derived from how the Behavioural Theory of the Firm defines the firm's objectives and characteristics. Furthermore, the theory suggests that firms may find it difficult to adjust their routines during a transition, indicating they might be reluctant to engage with the VCM.

Similarly, the Resource-Based View suggests that firms are driven by competitive pressures, as in the Behavioural Theory of the Firm, but also by ‘carbon management and efficiency’, as defined by Lou et al. (2023), rather than ‘market competitiveness’. According to the Resource-Based View, firms may be driven to decarbonise due to their inclination to use resources more efficiently.

The Resource Dependence Theory suggests that firms might be driven by institutional pressures, as they react to pressures derived from the corporation’s external social, political, and economic environments, as explained by Berger-Schmitz et al. (2023), and ‘market competitiveness’ as they align their local and global market strategies, as explained by Lou et al. (2023).

Furthermore, according to how Institutional Theory defines firms’ objectives and characteristics, firms could be driven by institutional pressures as defined by Berger-Schmitz et al. (2023), along with ‘market competitiveness’ as defined by Lou et al. (2023) because of firms’ desire to imitate other firms that are perceived successful. This theory indicates that incumbent firms will not be first-movers, i.e. will not be the first ones to engage with the VCM, but will rather wait and see how other corporations engage with the market.

Lastly, according to Organisational Ecology, corporations are more likely to be driven by competitive pressures, as the focus in this theory is on internal processes and resources. Organisational Ecology suggests, similarly to the Behavioural Theory of the Firm, that incumbent firms, especially ones with narrow niches and fewer resources, i.e. specialists, are not as likely to engage with the VCM as firms with more resources, since specialists are limited to only a few resources.

It is clear, therefore, that the different theories all have their ways of explaining how firms may react to transitions and, consequently, what motivates them to engage with the VCM. In addition, the way decisions are made within corporations, and their leadership style, together with organisational theories, may or may not further explain how corporations respond to sustainability transitions. That is, the organisations’ business culture, as defined in section 1.3.3, may explain why some firms decide to engage with the VCM, while others do not, and how they prefer to do so.

Different leaders’ actions may result in various perceptions, positive or negative, among employees prior to or following making strategic choices, such as engaging with the VCM (M. Taylor et al., 2014). The choice of leadership style may therefore influence the likelihood of the corporation’s long-term success (M. Taylor et al., 2014). Many different leadership styles have been identified and discussed in the literature, the most prominent ones being commanding, visionary, democratic, coaching, pacesetter, affiliative, and laissez-faire leadership styles (Turner & Müller, 2005; M. Taylor et al., 2014). An overview of the different leadership styles, and their definitions, can be seen in Table 2-2.

Table 2-2. Seven leadership styles identified in the literature

Leadership style	Definition
Commanding	Sometimes called ‘autocratic’. A leader makes a unilateral decision, which often results in low morale and motivation, hindering the achievement of set goals (Chukwusa, 2018).
Visionary	Leaders create a common vision aligned with the corporation’s goals by linking efforts to successful outcomes. They build strong relationships and foster innovation (M. Taylor et al., 2014).

Democratic	Leaders involve team members in decision-making, seek their input and opinions, and encourage collaboration (Bhatti et al., 2012).
Coaching	Leaders develop their team members' skills and provide guidance, support and feedback to help their team's performance, with the aim to achieve both personal and organisational goals (Karlsen & Berg, 2020).
Pacesetter	Leaders set high performance standards and lead by example. This leadership style is good for when a leader wants quick results with a motivated team (Hooper, 2016).
Affiliative	Leaders create a positive environment and foster strong relationships among team members by valuing empathy, trust and open communication. This leadership style is appropriate when you need to improve teamwork or lead during stressful circumstances (Hooper, 2016).
Laissez-faire	Leaders grant team members autonomy and decision-making authority, and there is no particular way of attaining goals (Bhatti et al., 2012).

Source: (Turner & Müller, 2005; Bhatti et al., 2012; M. Taylor et al., 2014; Hooper, 2016; Chukwusa, 2018; Karlsen & Berg, 2020)

Along with the corporation's leadership style, the corporation's decision-making style may affect if and how the corporation engages with the VCM. Four decision-making styles have been defined in the literature; directive, analytical, conceptual, and behavioural (Sharma, 1992; Park, 1996). A directive decision-making style is authoritarian, practical and action-oriented, with an emphasis on making quick decisions based on intuition and experience. An analytical decision-making style is more intellectual, logical and systematic. More emphasis is placed on data and detailed analysis is carried out before a decision is made. A conceptual decision-making style is more insightful, personal, adaptive and flexible. The focus is on the 'big picture' and the long-term implications of a decision. This style is often characterised by innovation, and unconventional ideas and considers multiple perspectives. A behavioural decision-making style is people-oriented and focuses on teamwork and collaboration. Decisions are made after seeking input from others, to maintain positive relationships. In this decision-making style, the feelings of the corporation's internal and external stakeholders are prioritised (Sharma, 1992; Park, 1996). The different decision-making styles are visualised in Figure 2-2.

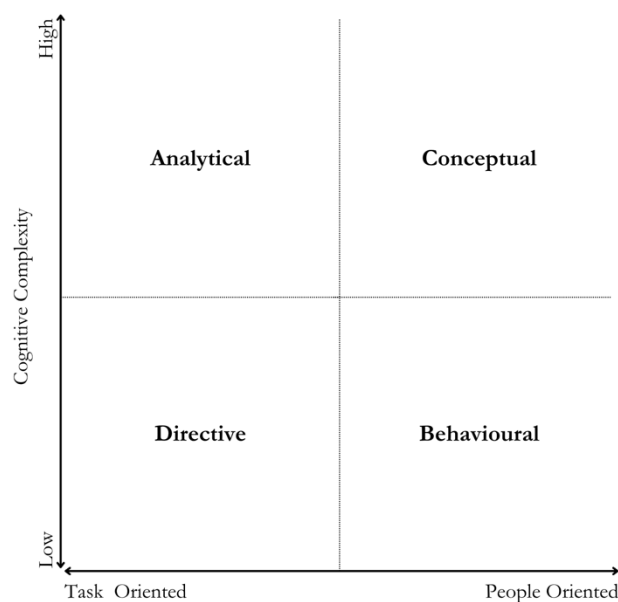


Figure 2-2. Decision-making styles

Source: Adapted from Sharma (1992)

The four decision-making styles, as defined by Sharma (1992) and Park (1996) may explain how corporations engage with the VCM and their carbon credit preferences. A corporation that has adopted a directive decision-making style may purchase carbon credits impulsively, while a corporation that has adopted an analytical decision-making style chooses carbon projects more carefully, and both styles may focus more on explicit carbon benefits rather than implicit co-benefits because of the tendency of the decision-making styles to be task-oriented. A corporation that has adopted a conceptual decision-making style may be prone to purchase carefully selected, high-quality carbon credits that generate co-benefits, and a corporation that has adopted a behavioural decision-making style may purchase carbon credits after consulting with the corporation’s stakeholders and may be likely to gravitate towards carbon projects that generate social co-benefits.

2.5 Analytical Framework

The findings from the literature have been conceptualised in the context of VCM engagement and carbon credit preferences. Now, they will be synthesised and summarised in an analytical framework which will be used to guide the data collection and analysis. 5 major themes were identified, as visualised in Figure 2-3, along with 15 categories. Additionally, 32 key factors, that fit within the categories, were identified.

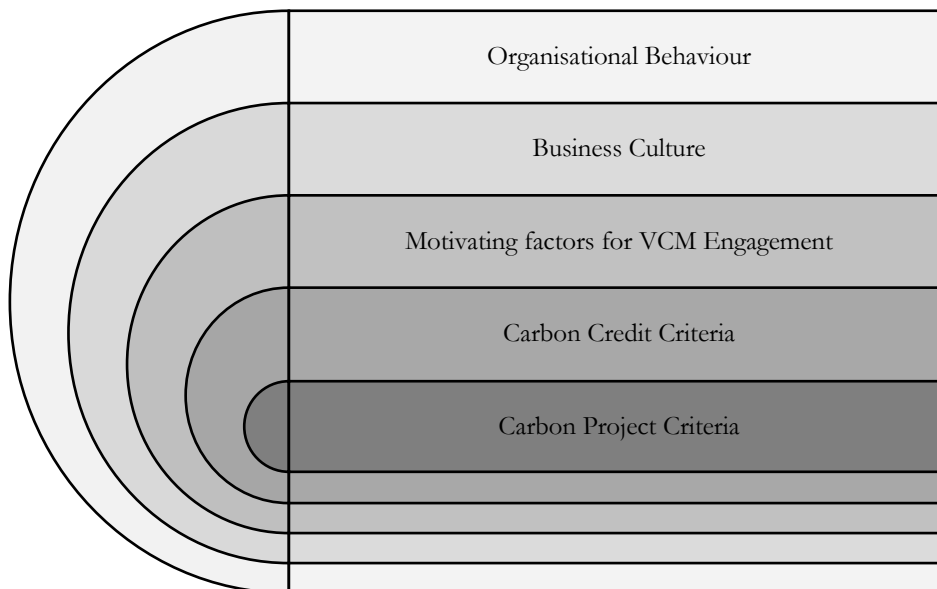


Figure 2-3. The analytical framework: Themes

Source: Author

Five major themes were identified. Collectively, the themes could help explain if, why and how corporations engage with the VCM, and therefore, explain corporations’ motivations for VCM engagement and their specific carbon credit criteria and preferences. The outer circles influence, affect and interact with the subsequent inner circles, and vice versa since this is a dynamic process.

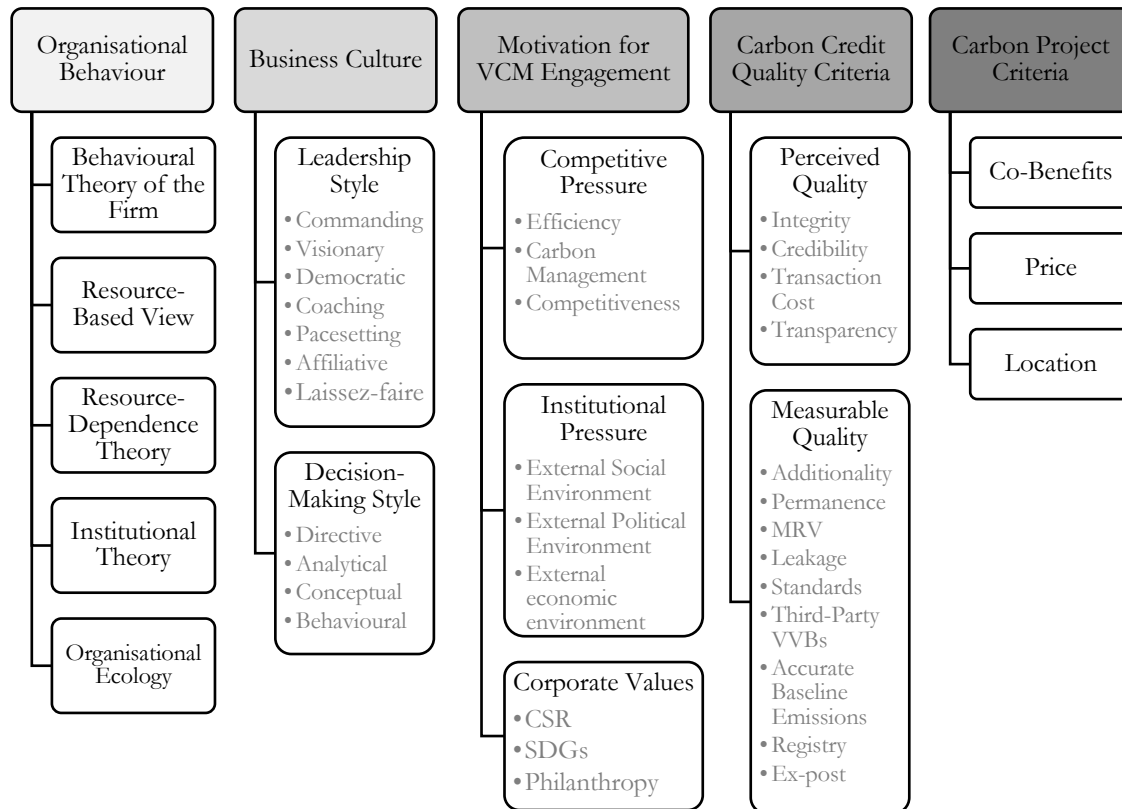


Figure 2-4. The analytical framework: Themes, categories and key factors

Source: Author

The 5 themes can be further broken down into 15 categories, as visualised in Figure 2-4. Furthermore, key factors that help explain the categories are included in the figure. All themes, categories, and key factors were identified in the literature and conceptualised in sections 2.1, 2.2, 2.3, and 2.4.

3 Methodology

This chapter explains the research design, together with detailed descriptions of the methods chosen for data collection and analysis. The aim is to clearly outline the decision-making process of the thesis, so that the reader can fully understand how the research came about, to the point where it could be replicated or applied to different cases.

3.1 Research Design

To answer the research questions, a multiple instrumental case study was conducted using directed content analysis and a mixed-method approach (Feagin et al., 1991; Hsieh & Shannon, 2005; Yin, 2009, 2011; Creswell, 2012; Creswell & Creswell, 2018). Now, the different components of the research design are explained and justified.

3.2 Epistemology

The researcher's epistemological position is constructivist. Within the constructivist worldview, no single objective truth exists; people have different perceptions and seek to construct subjective explanations dependent upon their background, experiences, values, etc. (Creswell & Creswell, 2018). Hence, a constructivist researcher seeks to understand a certain phenomenon using multiple peoples' perspectives, often within a specific context to account for historical and social settings. A constructivist researcher will use the data collected to inductively develop theories or patterns of meaning that explain the phenomenon studied (Creswell & Creswell, 2018).

A deductive reasoning approach will guide this research, but the researcher will embrace the constructivist worldview by acknowledging and including new emerging ideas and theories embedded in the data collected. First, existing theories and pre-determined key factors and concepts will guide the analysis. Then, the researcher will look for emerging categories and themes from the remaining data to extend and support existing theories (Hsieh & Shannon, 2005). This will be elaborated on in section 3.5.

3.3 Mixed Method Approach

A mixed method approach was utilised with different methods for data collection and analysis to ensure triangulation and to enhance the reliability and internal validity of the research (Creswell & Creswell, 2018). The research followed a directed content analysis approach, a qualitative research technique (Hsieh & Shannon, 2005). Qualitative research is good when a researcher wants to conduct an in-depth study in a real-world setting and is especially suitable when studying a phenomenon which has not been studied extensively before (Yin, 2011; Creswell, 2012). It is therefore a good fit for this research, as it explores an issue that has not been researched before in this specific market context; Iceland. To complement, the mixed methods approach introduced a quantitative aspect by using descriptive statistics to showcase corporate behaviour numerically, deepening the understanding of corporate behaviour beyond what could have been achieved with qualitative analysis alone. The addition of quantitative analysis allowed the researcher to analyse groups and factors using statistics, hence making the analysis more objective and thus, decreasing potential biases introduced by the researcher (Creswell, 2012). A more in-depth explanation of the specific data collection and data analysis methods utilised in the research is discussed in sections 3.4 and 3.5.

3.4 Data Collection

Three different types of data were collected to ensure triangulation of data (Yin, 2011; Creswell & Creswell, 2018). Data triangulation is the process of collecting data from multiple sources, such as surveys, documents and interviews, to strengthen the reliability and internal validity of

the research. Reliability refers to the ability of the research to be consistent when replicated, and internal validity refers to the accuracy of the research findings (Creswell & Creswell, 2018). Primary data was collected with a survey, and supplemented with in-depth, semi-structured interviews with Icelandic, corporate practitioners to gain a deeper understanding of the corporations' motivations and engagement with the VCM. Secondary data was obtained with corporate sustainability documentation to cross-check and supplement survey and interview findings.

Table 3-1. Overview of the different data collection methods

Data collection method	Primary or secondary	Time of data collection
Survey	Primary	March 2024
Practitioner interviews	Primary	March and 1 st week of April 2024
Corporate documentation	Secondary	March 2024, most recent documents available were analysed

3.4.1 Survey

A cross-sectional survey¹⁸ conducted among the case studies was the first method of data collection (Creswell, 2012). The survey included 20 appropriate, short answer and closed-end questions that all supported the research's aim. In particular, the purpose of the survey was to understand, in broad terms, the sampled corporations' sustainability strategies, learn whether they engage with the VCM and what type of carbon projects they mainly purchase carbon credits from. Due to the geographical context and the author's background, the survey was developed in Icelandic and then translated into English. Participants had the option to choose between the two languages. The survey questions were reviewed by four academics within Lund University's International Institute for Industrial Environmental Economics.

The survey consisted of two parts. The first part aimed to gather background information on the sustainability strategies of the corporations. It included questions about whether they had a strategy in place, if they had net zero or emissions reduction targets, and what motivated them to set such goals. The second part of the survey aimed to gather information on why corporations engage with the VCM and the types of carbon credits they purchase. The survey is available in Icelandic and English in Appendices II and III.

All 31 cases, which will be defined in section 3.6.1, were contacted and asked to partake in the survey. The corporations were presented with a brief description of the research project, highlighting the research aim and the reason why they were asked to participate. The corporations were informed of how the survey results would be used in the thesis, highlighting anonymity and data storage. Finally, the companies were encouraged to reach out if they had questions, considerations or reflections. The deadline for submitting the survey responses was the end of March, as indicated in Table 3-1. Out of the 31 corporations contacted, 20 responded (65%). However, the last two survey responses were received after the data collection period had ended, and due to time constraints, these two responses were not analysed or included in the findings. Hence, 18 responses (58%) were considered in the data analysis.

¹⁸ A survey conducted at one point in time among different cases (Creswell, 2012).

3.4.2 Interviews

Following a review of the survey responses, the corporations that had set clear net zero or emissions reduction targets were contacted and invited to take part in an in-depth, semi-structured interview, since they may consider purchasing carbon credits as a part of their strategy or may have established criteria and preferences for specific types of carbon credits. The purpose of the interviews was to gain a deeper understanding of the corporations' motivations for engaging, or not engaging, with the VCM and their specific carbon credit criteria and preferences. 15 corporations were contacted and 12 agreed to participate in an interview (80%). The interview participants were provided with a more detailed consent form than before (Appendix I).

An interview guide consisting of 9 open-ended questions was developed. Leading questions were avoided for the sake of fostering objectivity. However, it is important to acknowledge that in qualitative research, the researcher's personal biases will inevitably influence the research process to some extent (Creswell, 2012).

As with the survey, the interview guide was developed in Icelandic and then translated into English. The version of the interview guide used during the interviews depended upon the language preferred by the interviewee. The interview guide can be found in English and Icelandic in Appendices IV and V.

Interviews were conducted with the corporations' representatives in person or remotely using MS Teams, dependent upon the interviewees' preferences and availability. During the interviews, the researcher was methodic, meaning that she followed the interview guide, but gave adequate room for unexpected events and embraced unanticipated answers, leaving room for unplanned follow-up questions and discussions (Yin, 2011; Creswell, 2012).

3.4.3 Corporate Documents

Finally, and to support triangulation, corporate documentation was gathered. This included all relevant and publicly available documents issued by the corporations, such as sustainability reports, sustainability strategies, etc. The documents gathered served as a final step taken by the researcher to understand the corporations' climate and/or sustainability commitments, VCM engagement and carbon credit criteria and preferences. These documents were used to cross-reference information provided by the corporations' representatives as well as to add any relevant information the participants may have missed while answering the survey and interview questions. Including these documents in the analysis served to validate, or confront, the self-reported information gathered previously (Yin, 2011).

3.5 Data Analysis

Content analysis is a common technique used to analyse qualitative data and can be used to analyse qualitative data both qualitatively and quantitatively (Hsieh & Shannon, 2005; Yin, 2011). Directed content analysis was chosen as the main method for data analysis, supplemented with descriptive statistics. Directed content analysis is a good approach when previous research has been done on the phenomenon, which may be incomplete or in need of further description. When using directed content analysis, the objective is to either validate or conceptually extend an existing theoretical framework or theory (Hsieh & Shannon, 2005).

Survey responses were extracted, cleaned, and analysed in MS Excel. Initial findings were used to decide which corporations to contact for the next step of data collection. Later, after the interviewing process, the interviews were transcribed. As the interviews were transcribed, the interviewees were given a code name only known by the researcher. The interview transcripts

were then translated. The translated interview transcripts were uploaded to Quirkos, a qualitative data analysis software, where the interview transcripts were coded. Following the coding process, the themes, codes, sub-categories, and quotes were uploaded to MS Excel where the analysis was finalised.

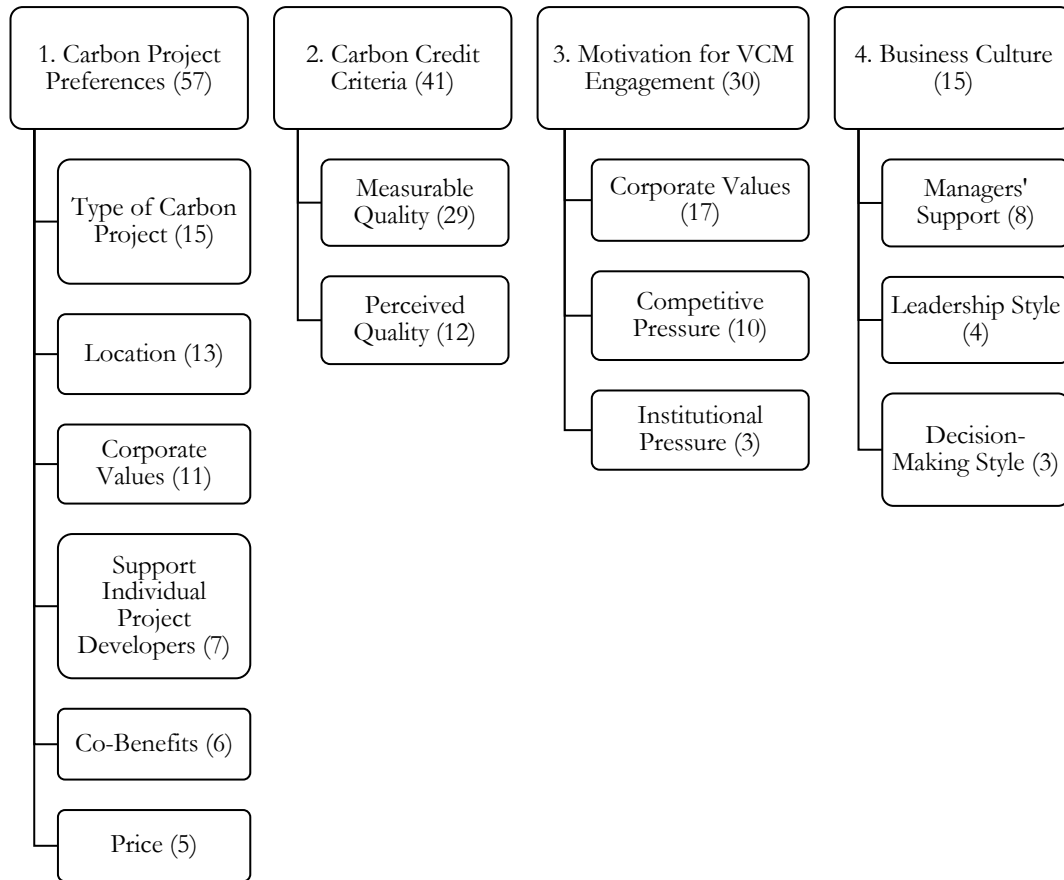
3.5.1 Directed Content Analysis

A deductive coding process was first employed where the factors identified and included in the analytical framework developed in section 2.5 determined the initial coding categories (Hsieh & Shannon, 2005). First, the data was reviewed and all words, sentences or paragraphs that indicated potential motives for VCM engagement or carbon credit criteria and preferences were highlighted. Then, the highlighted sections were coded using the initial, predetermined coding categories in the analytical framework. The sections that could not be coded using the initial coding categories were given a new, fitting and descriptive code. This process was repeated multiple times. 89 codes emerged at this stage of the coding process, including the predetermined codes in the analytical framework.

The data and the codes were reviewed multiple times. As revision progressed, the new codes that shared similar characteristics were grouped to form new categories, and the initial coding categories were disaggregated into subcategories (Hsieh & Shannon, 2005; Yin, 2011). After refining the data collected to category codes, themes start to emerge, forming the main ideas of the database (Creswell, 2012). Following the coding process in Quirkos, the interview findings were exported to MS Excel where the themes and category codes were refined and further analysed. The frequency of the categories was identified after cross-checking the relevant sub-categories that had been integrated into the final categories during the coding process.

Four themes and fourteen categories were identified. The themes, categories and relevant key factors are shown in Figure 3-1. They are listed by frequency, so the theme that contains the greatest number of quotes is positioned at the far left, and the theme with the fewest quotes is positioned at the far right. Within each theme, the categories that contain the greatest number of quotes are presented first, and those with the fewest quotes at the bottom. The total number of quotes attributed to the five themes is 145. The number of quotes attributed to each theme and category is given in parentheses.

Figure 3-1. Themes and categories that explain corporations' engagement with the VCM and their carbon credit criteria and preferences



3.6 Case Study

A case study is an in-depth investigation of a social phenomenon within its real-life context, which can be a role, an organisation, a group of people, a city, etc., and is often seen as a small part of a larger phenomenon (Yin, 2009, 2011). Case studies vary and may rely on multiple data sources, and can include both qualitative and quantitative methods. Case studies are helpful when a researcher wants to preserve the holistic characteristics of real-life events, such as organisational and managerial processes while trying to understand complex social phenomena within a certain region (Yin, 2009). Furthermore, a well-executed case study can offer a comprehensive understanding of the motives of actors that lead to specific decisions and events (Feagin et al., 1991). A multiple instrumental case study was employed, in which multiple cases are observed and compared to gain insight into the phenomenon under study (Creswell, 2012; Seawright & Gerring, 2008). In this research, the central phenomenon being studied is corporate motivations for engaging with the VCM and the corporations' carbon credit criteria and carbon credit preferences. The cases observed are Icelandic corporations that are committed to reducing their emissions.

3.6.1 The Cases

In a multiple instrumental case study, the researcher locates the different cases within larger contexts, such as geographical, social, political or economic settings (Creswell, 2012). To achieve the aim of the research, the following criteria were established before selecting the cases:

- The case corporations should be Icelandic and operating in Iceland

- The case corporations must be committed to reducing their emissions, e.g. by publicising their climate targets or committing to the Science Based Targets initiative

These requirements were established to ensure the cases are actively reducing their emissions or working towards net zero and therefore, may consider engaging with the VCM as a part of their strategy. To meet these sampling criteria, the cases were chosen with a purposeful sampling technique (Creswell, 2012). Purposeful sampling is when the researcher selects cases intentionally to learn or understand the central phenomenon under study, and the cases can make a significant contribution to the inferential process by allowing the researcher to choose the most suitable cases for the chosen research design (Creswell, 2012; Seawright & Gerring, 2008). Homogenous sampling is a purposeful sampling technique that enables the researcher to sample cases that belong to the same subgroup and share similar characteristics, e.g. Icelandic corporations that are committed to reducing their emissions (Creswell, 2012). In this case, a purposeful, homogenous sampling technique enables the researcher to select cases that meet the requirements listed above, as the criteria are fitting to meet the research's aim of understanding what motivates Icelandic corporations committed to reducing their emissions to engage with the VCM and their carbon credit criteria and preferences.

To minimise the search costs attributed to looking for appropriate cases, the author sampled Icelandic corporations that have committed to the Science Based Targets initiative (SBTi) since they have set, or have committed to developing, emissions reduction targets (Science Based Targets, n.d.). As of January 2024, ten Icelandic corporations have committed to the SBTi (Science Based Targets, n.d.).

To increase the sample size and to gain a deeper understanding of the Icelandic market, Icelandic corporations that are listed on the Nasdaq OMX Nordic stock exchange, and meet the two aforementioned criteria, were included. A screening of yearly reports and sustainability reports was carried out to see if the criterion for being committed to reducing emissions was fulfilled. The screening revealed that 24 of the 25 listed corporations operate in Iceland and either claim to be committed to reducing their environmental impact or publish their carbon accounting (Nasdaq, n.d.). Some have set clear and ambitious targets, while others' reporting is more vague. All 24 corporations were included in the sample, regardless of the robustness of their environmental and climate targets.

The total number of cases are 31 corporations, 10 are committed to the SBTi and 25 are listed on the Nasdaq OMX Nordic stock exchange, with 4 belonging to both groups.

4 Findings and Analysis

Of the 31 corporations contacted (N=31), 18 responded to the survey in due time (58% response rate). Of these 18 corporations, 10 are listed on the Nasdaq OMX Nordic stock exchange, 4 have set science-based targets and 4 are both listed on the Nasdaq OMX Nordic stock exchange and have set science-based targets. These three groups are the three respondent categories which will be analysed, compared, and contrasted; listed corporations, corporations with science-based targets, and listed corporations with science-based targets. An overview of the respondent categories is presented in Table 4-1.

Table 4-1. Overview of the survey respondents

Respondent Category	Number of corporations in the category (N)	Survey responses (n)	Response rate
Listed Corporations	21	10	48%
Corporations with Science-Based Targets	6	4	67%
Listed Corporations with Science-Based Targets	4	4	100%
Total	31	18	58%

15 of the 18 survey respondents were invited to participate in an interview. The remaining 3 respondents who were not invited to participate are the 3 corporations that do not have clear emission reduction or net zero targets, as will be discussed in section 4.1. The 15 respondents who had set clear emission reduction or net zero targets were invited to participate in an interview, regardless of their current or expected future engagement with the VCM. This was done to understand why corporations decide to engage or not to engage with the market, which provided further insight into corporations' criteria for purchasing carbon credits.

Out of the 15 survey respondents contacted, 12 agreed to participate in an interview (80% response rate). Of the 12 interviewees, 8 (67%) currently engage with the VCM, and 11 (92%) plan to engage with the VCM in the future. Table 4-2 provides an overview of the interview participants across respondent categories¹⁹.

Table 4-2. Overview of Interview Participants

Respondent Category	Interview Participants
Listed Corporations	5
Corporations with Science-Based Targets	4
Listed Corporations with Science-Based Targets	3
Total	12

4.1 Corporate Commitments

Of the 18 corporations surveyed, 7 (39%) stated that they have set a net zero target, while 8 (44%) stated that they have set emissions reduction targets. The remaining 3 corporations (17%) have no clear net-zero or emissions reduction targets. The first of these remaining 3

¹⁹ A disaggregation of respondents by respondent category and their current and expected future VCM engagement is not provided to protect their anonymity.

corporations has a sustainability and environmental policy which, according to publicly available corporate documents, aims to minimise negative environmental impacts. The second corporation also has an environmental policy that aims to reduce negative environmental impacts and GHG emissions but does not have an explicit target. The third corporation is also committed to reducing its environmental impacts and measures key variables appropriate to its operations, but has not set specific targets regarding emissions reduction. All 3 corporations that have not set clear targets belong to the respondent group ‘listed corporations’. This means that all but 3 survey respondents have set clear emission reduction or net zero targets. Table 4-2 provides an overview of corporate commitments across respondent categories.

Table 4-3. Corporate commitments across respondent categories

Respondent Category	Net Zero Target	Emissions Reduction Targets	Did Not Answer
Listed Corporations	2	5	3
Corporations with Science-Based Targets	1	3	0
Listed Corporations with Science-Based Targets	4	0	0
Total	7	8	3

When asked why they had set emission reduction or net zero targets, listed corporations most often cited regulations, national targets and international treaties. These corporations also stated CSR and supporting sustainable development as motivating factors, as well as risk management, wanting to be market leaders and responding to investor pressure. Corporations with science-based targets stated international treaties and regulations, as well as external pressure from investors and competitors, corporate values and the desire to reduce environmental impact and contribute to climate change mitigation. In contrast to the other two categories of respondents, listed corporations with science-based targets most frequently stated competitive advantage, being a role model, and corporate values as motivating factors for reducing emissions or setting net zero targets. Overall, responses are consistent across all respondent categories. However, corporations with science-based targets did not report being motivated by international treaties, regulations or pressure from investors, and listed corporations were the only respondent category to report being motivated by risk management.

The corporations were asked about specific motivating factors for reducing emissions or setting net zero targets. They were asked to rate the extent to which they agree that each of the motivating factors drives their willingness to set emission reduction or net zero targets on a scale from 1 to 5 (1=strongly disagree, 2=somewhat disagree, 3=neither agree nor disagree, 4=somewhat agree, 5=strongly agree). When asked about specific motivating factors for reducing emissions or setting net zero targets, the survey respondents stated they were mostly driven by internal motives of being market leaders and/or maintaining a competitive advantage, followed by the corporation’s internal values and then by external pressure from customers, investors and/or suppliers. Corporations that have set net zero targets ranked the corporation’s internal values the highest, while corporations that have set emissions reduction targets ranked internal motives of being market leaders and/or maintaining a competitive advantage the highest.

When asked about the specific motivating factors, listed corporations most strongly agreed to be driven by internal motives of being market leaders and/or maintaining a competitive

advantage (4,3²⁰), followed by the corporation’s internal values (4,2). Similarly, corporations with science-based targets most strongly agreed to be driven by internal motives of being market leaders and/or maintaining a competitive advantage (4,5), along with external pressure from customers, investors and/or suppliers (4,5), followed by the corporation’s internal values (4,3), and external pressure from regulatory bodies, the government and/or international treaties (4). Listed corporations with science-based targets did not, on average, rate the motivating factors as high as the other two respondent groups. They stated they most strongly agreed with being driven by the corporation’s internal values (3,8), followed by internal motives of being market leaders and/or maintaining a competitive advantage (3,5), external pressure from customers, investors and/or suppliers (3,3), and external pressure from regulatory bodies, the government and/or international treaties (3,3). Table 4-2 provides an overview of the three respondent categories and their rankings of the specific motivating factors, with the most motivating factors listed first. Average ratings are given in parentheses.

Table 4-4. Ranking of motivating factors for reducing emissions or setting net zero targets, categorised by respondent categories

Ranking	Listed Corporations	Corporations with Science-Based Targets	Listed Corporations with Science-Based Targets	Total
1	Internal motives of being market leaders and/or maintain a competitive advantage (4,3)	Internal motives of being market leaders and/or maintain a competitive advantage (4,5)	The corporation’s internal values (3,8)	Internal motives of being market leaders and/or maintain a competitive advantage (4,2)
2	The corporation’s internal values (4,2)	External pressure from customers, investors and/or suppliers (4,5)	Internal motives of being market leaders and/or maintain a competitive advantage (3,5)	The corporation’s internal values (4,1)
3	External pressure resulting from societal discussions on the effects of climate change (3,2)	The corporation’s internal values (4,3)	External pressure from customers, investors and/or suppliers (3,3)	External pressure from customers, investors and/or suppliers (3,4)
4	External pressure from customers, investors and/or suppliers (3,1)	External pressure from regulatory bodies, the government and/or international treaties (4)	External pressure from regulatory bodies, the government and/or international treaties (3,3)	External pressure resulting from societal discussions on the effects of climate change (3,3)
5	External pressure from regulatory bodies, the government and/or international treaties (2,8)	External pressure resulting from societal discussions on the effects of climate change (3,8)	External pressure resulting from societal discussions on the effects of climate change (3)	External pressure from regulatory bodies, the government and/or international treaties (3,2)
6	Increased efficiency in the corporation’s operations (2,5)	Increased efficiency in the corporation’s operations (3,8)	Increased efficiency in the corporation’s operations (3)	Increased efficiency in the corporation’s operations (2,9)

²⁰ Average rating of the specific motivating factor given by corporations belonging to the respondent group ‘listed corporations’.

Listed corporations stated to be almost neutral, leaning towards somewhat agreeing, to be driven by external pressure resulting from societal discussions (3,2) and external pressure from customers, investors and/or suppliers (3,1). Furthermore, they stated to be neutral, leaning towards somewhat disagreeing, to be driven by external pressure from regulatory bodies, the government and/or international treaties (2,8) and increased efficiency in the corporation's operations (2,5). Corporations with science-based targets, on the other hand, stated they somewhat agree, but lean towards neutral, to be driven by external pressure resulting from societal discussions on the effects of climate change (3,8) and increased efficiency in the corporation's operations (3,8). Listed corporations with science-based targets stated they were neutral to external pressure resulting from societal discussions on the effects of climate change (3) and increased efficiency in the corporation's operations (3).

Comparing the open-ended question with the question where respondents were asked to rate the specific, pre-defined motivating factors, Listed corporations mentioned regulations, national targets and international treaties most frequently when they provided a short written response, while the same motivating factor ranked fifth when asked about specific motivating factors, with an average rating of 2,8. CSR, supporting sustainable development, risk management, being a market leader and responding to investor pressure were also mentioned in the open-ended question, and these are consistent with the top 4 rankings of the pre-defined motivators, all of which received an average rating of 3,1 or higher. This indicates that all four factors motivate listed corporations to set emissions reduction or net zero targets, but the internal factors may be marginally more important to listed corporations than the external factors. Corporations with science-based targets' stated motivations in the open-ended question mirror their top four rankings of the specific motivating factors, all of which received a rating of 4 or higher. Listed corporations with science-based targets did not report as many motivating factors in the open-ended question, but their responses are consistent with their top 2 rankings when asked about specific motivating factors, both receiving an average score of 3,5 or higher.

Overall, and with due limitations, considering both corporations' responses to the open-ended question and their ratings of specific motivating factors, it appears that corporations across all respondent categories are more motivated to reduce their emissions or set net zero targets due to competitiveness and internal values, and external pressures from regulation, international treaties and investors. On the other hand, increased efficiency and pressure from societal discussions about the impacts of climate change appear to be less influential. Moreover, the range, i.e. the difference between the highest and lowest ratings, of the respondent groups' answers when asked to rate the specific motivating factors is the largest for listed corporations but smallest for listed corporations with science-based targets. That means, that listed corporations portray stronger opinions regarding the specific motivating factors, while listed corporations with science-based targets are more neutral. This indicates that listed corporations may have clearer views on the motivating factors than the other two respondent categories.

4.2 Motivations for VCM Engagement

4.2.1 Current and Expected Future VCM Engagement

Out of the 18 survey responses considered for data analysis, 8 (44%) corporations currently engage with the VCM and 13 (72%) corporations plan to engage with the VCM in the future. 3 (17%) corporations claimed they were not sure whether they would engage with the VCM in the future or not. VCM engagement across all respondent categories is presented in Table 4-4.

Table 4-5. Respondents' current and expected future VCM engagement

Respondent Category	Total number of respondents	Respondents currently engaging with the VCM (rate)	Respondents expecting to engage with the VCM in the future (rate)
Listed Corporations	10	3 (30%)	5 (50%)
Corporations with Science-Based Targets	4	2 (50%)	5 (100%)
Listed Corporations with Science-Based Targets	4	3 (75%)	4 (100%)
Total	18	8 (44%)	13 (72%)

All respondents who stated they currently engage with the VCM also plan to continue doing so in the future. Only 2 of the corporations that stated they do not currently engage with the VCM do not plan to engage with the VCM in the future, meaning that the other 5 corporations that do not currently engage with the VCM plan to engage with the VCM in the future. The 2 corporations that do not plan to engage with the VCM in the future are listed corporations. The 3 corporations that are unsure whether or not they will engage with the VCM in the future are the same 3 corporations that have not set clear emission reduction or net zero targets, as discussed in section 4.1.

4.2.2 Business Culture and Organisation Theories

Decision-making style

When asked about the characteristics of four different decision-making styles, as conceptualised in section 2.4, respondents most frequently identified with the characteristics of the analytical decision-making style. Although the 'analytical style' was the most popular response, the other three styles were close behind. 4 listed corporations did not answer this question. An overview of how the three respondent categories identify with each of the four decision-making styles can be seen in Table 4-5.

Table 4-6. Decision-making styles of the corporations, categorised by the respondent categories

Respondent Category	Conceptual	Behavioural	Directive	Analytical	Did Not Answer
Listed Corporations	1	1	2	2	4
Corporations with Science-Based Targets	1	2	0	1	0
Listed Corporations with Science-Based Targets	1	0	1	2	0
Rate (n=18)	17%	17%	17%	28%	22%

Leadership style

When asked about the attributes of seven different leadership styles, as conceptualised in section 2.4, respondents most frequently identified with the attributes of the visionary leadership style, followed by the democratic leadership style, the coaching leadership style, and finally the pacesetter leadership style. No corporations identified with the autocratic, affiliative, or laissez-faire leadership styles. Three listed corporations did not answer this question. An overview of the reported leadership style across respondent categories is provided in Table 4-6.

Table 4-7. Leadership styles of the corporations, categorised by the respondent categories

Respondent category	Democratic	Pacesetting	Coaching	Visionary	Did Not Answer
Listed Corporations	3	1	1	2	3
Corporations with Science-Based Targets	1	0	1	2	0
Listed Corporations with Science-Based Targets	1	0	1	2	0
Rate (n=18)	28%	6%	17%	33%	17%

During the interviewing process, one interviewee discussed the effectiveness of the visionary leadership style when a sustainability-oriented manager established and pushed the sustainability agenda forward within the corporation (R3). One emphasised the importance of a pacesetting leadership style when trying to reduce the corporation’s emissions, as managers must lead by example in decision-making (R2). Another explained how a democratic leadership style is prominent when deciding what carbon project the corporation should purchase carbon credits from (R5). Two interviewees identified with the analytical decision-making style when they described how the corporations choose which carbon projects to purchase carbon credits from (R1, R3).

Organisational behaviour factors

As indicated in section 3.4.1 the corporations were asked to what extent four organisational behaviour factors; decision-making style, leadership style, the corporation’s ability to adjust processes and routines, and the corporation’s willingness to imitate or resemble other corporations’ strategies, explain their VCM engagement. This question aimed to examine the weight of the organisational behaviour factors conceptualised in section 2.4 in the corporations’ decision to engage with the VCM. The survey respondents were asked to rate how well each of the four factors explained their corporation’s engagement with the VCM on a scale from 1 to 5 (1=not at all, 2=slightly, 3=moderately, 4=considerably, and 5=very much). Listed corporations ranked the corporation’s decision-making style the highest (4,0), followed by the corporation’s leadership style (3,0), and the corporation’s ability to adjust processes and routines to different stakeholders’ demands (2,7). The willingness to imitate or resemble other corporations’ strategies was ranked the lowest among listed corporations (2,0). Corporations with science-based targets’ order of rankings is the same, but their rankings’ range is slightly smaller. Listed corporations with science-based targets ranked the corporation’s leadership style the highest (3,8), followed by the corporation’s ability to adjust processes and routines to different stakeholders’ demands (3,8), and the corporation’s decision-making style (3,5). Same as the other two respondent categories, listed corporations with science-based targets also rated the willingness to imitate or resemble other corporations’ strategies the lowest (2,8). Table 4-7 provides an overview of how the organisational behaviour factors influence the different respondent categories. The list is weighted, with the factors that best explain the corporations’ VCM engagement listed first.

Table 4-8. Ranking of organisational factors' influence on VCM engagement, categorised by respondent category

Ranking	Listed Corporations	Corporations with Science-Based Targets	Listed Corporations with Science-Based Targets	Total
1	The corporation's decision-making style (4,0)	The corporation's decision-making style (3,8)	The corporation's leadership style (3,8)	The corporation's decision-making style (3,7)
2	The corporation's leadership style (3,0)	The corporation's leadership style (3,5)	The corporation's ability to adjust processes and routines to different stakeholders' demands (3,8)	The corporation's leadership style (3,5)
3	The corporation's ability to adjust processes and routines to different stakeholders' demands (2,7)	The corporation's ability to adjust processes and routines to different stakeholders' demands (2,3)	The corporation's decision-making style (3,5)	The corporation's ability to adjust processes and routines to different stakeholders' demands (2,9)
4	The willingness to imitate or resemble other corporations' strategies (2,0)	The willingness to imitate or resemble other corporations' strategies (2,0)	The willingness to imitate or resemble other corporations' strategies (2,8)	The willingness to imitate or resemble other corporations' strategies (2,3)

Seeing how the corporations rate the influence of decision-making styles and leadership styles while comparing the corporations' stated decision-making styles and leadership styles to their VCM engagement reveals that corporations engage or plan to engage with the VCM irrespective of the corporation's decision-making styles or leadership styles. However, statistical testing is needed to confirm or deny this.

Corporations did not report being motivated by a potential increase in efficiency when setting emissions reduction or net zero targets, but here, the corporations' rating of 'the corporation's ability to adjust processes and routines to different stakeholders' demands' ranges from 2,3 to 3,5, indicating the factor slightly or moderately explains their VCM engagement. Furthermore, competitive pressures, such as internal motives of being market leaders and maintaining a competitive advantage, scored high (4,2 on average across all respondent categories) when asked about motivating factors for reducing emissions or setting net zero targets, but the factors 'willingness to imitate or resemble other corporations' strategies' received the lowest rating across all respondent categories when asked about motivations for engaging with the VCM, with an average of 2,3.

Again, the range of the corporations' ratings is the largest among listed corporations and the smallest among listed corporations with science-based targets, which may indicate that the former respondent category may have stronger opinions or clearer views on the influence of these four organisational behaviour factors on their VCM engagement.

When discussing business culture, interviewees emphasised the importance of managers' support to both set and then achieve environmental and sustainability targets (R2, R3, R8, R12). One interviewee stated that sustainability transitions within corporations result from top-down decisions, and it is not enough to have sustainability-oriented employees (R3).

With the analytical framework in mind, organisational behaviour is the theme that consists of the fewest quotes (2), and it seems as if corporations are not, to a large extent, motivated to engage with the VCM by the factors conceptualised in the five organisation theories discussed in section 2.4. However, two interviewees stated that their VCM engagement is partly explained by “*everybody else is doing it*” (R7, R9), which aligns with the Behavioural Theory of the Firm and Institutional Theory.

4.2.3 Motivating Factors for VCM Engagement

The corporations were asked how strongly they agree that eight different, specific factors motivate them to purchase carbon credits, on a scale from 1 to 5 (1=strongly disagree, 2=somewhat disagree, 3=neither agree nor disagree, 4=somewhat agree, and 5=strongly agree). Carbon management, supporting socially responsible and environmentally friendly start-ups, the corporation’s internal values, and supporting projects that sequester or reduce GHG emissions were the four factors that received a rating of 3,8 or higher across all respondent categories, indicating the corporations agree that those factors motivate them to purchase carbon credits. However, the respondents’ answers also indicate that the remaining four factors; external pressure resulting from societal discussions on the effects of climate change, external pressure from regulatory bodies, the government and/or international treaties, marketing, and external pressure from customers, investors and/or suppliers, do not motivate the corporations to engage with the VCM. Table 4-8 shows the corporations’ average ratings across respondent categories.

Table 4-9. Ranking of motivating factors for engaging with the VCM, categorised by respondent category

Ranking	Listed Corporations	Corporations with Science-Based Targets	Listed Corporations with Science-Based Targets	Total
1	Support projects that sequester or reduce GHG emissions (4,3)	Carbon management (4,5)	Support projects that sequester or reduce GHG emissions (4,5)	Carbon management (4,1)
2	Corporation’s internal values (4,0)	Support socially responsible and environmentally friendly start-ups (4,3)	Support socially responsible and environmentally friendly start-ups (4,0)	Support socially responsible and environmentally friendly start-ups (4,1)
3	Carbon management (4,0)	Corporation’s internal values (3,5)	Corporation’s internal values (3,8)	Corporation’s internal values (3,8)
4	Support socially responsible and environmentally friendly start-ups (4,0)	Support projects that sequester or reduce GHG emissions (2,8)	Carbon management (3,8)	Support projects that sequester or reduce GHG emissions (3,8)
5	External pressure resulting from societal discussions on the effects of climate change (3,3)	External pressure from regulatory bodies, the government and/or international treaties (2,5)	External pressure from customers, investors and/or suppliers (3,3)	External pressure resulting from societal discussions on the effects of climate change (2,9)
6	Marketing reasons (3,0)	External pressure resulting from societal discussions on the effects of climate change (2,3)	External pressure resulting from societal discussions on the effects of climate change (3,3)	External pressure from regulatory bodies, the government and/or international treaties (2,8)

7	External pressure from regulatory bodies, the government and/or international treaties (2,8)	Marketing reasons (2,0)	External pressure from regulatory bodies, the government and/or international treaties (3)	Marketing reasons (2,7)
8	External pressure from customers, investors and/or suppliers (2,0)	External pressure from customers, investors and/or suppliers (1,5)	Marketing reasons (3,0)	External pressure from customers, investors and/or suppliers (2,3)

Comparing the motivating factors for setting emissions reduction or net zero targets with those for purchasing carbon credits reveals some differences and similarities. The results indicate that Icelandic corporations are motivated by internal motives of being market leaders and/or maintaining a competitive advantage, the corporation’s internal values, external pressure from regulation, international treaties, and investors when setting emissions reduction or net zero targets. However, some of these same factors do not appear to influence carbon credit purchasing. As stated before, corporations across all respondent categories are motivated by carbon management, supporting socially responsible and environmentally friendly start-ups, the corporation’s internal values, and supporting projects that sequester or reduce GHG emissions when engaging with the VCM, and corporations are less motivated by external pressure resulting from societal discussions on the effects of climate change, the government and/or international treaties, marketing reasons, external pressure from regulatory bodies, the government and/or international treaties, and external pressure from customers, investors and/or suppliers when purchasing carbon credits.

‘The corporation’s internal values’ rank high in both rankings, i.e. it is a clear motivating factor for setting emissions reduction or net zero targets and for engaging with the VCM. It is, however, a more significant motivating factor when setting emissions reduction or net zero targets than for engaging with the VCM, with an average rating of 4,1 across all respondent categories, compared to 3,8. During the interviewing process, some interviewees stated they are driven by corporate values when deciding to engage with the VCM (R1, R2, R3, R4, R6, R7). Some state it is to support their internal values of being market leaders and set a good example for their customers and other corporations (R1, R3), while others say it is to contribute to CSR (R6, R7), or to support the SDGs (R2, R4).

Another motivating factor that ranks slightly higher when setting emissions reduction targets, but does not score as high as ‘the corporation’s internal values’, is ‘external pressure from societal discussions on the effects of climate change’, with an average rating of 3,3 when setting emissions reduction or net zero targets, compared to 2,9 when engaging with the VCM, indicating that corporations neither agree nor disagree that this factor motivates them to engaging with the VCM, but it is slightly more motivating when setting emissions reduction or net zero targets.

Similarly, ‘external pressure from regulatory bodies, the government and/or international treaties’, receives an average rating of 3,3 when corporations were asked about motivating factors for setting emissions reduction or net zero targets, but 2,8 when engaging with the VCM. While on average across all respondent categories, the motivating factor ‘external pressure from regulatory bodies, the government and/or international treaties’ is only slightly lower when engaging with the VCM, the change is rather drastic among corporations with science-based targets. When setting emissions reduction or net zero targets, the motivating factor ‘external pressure from regulatory bodies, the government and/or international treaties’ received an

average rating of 4 across corporations with science-based targets, while receiving an average rating of 2,5 when asked about motivating factors for engaging with the VCM.

‘Marketing reasons’ received an average rating of 2,7 across all respondent categories, indicating that it is not a highly motivating factor for engaging with the VCM, as the corporations stated they neither agree nor disagree, leaning towards somewhat disagreeing with the fact that marketing reasons motivate them to engage with the VCM. It is interesting to compare these results to the corporations’ motivations for setting emissions reduction or net zero targets, since the corporations, on average across all respondent categories, rank ‘internal motives of being market leaders and/or maintaining a competitive advantage’ as their number one motivating factor, with an average rating of 4,2. It is important to stress that marketing reasons are not the same as being market leaders or maintaining a competitive advantage, since corporations can be market leaders and maintain a competitive advantage over other corporations without publicising their environmental efforts. However, it cannot be ignored that the two are often interrelated.

‘External pressure from customers, investors and/or suppliers’ was ranked as the least motivating factor for engaging with the VCM, with an average score of 2,3 across all respondent categories. This same factor was ranked third when asked about the motivation for reducing emissions or setting net zero targets across all respondent categories, with an average rating of 3,4. Similarly as with the motivation factor ‘external pressure from regulatory bodies, the government and/or international treaties’, the difference is the most drastic among corporations with science-based targets, with an average rating of 4,5 when asked about the motivation for setting emissions reduction or net zero targets, compared to 1,5 when engaging with the VCM.

Corporations are also driven by competitive pressure when deciding to engage with the VCM. Some interviewees stated that competitiveness drives them to engage with the VCM (R7, R10, R12), while others are driven by carbon management, e.g. to achieve net zero goals in the future (R6, R12). Some state that it simply feels like the right thing to do when you publish your carbon accounting, claiming that it would be odd to disclose the corporation’s emissions without engaging in GHG reduction or sequestration activities (R9, R10). There were not many interviewees who claimed that their corporations are driven by institutional pressure, but one claimed to be driven by shareholders’ policies and demands (R2).

The results, therefore, indicate that corporations are not motivated by the claims they may be able to make when purchasing carbon credits, i.e. they are not driven by marketing reasons. Rather, corporations are mainly motivated to purchase carbon credits to support carbon projects, socially and environmentally responsible startups, internal values and net zero goals. Therefore, we can see that corporations are not entirely motivated by the same factors when setting emission reduction targets or net zero goals and when purchasing carbon credits. The results suggest that when setting emission reduction or net zero targets, corporations are, to a large extent, driven by competitive and institutional pressure, as conceptualised in section 2.2, while corporations are rather motivated by competitive pressures and corporate values, as conceptualised in section 2.2, when purchasing carbon credits.

4.3 Carbon Credit Preferences

All survey respondents, except for one, stated they establish criteria before purchasing carbon credits. 6 (33%) respondents stated they prefer to purchase more carbon credits from Icelandic projects rather than from international projects, while 4 (22%) respondents prefer to purchase carbon credits from international projects. 1 (6%) respondent stated they purchase an even mix of carbon credits from Icelandic and international projects, and 2 (11%) were not sure of their

preferences. The 5 (28%) corporations that have decided to not purchase carbon credits in the future, or are not sure if they will, did not answer this question.

When asked about what type of carbon credits they prefer, 5 (28%) survey respondents stated they preferred to purchase credits from projects employing nature-based solutions, while 2 (11%) respondents preferred credits from projects employing technical solutions. 5 (28%) respondents did not have a preference. 6 (33%) respondents did not answer this question.

4.3.1 Carbon Project Preferences

The majority of interviewees claimed to prefer ARR carbon removal credits (R3, R4, R6, R7, R12). One interviewee stated that this was because the corporation wanted to purchase credits that provided direct environmental benefits, and credits that people would immediately associate with the environment (R7). One stated it was because of the amount of research that has been done on forestry and carbon sequestration (R12). Another stated that they purchased ARR carbon removal credits because of the criticism they received when they purchased carbon reduction credits from renewable energy projects, as people believed that the project was not additional. The same interviewee explained that they had also purchased carbon reduction credits from cookstove projects in the past, attracted by the social co-benefits, but switched to ARR projects when the cookstove credits became too expensive. They did, however, state that they do not have a preference for ARR projects specifically, but today they rather seek to purchase certified removal credits, and out of the certified removal credits available, projects employing NbS are more affordable than those that employ technical solutions (R3). Some prefer to purchase carbon reduction credits or plan on purchasing carbon reduction credits in the future (R1, R8). One interviewee stated that their corporation does not currently purchase carbon credits, but will most likely purchase carbon reduction credits in the future from projects that are closely linked to their operations, stating that they would rather purchase credits from projects that aim to reduce or prevent negative environmental impact in the same sector in which they operate (R8). Another interviewee stated that they simply choose carbon reduction credits because they believe they are more economical (R1).

The majority of interviewees stated they would prefer to purchase carbon credits from Icelandic projects. They prefer Icelandic projects because they want to support local projects and local communities (R5, R6, R10, R12), support Icelandic entrepreneurship (R4), and because it would increase the corporations' proximity with the projects they are supporting, potentially improving transparency, communication and thereby improving the corporations' oversight of the projects they purchase credits from (R1, R5, R7, R11, R12). Some corporations state that they would prefer to purchase carbon credits from Icelandic projects, but due to the lack of certified carbon projects operating in Iceland, and how expensive the currently available certified carbon credits are, they choose to purchase carbon credits from international projects instead (R3, R10, R9). Some of the interviewees' corporations operate around the world and define 'local' as all the countries they operate in, not just Iceland. These corporations seek to purchase carbon credits from projects operating in the same countries as they operate in (R4). Two interviewees stated they like to purchase international carbon credits, either solely or along with credits from Icelandic projects because they think it is important to support communities that are the most vulnerable to climate change (R2, R6).

When choosing what carbon credits to purchase, corporations try to connect the carbon projects to the corporation's internal values (R2, R3, R5, R4). This is consistent with the survey results; internal values were ranked among the most motivating factors for purchasing carbon credits, with an average score of 3,8 across all respondent categories. Some want the corporation's image and values to be reflected in the carbon projects they purchase credits from (R5), while others want to purchase high-quality credits to reflect the corporation's value of

being best practice (R3). Corporations also try to choose carbon projects based on the SDGs they have committed to (R2, R3, R4), e.g. by choosing carbon projects that address poverty and gender equality. Furthermore, corporations prefer carbon projects that go beyond mere carbon benefits, stating they prefer projects that also provide social benefits (R3, R4, R6, R12), and conserve or restore biodiversity (R2, R6, R12).

Corporations do not only consider the projects' characteristics, but they also consider the project developers themselves (R2, R4, R5, R6, R10, R12). They want to support environmentally and socially conscious Icelandic start-ups and they want to support Icelandic project developers that have a clear, positive mission and vision (R2, R4).

Lastly, when choosing carbon projects, corporations consider the price of the credits the carbon projects offer, going for the cheaper option when choosing from a list of projects that meet their criteria (R1, R3, R7, R9). This means, that the price of credits is not a dominant criterion, but rather the final determinant when choosing a project.

4.3.2 Carbon Credit Criteria

Most prominently, interviewees consider the credits' certifications, i.e. the registry the project they are purchasing carbon credits from is listed on and the methodology and criteria the project must meet to be listed on that specific registry (R1, R2, R3, R4, R5, R6, R9, R10, R11, R12). Some only consider credits that are listed on a specific registry (R1, R2, R3, R4), while others simply establish the criteria that the credits they purchase are certified and validated by a third party (R6, R9, R10, R12). One interviewee (R7) stated that they do not purchase certified carbon credits, as they prioritise supporting an Icelandic, non-profit ARR project developer, over certifications. Another (R6) stated that they support some Icelandic project developers who have not received a certification yet, simply because a certification does not yet exist for these specific types of carbon projects. They do, however, purchase certified carbon credits as well.

The interviewees mentioned other specific factors that are important to them when purchasing carbon projects, such as additionality (R1, R4, R9), traceability (R4, R6), transparency and communication (R2, R5), environmental and social safeguards (R3, R9), the credits are sold ex-post (R3, R6), permanence of carbon sequestration (R6), and the credits are not double-counted (R12).

5 Discussion

Here, the research findings are discussed and compared with the findings from existing literature. An expert was consulted to understand what might cause specific similarities and differences between the analytical framework and the research findings, as well as to reflect on certain inconsistencies within the research findings. Here, an expert is defined as someone who operates on the VCM and is Icelandic and therefore understands the Icelandic market conditions well. Guðný Nielsen, founder of SoGreen²¹, was presented with the research findings and consulted in an unstructured meeting to learn her theories on what might cause specific similarities or differences between the analytical framework and the research findings, as well as certain inconsistencies within the research findings, along with her general reflections on the VCM and corporate engagement with the market. The purpose of this expert meeting was to enhance the credibility of the research findings and the discussions and to explain what might cause certain inconsistencies and differences. Thereafter, methodological aspects are revised and the limitations of the thesis are discussed.

5.1 Motivations for VCM Engagement

It can be argued that organisational behaviour factors do not influence Icelandic corporations' VCM engagement, and organisation theories do not explain why corporations purchase carbon credits. However, while the survey responses indicated that the corporations are not influenced by these factors, and the characteristics of specific organisation theories were not prominent among the interviewees' answers as well, few interviewees (R1, R2, R3, R5) specifically mentioned the importance of having managers' support, indicating that a corporation's leadership style plays an important role when deciding to both reduce emissions and engaging with the VCM. Hence, it can be argued that a corporation's business culture, and especially a corporation's leadership style influences VCM engagement.

It is also interesting to look at other factors, such as improved efficiency, which was not found to be a motivating factor for setting emissions reduction or net zero targets among Icelandic corporations. This could be due to the country's unique characteristics, such as the electricity mix. In addition, Icelandic corporations do not seem to be motivated by external pressures resulting from societal discussions about the impacts of climate change when setting emissions reduction or net zero targets, which differs from Berger-Schmitz's et al. (2023) findings, who define societal concern as an institutional pressure. The corporations did also not report being motivated by external pressure resulting from societal discussions on the effects of climate change when engaging with the VCM.

Furthermore, corporations did not report being motivated by external pressure from regulatory bodies, the government and/or international treaties, or external pressure from customers, investors and/or suppliers when purchasing carbon credits. This indicates that corporations are motivated by internal drivers rather than external drivers when engaging with the VCM, and this could be due to the voluntary nature of the market. Thus, it seems as if corporations are not driven by institutional pressures when engaging with the VCM, as defined by Berger-Schmitz et al. (2023). However, corporations reported to be more motivated by these external factors when setting emissions reduction or net zero targets instead.

Some other potential inconsistencies were identified when analysing the data. First, when asked about motivations for reducing emissions or setting net zero targets, corporations reported that

²¹ SoGreen is a carbon project that focuses on social co-benefits by reducing carbon emissions and increasing resilience of vulnerable communities through girls' education.

they were not motivated by a potential increase in efficiency, but when they were asked about the motivation for engaging with the VCM, they reported that their abilities to adjust processes and routines slightly or moderately explain their VCM engagement. It can be understood that corporations adjust their processes and routines to improve efficiency, but it can also be understood as their ability to change their corporate policies and strategies, e.g. their strategies regarding VCM engagement, rather than processes relating to production. Second, when asked about motivations for reducing emissions or setting net zero targets, corporations reported being motivated by competitive pressures, more specifically by internal motives of being market leaders and to maintain a competitive advantage. However, when asked about motivating factors for engaging with the VCM, corporations did not report being motivated by the willingness to imitate or resemble other corporations' strategies. This could mean that the corporations are already market leaders and want to maintain that competitive advantage, and thus do not need to resemble other corporations' strategies, as other corporations would rather seek to imitate their strategies. It is, however, interesting to then compare these findings to the interview findings, as two corporations specifically stated that what partly explains their VCM engagement is the fact that "*everybody else is doing it*", implying that they engage with the VCM to resemble or imitate other corporations' strategies.

Two interviewees (R1, R3) stated that what may potentially explain corporations' VCM engagement is the corporations' willingness to evolve instead of remaining stagnant. Furthermore, corporations believe that corporations' VCM engagement is dependent upon their resources (R1, R2, R5, R7). By resources, they mean financial resources (R5, R7), and human resources, knowledge and time (R1, R2). Here, the interviewees discuss that small corporations and start-ups may not have enough financial resources to spend on carbon credits, as they may prioritise surviving and generating profits. Additionally, smaller corporations may not have the capacity to hire employees who focus solely on sustainability, as the larger corporations do. Hence, the smaller corporations or companies may not have the same knowledge and time as the larger corporations. Therefore, the larger corporations may be more likely to engage with the VCM as they have the time and expertise to research the market.

As reported in the findings, marketing reasons are not a highly motivating factor for purchasing carbon credits, as the corporations state they neither agree nor disagree, leaning towards somewhat disagreeing with the fact that marketing reasons motivate them to purchase carbon credits. After a review of the corporations' publicly available documents, websites and advertisements, these findings seem accurate. While some corporations offered products labelled as "green", only one corporation made vague offsetting claims on their website, stating they are carbon neutral in scopes 1 and 2 after purchasing uncertified reduction carbon credits. Another corporation had made a public announcement of supporting a local carbon project developer, but they did not make any offsetting claims and their reporting was accurate. However, this announcement could be considered marketing. Overall, corporations do not include carbon credit purchases in their marketing but rather report on their VCM engagement in their annual or sustainability reports. Furthermore, corporations are careful when making claims regarding their VCM engagement. However, there are some exceptions as not all corporations refrain from publicising their VCM activities or make accurate claims, but, that is usually not the case.

Corporations' perceptions of the VCM are various, some interviewees stated they believe that sometimes corporations tend to use the VCM as an 'absolution', meaning that they purchase carbon credits as a way to justify their emissions and that the market must be carefully navigated (R3, R7). A few interviewees voiced that they think the VCM is overly complex (R1, R3, R6), lacks some regulation, resembles the Wild West (R3, R5, R10, R11) and that it is risky (R1, R6). On the other hand, the corporations believe the rules are getting clearer (R5, R6, R10), it is

becoming more trustworthy (R10), the VCM is exciting (R1), and a few black sheep should not be able to ruin an entire market that has the potential to financially support important projects with great societal impacts (R4). A few corporations do not engage with the VCM. While some (R4, R5) are waiting to see how the market develops following scandals, others (R8, R11) have decided to not engage with the VCM, not now or in the future. One simply because it is not mandatory, and they perceive it as yet another cost to be met (R8), while the other believes the VCM will not benefit their corporation (R11), and they do not trust the market (R11). The interviewee who stated they do not trust the VCM believes carbon projects lack financial additionality and that the VCM is full of people who just want to make money off of the climate crisis, especially in light of the market's complexity, as they cannot guarantee their money goes to the right people or the right causes.

Guðný Nielsen, the founder of SoGreen, challenges the prevailing myth that corporations merely offset emissions without actively reducing emissions within their value chains. Drawing from her extensive interactions with numerous corporations, she firmly believes that this notion is unfounded. Her first-hand experiences consistently reveal a predominant trend; corporations engaging with the VCM are earnestly committed to emission reduction initiatives throughout their value chains. She reiterates this by saying that the corporations that are not willing to spend time and effort to reduce emissions, will not spend the necessary amount of time and effort to purchase carbon credits. This is in line with the research findings; the three corporations that have not set clear emissions reduction or net zero targets are the same three corporations that do not know whether they would engage with the VCM in the future or not, i.e. they have not yet developed a VCM strategy.

5.2 Carbon Credit Purchasing Criteria

The results indicate that the corporates that currently engage with the VCM, or plan to engage with the VCM in the future, put their trust in the standardising bodies and their methodologies for certifying projects. While some solely trust a specific standardising body (R1, R2, R3, R4), others are not as strict, but rather just establish the criterion that the credits they purchase are certified (R6, R9, R10, R12). None of the interviewees claimed to question the standardising bodies' methodologies for certifying projects, implying they do trust these independent market actors despite the market's history. Some refer to the market's complexity, stating that they must put their faith in the standardising bodies, and believe they are working in good faith (R1). As reported in section 4.3.2, only a few interviewees specifically mentioned quality criteria such as additionality, traceability, transparency, etc., which could result from the corporations' trust in the standardising bodies. Also, as has been noted before, the VCM is complex, can be opaque and difficult to navigate. Therefore, due to high transaction costs, corporations may not have the resources to ensure that the projects' claims are correct and thus place their trust in the standardising bodies. One interviewee (R2) did, however, emphasise the importance of guaranteeing the projects you purchase carbon credits from are additional, as the corporation would take on a big reputational risk by not doing so, which could have great effects on stakeholders such as potential investors.

Guðný Nielsen mentioned that in her experience, corporations with science-based targets are not keen on purchasing carbon credits, but if they do, they seek to purchase certified, ex-post removal credits to offset residual emissions. Furthermore, she explained that Icelandic corporations in general put a lot of emphasis on purchasing credits that have been certified by a standardising body, as the research findings reflect. This is positive in a way that it is more likely that the projects the corporations purchase carbon credits from are additional, and truly deliver the value they claim. However, she believes there is a lack of understanding among many corporations of what a certification entails. Furthermore, understanding of ex-ante vs ex-post seems to be growing among corporations, but still, it's lacking. Guðný emphasises the

importance of corporations financing climate action beyond their value chain now, not only by purchasing certified ex-post carbon credits but also by purchasing ex-ante carbon credits, to ensure that the market can meet the demand for certified ex-post carbon credits in the future. And, more importantly, to prevent the passing of years where climate and social action is delayed. Also, projects that have limited up-front funding, may not survive because the certification period can take up to a few years, limiting the project's income from the sale of carbon credits. Corporations should see the important role they can play in advancing climate action by financing climate action up front. She criticizes the market's lack of involvement, stating that corporations often do not analyse the projects themselves, but states that multiple reasons explain that, e.g. corporations' limited resources; overall, corporations may not have the resources to deeply analyse carbon projects and the VCM.

A few years back, the main carbon credit providers in Iceland faced criticism for not having their credits certified. It should be said, that at the time, there were no verification bodies with the necessary accreditation in Iceland, which may have played a significant part. But also perhaps, the market was not demanding verification. The market has been educating itself more recently and now understands more the importance of verification. Guðný Nielsen believes that among the larger corporations knowledge on the importance of purchasing ex-ante credits to ensure climate action is taken, is growing, as well as the knowledge on how to correctly make claims and statements. Corporations claiming to be carbon neutral were very prominent a few years back, but she believes that corporations are more reluctant to make such claims today. She stated that when consulting with customers, she often guides the carbon credit buyers on what claims they are allowed to make, emphasising that net zero claims cannot be made unless the corporation follows specific guidelines and methodologies and purchases specific types of carbon credits, e.g., verified and ex-post. As a final remark, she used a pendulum as a metaphor for corporate environmental claims. At first, corporations made over-the-top claims and published very ambitious targets. Then, after backlash and greenwashing accusations, the pendulum swung to the opposite side and corporations did not report as much, stopped purchasing carbon credits, and were afraid of being accused of greenwashing. She believes that in due time, as pressure from the climate crisis increases, the pendulum will come to a balance, and corporations will focus on transparently and honestly reporting their sustainability actions, their environmental impacts and strategies, without making major claims, e.g. on carbon offsetting.

5.3 Carbon Credit Preferences

When choosing what carbon projects they should purchase carbon credits from, corporations try to match the credits' characteristics to the corporations' objectives and targets, with some seeking to purchase removal credits to meet their net zero objectives in the future, and others seeking to purchase reduction credits with an emphasis on social co-benefits to foster the corporation's internal values and contribute to the SDGs. Furthermore, similar to Lou et al.'s findings (2023), corporations seek to purchase carbon credits from projects that benefit local communities. The research findings reveal that Icelandic corporations prefer to purchase carbon credits from local carbon projects, whether they define them as Icelandic carbon projects or carbon projects operating in the same countries as the corporations do. This was especially evident during the interviewing process when the corporations discussed their VCM engagement in the past. Many interviewees stated that when they first started engaging with the VCM, they purchased carbon credits either from Kolviður (R1, R3, R4, R6, R7, R10, R12), or Votlendissjóður (R2, R9, R12). Kolviður is an Icelandic ARR project founded by the Icelandic Forestry Association and the Environment Agency of Iceland, but in April 2024, it is not yet certified. Votlendissjóður was an Icelandic project that aimed to restore drained wetlands, which, as mentioned in section 1.3.3, is one of Iceland's main emission sources. However, Votlendissjóður stopped issuing credits in early 2023 because currently, no standardising bodies

certify such projects since a verifying methodology does not exist for this specific type of project (Drífudóttir, 2023). All but two corporations decided to stop working with, or purchasing credits from these projects, and sought to purchase certified credits elsewhere instead as knowledge on the VCM grew. One interviewee stated that they continue to purchase credits from Kolviður, as they want to prioritise supporting local, Icelandic projects over purchasing credits from certified projects (R7), and another stated that they work in collaboration with the Icelandic Forestry Association, one of Kolviður's founders, as they purchase seedlings from the Forestry Association and plant themselves (R12).

Furthermore, after reviewing projects' characteristics concerning reduction vs removals, co-benefits, and location, corporations use price as a determining factor. Hence, it can be understood that the price of a carbon credit is not the most important purchasing criterion, but rather one, among many determinants when picking between two or more options. With that said, it can be argued that Icelandic corporates prioritise other criteria, such as co-benefits, over the price of the credit. This is a key finding for local carbon project developers. As was outlined in sections 1.3 and 2.1, it can be expensive to develop a carbon project due to the investments that must be made at the early stages of the project's development to ensure its quality. Therefore, it may be difficult for new projects to get established and for carbon start-ups to be scaled up to meet both market criteria and demand. However, if Icelandic project developers manage to cover these expenses at the early stages of the project's development to ensure its quality, they need to adjust their prices according to the market, making sure they are not more expensive than projects employing a similar solution and providing similar co-benefits. On the other hand, it seems as if they can price their credits higher than comparable credits issued by international projects, as Icelandic corporates prioritise purchasing credits from local project developers. On a similar note, a few corporations revealed that they are interested in engaging in collaborative carbon projects in the future with local project developers to have a direct say in how the project is designed and operated, along with bringing funding to the project (R5, R7, R12).

5.4 Corporate Commitments

But why do some corporations set more ambitious targets than others? One respondent explained that they chose to set emissions reduction targets rather than a net zero target because they felt they needed to get a better overview of their emissions across all scopes before committing to net zero (R6). They said that they do not want to publish a target that they might not be able to meet, as they can not demonstrate how they will achieve net zero. This suggests that some corporations are reluctant to set net zero targets because they want to prioritise quantifying their impact, i.e. getting a clear picture of their emissions before setting more ambitious targets, since they do not yet know how difficult it will be to achieve them. Corporations emphasise the importance of reaching net zero objectives correctly and ensure correct claims, i.e. corporations emphasise the fact that corporations cannot just use the VCM to purchase carbon credits equivalent to their current emissions to claim net zero, carbon credits should only be used to offset residual, hard-to-abate emissions after the corporation has reduced emissions as much as possible, or until decarbonisation is infeasible or too costly (R2, R4, R5, R6, R8, R10, R11, R12). One interviewee stated that it was prominent a few years ago that corporations were using the VCM to make net zero claims after purchasing credits that were not certified and sequestration had not been realised. However, they believe that corporations were not purposefully greenwashing at the time, it was simply a result of ignorance and unclear guidelines of best practices (R6). Today, however, the rules are getting clearer and interviewees agreed that net zero claims due to VCM engagement are pure greenwashing, carbon credits should only be used to offset residual emissions, and the credits that are used for offsetting purposes must be certified by a standardising body (R2, R4, R5, R6, R10, R11, R12).

Moreover, when analysing what corporations currently engage with the VCM, or plan to engage with the market in the future, it becomes apparent that the corporations that do not have clear goals regarding emissions reduction or a net zero target have not decided if they should engage with the VCM as a part of their strategy or not. This is, however, a positive result since corporations should prioritise reducing emissions over purchasing carbon credits, and carbon credits should only be used to offset residual, hard-to-abate emissions. On the other hand, engaging with the VCM does not equal purchasing carbon credits for offsetting emissions, although it is common. Engaging with the VCM can also involve Beyond Value Chain Mitigation (BVCM) activities, meaning that corporations can support carbon projects and help fund them without purchasing carbon credits for offsetting reasons. Therefore, corporations can engage with the VCM without having clear emissions reduction or net zero targets, but due to the complexity of the market, it is understandable that corporations that are still trying to figure out their impacts and developing a strategy cannot develop a VCM or BVCM strategy as well.

5.5 Reflections on Analytical and Methodological Choices

Regarding the methods for data analysis, an analytical framework was developed from existing theories and literature and then used as a guide when analysing Icelandic corporations. As has been shown in previous chapters, some aspects of the analytical framework were applicable in the Icelandic market context, while others were not. A comparison of the five major themes comprising the analytical framework with the research findings reveals that the organisational behaviour theme does not explain the research cases' engagement with the VCM. Although some interviewees expressed a desire to imitate the strategies of other firms, this factor is not sufficiently significant to justify its inclusion in the analytical framework, given that only a small number of respondents identified with it. Nevertheless, although it does not align with this research's cases, it could potentially explain the VCM engagement of other corporations of different sizes or within a specific sector. The four themes comprising the revised analytical framework are presented in Figure 5-1. Again, the outer circles influence, affect and interact with the subsequent inner circles, and vice versa since this is a dynamic process.

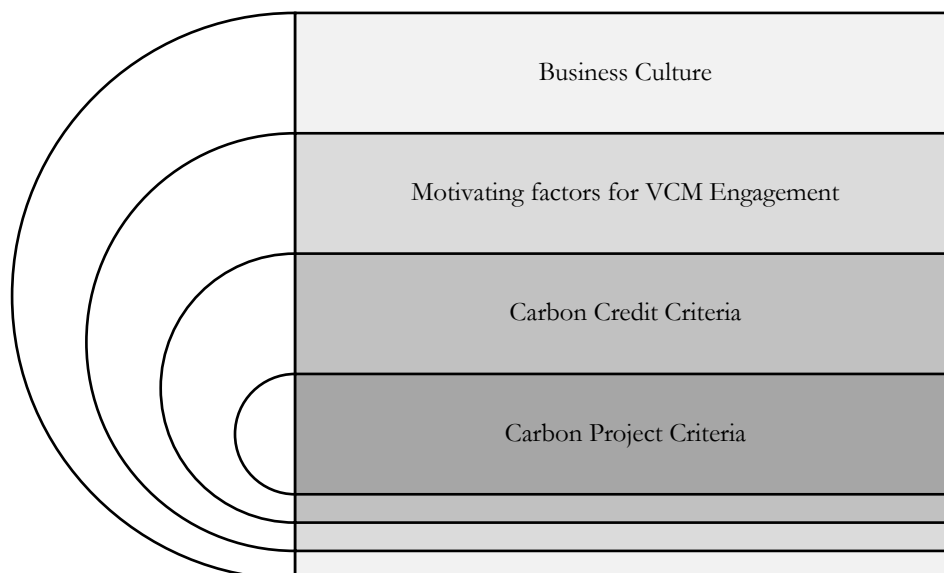


Figure 5-1. Revised analytical framework: Themes

Although the framework proved to be a useful tool when approaching the Icelandic market, the research findings and the analysis of the case corporations indicated that certain adjustments should be made to enhance the framework’s applicability in the future.

For example, the following changes should be considered :

- The case corporations did not identify with the commanding, affiliative, or laissez-faire leadership styles, and hence, these leadership styles are not included in the developed analytical framework.
- ‘Manager’s support’ is added to the developed analytical framework as interviewees stated that engaging with the VCM is a top-down decision.
- The case corporations are not driven by institutional pressures when engaging with the VCM and that motivating factor is thus not included in the developed analytical framework.
- The case corporations are not motivated by efficiency measures when engaging with the VCM, so that factor is not included in the developed framework.

Based on the above, a new version of the analytical framework, including all four themes, ten categories and key factors, is presented in Figure 5-2.

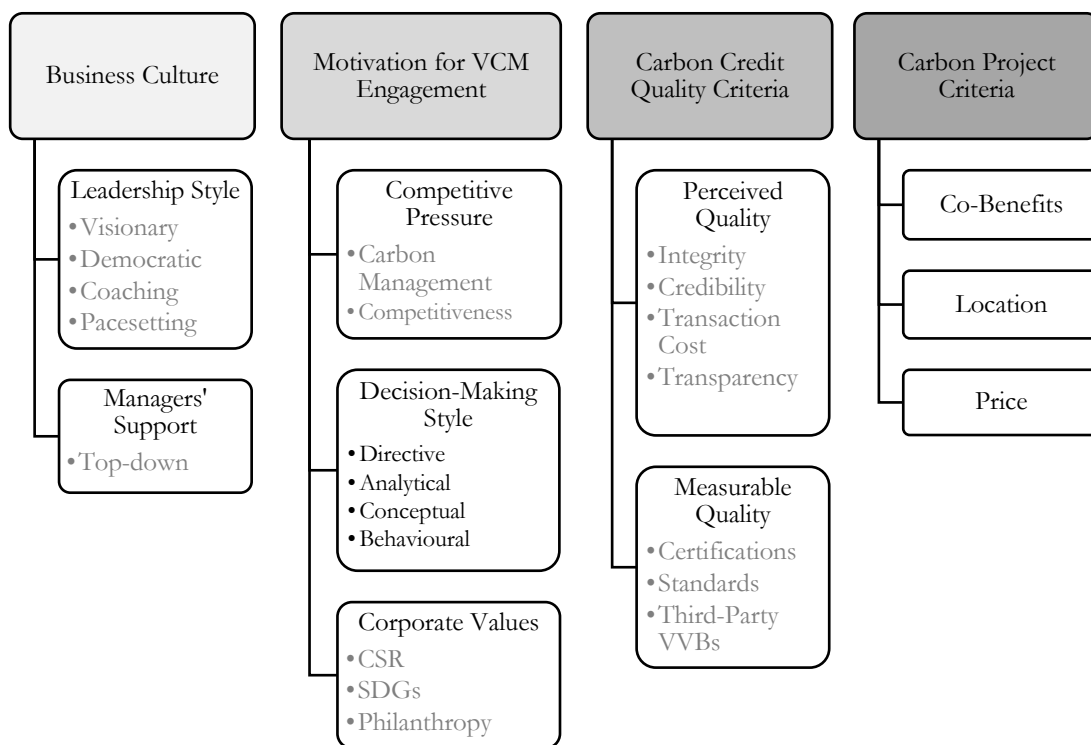


Figure 5-2. Revised analytical framework: Themes, categories and key-factors

When it comes to methods for data collection, many aspects deserve our attention. First, a survey was used to collect data. Surveys are limited by several factors, including sampling bias, inability to determine causality, and their degrees of freedom, i.e. the number of responses the survey gets, and the number of questions devoted to specific contextual conditions, e.g. motivations for VCM engagement, carbon credit criteria, or carbon credit preferences (Yin, 2011). This means for example, that the number of responses determines how accurately the researcher can test whether survey results are, or not statistically significant. Due to this

limitation, and the limited number of responses due to the small sample size, statistical tests were not carried out as they would likely not be representative of the entire population. Furthermore, the survey consisted mostly of closed questions, except for two short-answer questions. Closed questions are limited in the sense that the answers may reveal how a phenomenon or a situation is, but not why, i.e. closed questions cannot explain causes, but rather describe situations, phenomena and trends in the data (Creswell, 2012).

Second, interviews were also conducted to collect data. When conducting interviews, there is always the risk of the researcher's personal biases influencing the data analysis and results (Yin, 2011). The researcher's perception of the world will always be influenced by their environment, upbringing and experiences, and influence how they interpret the interviewees' answers. Therefore, it must be acknowledged that multiple interpretations exist and this is fostered in the constructivist worldview. Furthermore, the data collected will always be limited to the researcher's interactions with the interviewees and their self-reported behaviour. Therefore, it should be acknowledged that the interviewee's self-reported behaviour may not accurately represent reality (Yin, 2011).

Multiple methods for data collection were employed in an attempt to compensate for the aforementioned limitations and to ensure triangulation of data. Firstly, as stated before, surveys are limited since they mostly consist of closed questions. Therefore, conducting interviews as well allows the researcher to obtain more detailed descriptions of behaviour and perceptions, to supplement the information gathered in the surveys. Secondly, as stated above, interview findings will always be seen through the lens of the researcher, inevitably introducing some biases to the research findings. Therefore, introducing a quantitative element through descriptive statistics allows the researcher to potentially reduce some of these personal biases since trends in the qualitative data become more evident. Lastly, by supplementing the primary data with secondary data from publicly available corporate documentation, the researcher can cross-reference self-reported behaviour during the interviews to ensure more accurate findings.

Since corporations' motivation for engaging with the VCM is a topic that has not been studied extensively before, and to foster the constructivist worldview, a mixed method research, with a greater emphasis on the qualitative aspect, was carried out. As outlined in section 3.3, qualitative research is good when a researcher wants to conduct an in-depth study of a real-world setting and when studying a phenomenon that has not been studied extensively before (Creswell, 2012; Yin, 2011). The quantitative aspect was introduced in the analysis in the form of descriptive statistics. A greater emphasis could have been placed on the quantitative aspect, e.g. by using more in-depth and detailed statistical testing of corporations' preferences and the different relationships between specific factors. However, due to the size of the sample, and the researcher's limited timeframe, such analysis was not carried out. Furthermore, if the research had had a longer timeframe, the response rate could have been higher, resulting in more accurate findings that could more accurately represent the Icelandic market, and a more detailed data analysis could have been carried out.

6 Conclusion

This thesis aimed to increase our understanding of what motivates Icelandic corporations, committed to reducing their emissions, to engage with the VCM, and understand their carbon credit criteria and specific carbon credit preferences. Three research questions were posed, which will now be answered.

RQ1: *What factors motivate Icelandic corporations that are committed to reducing their emissions to engage with the voluntary carbon market?*

Most prominently, corporate values and competitive pressures motivate Icelandic corporations that are committed to reducing their emissions to engage with the VCM. More specifically, their corporate values include:

- Being market leaders and role models
- Contributing to CSR
- Supporting the SDGs

Competitive pressures include:

- Competitiveness
- Carbon management

Findings suggested that Icelandic corporations decide to engage with the VCM because they want to maintain the image of being first-movers and market leaders, and they want to inspire their customers and other corporations to do good. Furthermore, they believe the VCM to be an opportunity to contribute to CSR responsibilities by positively affecting the environment and the community, as well as supporting selected SDGs. Results also suggested that corporations are also driven to engage with the VCM by competitiveness, as they believe that VCM engagement may keep them ahead of competing firms by doing things better or differently than other firms, resembling other firms' strategies to not fall behind, and in hopes of attracting the best employees and investors. Finally, the corporations engage with the VCM to achieve their net zero goals, strategically purchasing carbon credits today which they can potentially use to offset residual emissions in the future. Managers' support must also be highlighted, since a corporation's VCM strategy will, to a large extent, depend upon the managers' perception of the market since the decision to engage with the VCM follows a top-down approach. Hence, managers' support and their leadership style also appeared to influence the corporations' motivation to engage with the VCM and their strategy.

RQ2: *What criteria guide these corporations when selecting what carbon projects to purchase carbon credits from?*

The sampled corporations consider various quality criteria when selecting what carbon projects to purchase carbon credits from. Additionally, they stated a preference for purchasing carbon credits from Icelandic carbon projects that have received a certification from a standardising body and validated by third-party VVBs. Furthermore, the carbon credits should align with the corporation's values, generate co-benefits, and/or contribute to selected SDGs. Lastly, the price of the credits, along with the aforementioned criteria, is considered. Hence the criteria are:

- Certifications
- Third-party VVBs
- The project fits the corporation's values
- Co-benefits

- The project supports SDGs
- Price

The corporations consider certifications to be the top criterion for any credits they purchase. Furthermore, the majority of the corporations prefer to purchase carbon credits from local projects, to support local start-ups and local communities, and to support individual local project developers. However, due to the limited supply of certified Icelandic carbon credits that are available at reasonable prices, corporations seek to purchase credits from international projects instead. Hence, price emerges as a more determining factor when choosing which projects to purchase credits from.

While most prefer to support local projects, some seek to purchase carbon credits from international projects as they believe they should support the communities most greatly affected by climate change.

Lastly, when choosing which carbon projects to purchase carbon credits from, corporations seek to purchase credits from projects the corporations can relate to. For some, that means the project's values should align with the corporation's values, or contribute to the same SDGs as the corporation is committed to. For others, it means that the carbon project should operate within, or affect the same sector as the corporation does, or operate in the same country as the corporation does.

RQ3: *What are the corporations' specific carbon credit preferences?*

Icelandic corporations purchase various kinds of carbon credits. Most prominently, corporations seek to purchase removal credits, and of the removal credits available on the market, ARR credits are the most affordable option. Some corporations seek to purchase carbon reduction credits from cookstove projects, as they provide greater social co-benefits, but these credits are more expensive.

Corporations want to support local projects and local project developers. This means, that corporations would prefer to purchase carbon credits from projects operating in Iceland to positively affect the Icelandic environment and society. However, due to a lack of certified local projects, corporations purchase international credits instead as they prioritise certifications over the projects' specific location. Furthermore, corporations want to support specific Icelandic project developers, operating in Iceland or internationally. Finally, some define 'local' as the same countries in which the corporation operates, meaning that Icelandic corporations that operate internationally may choose to purchase carbon credits from projects that operate in the same places. This means that Icelandic corporations prefer to purchase carbon credits from specific locations, but the availability of certified credits and the credits' price may push the corporations to relax on this condition.

6.1 Academic and Practical Contribution

The main contribution of the research is that it is the first to address the demand side of the voluntary carbon market in Iceland. First, it provides a review of previous literature on the subject of motives for VCM engagement, criteria, and preferences for carbon credits. The findings from the literature were used to guide the analysis of the Icelandic market, and the results provide great insights for future research. It is important to study Iceland specifically as it differs in many ways from other countries with which it is often compared, e.g. in terms of electricity mix, geological composition and main sources of emissions, and due to this, literature findings may not apply in the Icelandic context. By exploring the motivations for VCM engagement and preferences for carbon credits among Icelandic corporations, the research

paves the way for future research on the Icelandic market, and in particular allows for further research on topics such as VCM policy implementation and regulation, as we now understand the market better.

This research will benefit many others, such as local practitioners, businesses and policymakers, but most importantly it will benefit local carbon project developers by providing valuable market insights. It will give project developers a better sense of how to meet market criteria, allowing them to develop projects with the confidence that market demand exists.

6.2 Recommendations for Future Research

The demand side of the VCM is a topic that has not been researched extensively before, especially in the case of Iceland, and many opportunities for further research exist. Most prominently, similar research can be conducted for greater improvement of the framework, so it better applies to a greater number of corporations across sectors, sizes, and environmental targets. Furthermore, the framework can be developed for specific groups of corporations, so that it best applies to larger or smaller corporations, corporations with net zero or emissions reduction targets, corporations that operate internationally, or corporations that belong to certain sectors. Furthermore, it would be interesting to conduct a similar research as has been outlined in this thesis, but over a longer period and including more cases. This would allow for more detailed and accurate statistical testing for a more accurate framework.

Future research can also build on this research's findings. This includes research on certain policies, regulations, or voluntary initiatives. In particular, it would be interesting to research BVCM and the market's reaction to these new guidelines. Furthermore, research focusing on green claims and the VCM could be of value. Lastly, it would be interesting to research why some corporations choose to set emissions reduction targets while others set more ambitious goals like net zero, and if this affects corporations' willingness to engage with the VCM.

Bibliography

- American Carbon Registry. (n.d.). *Voluntary Carbon Market*. Retrieved 5 January 2024, from <https://acrcarbon.org/our-markets/voluntary-carbon-market/>
- Arneth, A., F. Denton, F. Agus, A. Elbehri, K. Erb, B. Osman Elasha, M. Rahimi, M. Rounsevell, A. Spence, R. Valentini. (2019). Framing and Context. In: *Climate Change and Land: an IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems* [P.R. Shukla, J. Skea, E. Calvo Buendia, V. Masson-Delmotte, H.-O. Pörtner, D.C. Roberts, P. Zhai, R. Slade, S. Connors, R. van Diemen, M. Ferrat, E. Haughey, S. Luz, S. Neogi, M. Pathak, J. Petzold, J. Portugal Pereira, P. Vyas, E. Huntley, K. Kissick, M. Belkacemi, J. Malley, (eds.)]. <https://doi.org/10.1017/9781009157988.003>
- Battocletti, V., Enriques, L., & Romano, A. (2023). *The Voluntary Carbon Market: Market Failures and Policy Implications* (SSRN Scholarly Paper 4380899). <https://doi.org/10.2139/ssrn.4380899>
- Baumol, W. J., & Oates, W. E. (1971). The Use of Standards and Prices for Protection of the Environment. In P. Bohm & A. V. Kneese (Eds.), *The Economics of Environment* (pp. 53–65). Palgrave Macmillan UK. https://doi.org/10.1007/978-1-349-01379-1_4
- Berger-Schmitz, Z., George, D., Hindal, C., Perkins, R., & Travaille, M. (2023). What explains firms' net zero adoption, strategy and response? *Business Strategy and the Environment*, bse.3437. <https://doi.org/10.1002/bse.3437>
- BeZero. (2024). *Ex Post Methodology: BeZero Carbon Ratings*. <https://a.storyblok.com/f/179543/x/fb02bf0237/ex-post-the-bezero-carbon-rating-methodology.pdf>
- Bhatti, N., Maitlo, G. M., Shaikh, N., Hashmi, M. A., & Shaikh, Faiz. M. (2012). The Impact of Autocratic and Democratic Leadership Style on Job Satisfaction. *International Business Research*, 5(2), p192. <https://doi.org/10.5539/ibr.v5n2p192>
- Blaufelder, C., Levy, C., Mannion, P., & Pinner, D. (2021). *A blueprint for scaling voluntary carbon markets to meet the climate challenge*. McKinsey & Corporation. <https://www.mckinsey.com/capabilities/sustainability/our-insights/a-blueprint-for-scaling-voluntary-carbon-markets-to-meet-the-climate-challenge>
- Boston Consulting Group. (2023, January 19). *The Voluntary Carbon Market Is Thriving*. BCG. <https://www.bcg.com/publications/2023/why-the-voluntary-carbon-market-is-thriving>

- Brnkalakova, S., Světlík, J., Brynleifsdóttir, S. J., Snorrason, A., Baštáková, V., & Kluvankova, T. (2021). Afforesting Icelandic land: A promising approach for climate-smart forestry? *Canadian Journal of Forest Research*, 51(12), 1781–1790. <https://doi.org/10.1139/cjfr-2020-0312>
- Broekhoff, D., & Spalding-Fecher, R. (2021). Assessing crediting scheme standards and practices for ensuring unit quality under the Paris agreement. *Carbon Management*, 12(6), 635–648. <https://doi.org/10.1080/17583004.2021.1994016>
- Burnes, B., & James, H. (1995). Culture, cognitive dissonance and the management of change. *International Journal of Operations & Production Management*, 15(8), 14–33. <https://doi.org/10.1108/01443579510094062>
- Carroll, A. B. (1991). The pyramid of corporate social responsibility: Toward the moral management of organizational stakeholders. *Business Horizons*, 34(4), 39–48.
- Chen, S., Marbough, D., Moore, S., & Stern, K. (2021). Voluntary Carbon Offsets: An Empirical Market Study. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3981914>
- Chukwusa, J. (2018). Autocratic leadership style: Obstacle to success in academic libraries. *Library Philosophy and Practice*, 1.
- Climate Action Reserve. (n.d.). *Voluntary Offset Program*. Climate Action Reserve. Retrieved 5 January 2024, from <https://www.climateactionreserve.org/how/voluntary-offset-program/>
- Coase, R. H. (1960). The Problem of Social Cost. *The Journal of Law and Economics*, 3, 1–44. <https://doi.org/10.1086/466560>
- Creswell, J. W. (2012). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (4th ed). Pearson.
- Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (Fifth edition). SAGE.
- Dales, J. H. (1968). Land, Water, and Ownership. *The Canadian Journal of Economics*, 1(4), 791. <https://doi.org/10.2307/133706>
- David, D., Yoshino, M., & Varun, J. P. (2022a). Developing FinTech Ecosystems for Voluntary Carbon Markets Through Nature-Based Solutions: Opportunities and Barriers in ASEAN. In F. Taghizadeh-Hesary & S. Hyun (Eds.), *Green Digital Finance and Sustainable Development Goals* (pp. 111–142). Springer Nature Singapore. https://doi.org/10.1007/978-981-19-2662-4_6

- David, D., Yoshino, M., & Varun, J. P. (2022b). Developing FinTech Ecosystems for Voluntary Carbon Markets Through Nature-Based Solutions: Opportunities and Barriers in ASEAN. In F. Taghizadeh-Hesary & S. Hyun (Eds.), *Green Digital Finance and Sustainable Development Goals* (pp. 111–142). Springer Nature. https://doi.org/10.1007/978-981-19-2662-4_6
- Denton, G., Chi, O. H., & Gursoy, D. (2020). An examination of the gap between carbon offsetting attitudes and behaviors: Role of knowledge, credibility and trust. *International Journal of Hospitality Management*, *90*, 102608. <https://doi.org/10.1016/j.ijhm.2020.102608>
- Downey, L. (2023, March 26). *What Are Transaction Costs? Definition, How They Work, and Example*. Investopedia. <https://www.investopedia.com/terms/t/transactioncosts.asp>
- Drífudóttir, E. M. G. (2023, February 1). *Votlendissjóður dregur saman seglin og bíður eftir vottun*. RÚV. <https://www.ruv.is/frettir/innlent/2023-02-01-votlendissjodur-dregur-saman-seglin-og-bidur-efir-vottun/>
- Edmonds, J., Yu, S., Mcjeon, H., Forrister, D., Aldy, J., Hultman, N., Cui, R., Waldhoff, S., Clarke, L., Clara, S. D., & Munnings, C. (2021). How Much Could Article 6 Enhance Nationally Determined Contributions Ambition Toward Paris Agreement Goals Through Economic Efficiency? *Climate Change Economics*, *12*(02), 2150007. <https://doi.org/10.1142/S201000782150007X>
- Ellerman, A. Denny. (2005). A Note on Tradeable Permits. *Environmental & Resource Economics*, *31*(2), 123–131. <https://doi.org/10.1007/s10640-005-1760-z>
- European Commission. (n.d.). *Effort sharing 2021-2030: Targets and flexibilities*. Retrieved 21 February 2024, from https://climate.ec.europa.eu/eu-action/effort-sharing-member-states-emission-targets/effort-sharing-2021-2030-targets-and-flexibilities_en
- European Environment Agency. (n.d.-a). *Comparison of cumulative historical and projected Land Use, Land Use Change and Forestry (LULUCF) emissions and removals per Member State* [Data Visualization]. Retrieved 21 February 2024, from https://www.eea.europa.eu/data-and-maps/daviz/comparison-of-cumulative-historical-and-2#tab-chart_1
- European Environment Agency. (n.d.-b). *EU emissions and removals of the LULUCF sector by main land use category* [Data Visualization]. Retrieved 21 February 2024, from https://www.eea.europa.eu/data-and-maps/daviz/eu-emissions-and-removals-of-2/#tab-chart_3
- European Union. (2015). *EU ETS handbook*.

- Eyjolfsdóttir, H. M., & Smith, P. B. (1996). Icelandic Business and Management Culture. *International Studies of Management & Organization*, 26(3), 61–72.
- Feagin, J. R., Orum, A. M., & Sjöberg, G. (1991). *A case for the case study*. University of North Carolina press.
- Flanagin, A. J., & Metzger, M. J. (2008). The credibility of volunteered geographic information. *GeoJournal*, 72(3–4), 137–148. <https://doi.org/10.1007/s10708-008-9188-y>
- Friedmann, J., & Potts, M. D. (2023, October 13). *Removal, reduction, and avoidance credits explained*. Carbon Direct. <https://www.carbon-direct.com/insights/how-do-carbon-credits-actually-work-removal-reduction-and-avoidance-credits-explained>
- Geels, F. W. (2011). The multi-level perspective on sustainability transitions: Responses to seven criticisms. *Environmental Innovation and Societal Transitions*, 1(1), 24–40. <https://doi.org/10.1016/j.eist.2011.02.002>
- Ghaleigh, N. S., & Macinante, J. (2023). Déjà vu All Over Again: Carbon Dioxide Removals (CDR) and Legal Liability. *Journal of Environmental Law*, 35(3), 377–400. <https://doi.org/10.1093/jel/eqad022>
- Gold Standard. (n.d.). *Gold Standard Carbon Credits*. Gold Standard Marketplace. Retrieved 5 January 2024, from <https://marketplace.goldstandard.org/collections/projects>
- Greenfield, P. (2023, January 18). Revealed: More than 90% of rainforest carbon offsets by biggest certifier are worthless, analysis shows. *The Guardian*. <https://www.theguardian.com/environment/2023/jan/18/revealed-forest-carbon-offsets-biggest-provider-worthless-verra-aoe>
- Gruber, J. (2019). *Public finance and public policy* (Sixth Edition). Worth Publishers.
- Gulleggið. (n.d.). *Um Gulleggið*. Gulleggið. Retrieved 22 February 2024, from <https://gulleggið.is/um-gulleggið/>
- Hálfðánardóttir, A. (2023, August 18). *Íslenski kolefnismarkaðurinn að springa út: „Talað eins og þetta sé hinn nýi gjaldmiðill“ - RÚV.is*. RÚV. <https://www.ruv.is/frettir/innlent/2023-08-18-islenski-kolefnismarkadurinn-ad-springa-ut-talad-eins-og-thetta-se-hinn-nyi-gjaldmidill-389949/>
- Halton, C. (2022, September 14). *Search Cost: What it is, How it Works, Examples*. Investopedia. <https://www.investopedia.com/terms/s/search-cost.asp>
- Hooper, A. (Ed.). (2016). *Leadership perspectives*. Routledge, Taylor & Francis Group.
- Hsieh, H.-F., & Shannon, S. E. (2005). Three Approaches to Qualitative Content Analysis. *Qualitative Health Research*, 15(9), 1277–1288. <https://doi.org/10.1177/1049732305276687>

- Huber, E., Bach, V., & Finkbeiner, M. (2024). A qualitative meta-analysis of carbon offset quality criteria. *Journal of Environmental Management*, 352, 119983. <https://doi.org/10.1016/j.jenvman.2023.119983>
- Icelandic Meteorological Office. (2024, February 9). *Janúarmanúður sá hlýjasti í sögu jarðar en í kaldara lagi á Íslandi*. Veðurstofa Íslands. <https://vedur.is/um-vi/frettir/januarmanudur-sa-hlyjasti-i-sogu-jardar-en-i-kaldara-lagi-a-islandi-1>
- International Carbon Registry. (n.d.). *What is a carbon credit?* International Carbon Registry. Retrieved 2 February 2024, from <https://www.carbonregistry.com/>
- International Energy Agency. (n.d.). *Bioenergy*. IEA. Retrieved 15 February 2024, from <https://www.ica.org/energy-system/renewables/bioenergy>
- IPCC, 2018: Summary for Policymakers. In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T.
- Íslenski Sjávarklasinn. (n.d.). Um okkur. Íslenski sjávarklasinn. Retrieved 22 February 2024, from <https://sjavarklasinn.is/um-okkur/>
- Karlsen, J. T., & Berg, M. E. (2020). Coaching leadership style: A learning process. *International Journal of Knowledge and Learning*, 13(4), 356. <https://doi.org/10.1504/IJKL.2020.111143>
- Koh, L. P., Zeng, Y., Sarira, T. V., & Siman, K. (2021). Carbon prospecting in tropical forests for climate change mitigation. *Nature Communications*, 12(1), 1271. <https://doi.org/10.1038/s41467-021-21560-2>
- KPMG. (2024). *How can we scale a trusted voluntary carbon market?* <https://assets.kpmg.com/content/dam/kpmg/sg/pdf/2024/01/how-can-we-scale-a-trusted-voluntary-carbon-market.pdf>
- Kreibich, N., & Hermwille, L. (2021). Caught in between: Credibility and feasibility of the voluntary carbon market post-2020. *Climate Policy*, 21(7), 939–957. <https://doi.org/10.1080/14693062.2021.1948384>
- Krugman, P. R., Obstfeld, M., & Melitz, M. J. (2018). *International economics: Theory & policy* (Eleventh edition, global edition). Pearson.

- Lal, R. (2009). Potential and Challenges of Soil Carbon Sequestration in Iceland. *Journal of Sustainable Agriculture*, 33(3), 255–271. <https://doi.org/10.1080/10440040802395015>
- Lou, J., Hultman, N., Patwardhan, A., & Mintzer, I. (2023). Corporate motivations and co-benefit valuation in private climate finance investments through voluntary carbon markets. *Npj Climate Action*, 2(1), 32. <https://doi.org/10.1038/s44168-023-00063-4>
- M. Taylor, C., J. Cornelius, C., & Colvin, K. (2014). Visionary leadership and its relationship to organizational effectiveness. *Leadership & Organization Development Journal*, 35(6), 566–583. <https://doi.org/10.1108/LODJ-10-2012-0130>
- Macalister, T. (2007, June 18). Offsetting chief warns of carbon cowboys. *The Guardian*. <https://www.theguardian.com/business/2007/jun/18/consumernews.money>
- Mendelsohn, R. O., Litan, R. E., & Fleming, J. (2021). *A framework to ensure that voluntary carbon markets will truly help combat climate change*. Brookings Institute. <https://www.brookings.edu/articles/a-framework-to-ensure-that-voluntary-carbon-markets-will-truly-help-combat-climate-change/>
- Miltenberger, O., Jospe, C., & Pittman, J. (2021). The Good Is Never Perfect: Why the Current Flaws of Voluntary Carbon Markets Are Services, Not Barriers to Successful Climate Change Action. *Frontiers in Climate*, 3, 686516. <https://doi.org/10.3389/fclim.2021.686516>
- Ministry of Higher Education, Science and Innovation. (2022, October 17). *Frumkvöðlastarf meðal ungs fólks eftt með samstarfssamningi við Unga frumkvöðla*. <https://www.stjornarradid.is/efst-a-baugi/frettir/stok-frett/2022/10/17/Frumkvodlastarf-medal-ung-folks-eflt-med-samstarfssamningi-vid-Unga-frumkvodla-/>
- Montgomery, W. D. (1972). Markets in licenses and efficient pollution control programs. *Journal of Economic Theory*, 5(3), 395–418. [https://doi.org/10.1016/0022-0531\(72\)90049-X](https://doi.org/10.1016/0022-0531(72)90049-X)
- Morgan Stanley. (2023, April 11). *Where the Carbon Offset Market Is Poinsed to Surge*. <https://www.morganstanley.com/ideas/carbon-offset-market-growth>
- Nasdaq. (n.d.). *Shares—Share prices for all corporations listed on*. NASDAQ OMX NORDIC. Retrieved 27 February 2024, from <https://www.nasdaqomxnordic.com/shares>
- Nikolakis, W., & Guðjónsson, G. (2021). Building voluntary partnerships for climate action: An exploratory study from Iceland. *Cleaner and Responsible Consumption*, 3, 100023. <https://doi.org/10.1016/j.clrc.2021.100023>

- Nordic Council of Ministers. (2020). *The Road Towards Carbon Neutrality: In the different Nordic Countries*.
<https://norden.diva-portal.org/smash/get/diva2:1462071/FULLTEXT01.pdf>
- Orkustofnun. (2023). *Installed electrical capacity and electricity production in Icelandic power stations 2022* (OS-2023-T002-01) [dataset].
- Oxford Dictionary. (n.d.). *Credibility*.
- Pan, C., Li, C., An, A., Deng, G., Lin, J. K., He, J., Li, J. F., Zhu, X., Zhou, G., Shrestha, A. K., Kozak, R., & Wang, G. (2023). Canada's Green Gold: Unveiling Challenges, Opportunities, and Pathways for Sustainable Forestry Offsets. *Forests*, *14*(11), 2206. <https://doi.org/10.3390/f14112206>
- Pan, C., Shrestha, A., Innes, J. L., Zhou, G., Li, N., Li, J., He, Y., Sheng, C., Niles, J.-O., & Wang, G. (2022). Key challenges and approaches to addressing barriers in forest carbon offset projects. *Journal of Forestry Research*, *33*(4), 1109–1122. <https://doi.org/10.1007/s11676-022-01488-z>
- Park, D. (1996). Gender role, decision style and leadership style. *Women in Management Review*, *11*(8), 13–17.
<https://doi.org/10.1108/09649429610148737>
- Perloff, J. M. (2015). *Microeconomics* (Seventh edition). Pearson.
- Plan Vivo. (2020, September 18). *What are Plan Vivo Certificates?* Plan Vivo Foundation.
<https://www.planvivo.org/pvcs>
- Poynting, M. (2024, February 8). World's first year-long breach of key 1.5C warming limit. *BBC News*.
<https://www.bbc.com/news/science-environment-68110310>
- Ragnheidardóttir, E., Sigurdardóttir, H., Kristjansdóttir, H., & Harvey, W. (2011). Opportunities and challenges for CarbFix: An evaluation of capacities and costs for the pilot scale mineralization sequestration project at Hellisheidi, Iceland and beyond. *International Journal of Greenhouse Gas Control*, *5*(4), 1065–1072.
<https://doi.org/10.1016/j.ijggc.2010.11.010>
- Rannsóknamiðstöð Íslands. (n.d.). *Loftslagssjóður*. Rannsóknamiðstöð Íslands. Retrieved 22 February 2024, from
<https://www.rannis.is/sjodir/rannsoknir/loftslagssjodur/>
- Robbins, T. (2007, January 21). Carbon cowboys face crackdown. *The Observer*.
<https://www.theguardian.com/travel/2007/jan/21/green.escape>
- Rogelj, J., D. Shindell, K. Jiang, S. Fifita, P. Forster, V. Ginzburg, C. Handa, H. Kheshgi, S. Kobayashi, E. Kriegler, L. Mundaca, R. Séférián, and M.V. Vilarinho, 2018: Mitigation Pathways Compatible with 1.5°C in the Context of Sustainable Development. In: Global Warming of 1.5°C. An IPCC Special Report on

- the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA, pp. 93-174. <https://doi.org/10.1017/9781009157940.004>.
- Scarlett Benson, Alice Farrelly, Emma Watson, Haley Kazanecki, Martina Massei, Astrid von Preussen, Charlotte Steck, & Danick Trouwloon. (2024). *Above and Beyond: An SBTi Report on the Design and Implementation of Beyond Value Chain Mitigation (BVCM)*. Science Based Targets. <https://sciencebasedtargets.org/resources/files/Above-and-Beyond-Report-on-BVCM.pdf>
- Science Based Targets. (n.d.). *Corporations taking action*. Science Based Targets. Retrieved 13 February 2024, from <https://sciencebasedtargets.org/corporations-taking-action>
- Seawright, J., & Gerring, J. (2008). Case Selection Techniques in Case Study Research: A Menu of Qualitative and Quantitative Options. *Political Research Quarterly*, 61(2), 294–308. <https://doi.org/10.1177/1065912907313077>
- Serre, C. (2008). Tradable Permit Schemes in Environmental Management: Evolution Patterns of an Expanding Policy Instrument. *Öko-Institut eV Berlin*. <https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=a2d4b7108c247713fdd973d173a716dead00aafa>
- Sharma, S. (1992). Decision Styles: Conceptual Models and an Empirical Study of IAS Officers. *Indian Journal of Public Administration*, 38(2), 95–108.
- Smith, J., & Parkhurst, R. T. (2018). *Opportunities for Agricultural Producers to Participate in Compliance and Voluntary Carbon Markets* [Preprint]. SocArXiv. <https://doi.org/10.31235/osf.io/yrfgz>
- Staðlaráð Íslands. (2022). *Carbon offsetting: Specification with guidance*. https://stadlar.is/stadlabudin/vara/?ProductName=IST-TS-92-2022&trk=organization_guest_main-feed-card_feed-article-content
- Statistics Iceland. (n.d.). *Mannfjöldi eftir sveitarfélögum, kyni, ríkisfangi og ársfjórðungum 2010-2023*. Retrieved 20 February 2024, from

- https://px.hagstofa.is/pxis/pxweb/is/Ibuar/Ibuar__mannfjoldi__1_yfirlit__arsfjordingstolur/MAN10001.px/table/tableViewLayout2/
- Statistics Iceland. (2024a, February 7). *Leiðrétt frétt: Vöruidskipti óbagstæð um 10,8 milljarða í janúar*. Hagstofa Íslands. <https://hagstofa.is/utgafur/frettasafn/utanrikisverslun/voruvidskipti-i-januar-2024-bradabirgdatolur/>
- Statistics Iceland. (2024b, February 16). *Þjónustujöfnuður jákvæður um 5,1 milljarð í nóvember*. Hagstofa Íslands. <https://hagstofa.is/utgafur/frettasafn/utanrikisverslun/manadarlegur-voru-og-thjonustujofnudur-fyrir-november-2023/>
- Sylvera. (n.d.). *Ratings Frameworks & Methodologies*. Retrieved 15 April 2024, from <https://www.sylvera.com/ratings>
- The Integrity Council for the Voluntary Carbon Market. (2024). *Core Carbon Principles: Assessment Framework and Assessment Procedure*. <https://icvcm.org/wp-content/uploads/2024/02/CCP-Book-V2-FINAL-6Feb24.pdf>
- The Paris Agreement*. (2015). https://unfccc.int/sites/default/files/english_paris_agreement.pdf
- Turner, J. R., & Müller, R. (2005). The Project Manager's Leadership Style as a Success Factor on Projects: A Literature Review. *Project Management Journal*, 36(2), 49–61. <https://doi.org/10.1177/875697280503600206>
- Umhverfisstofnun. (2020). *Leiðbeiningar um kolefnisjöfnun fyrir opinbera aðila*. https://graenskref.is/wp-content/uploads/2023/04/Leiðbeiningar_kolefnisjofnun_2020.pdf
- Umhverfisstofnun. (2023). *Losun gróðurhúsalofttegunda 1990-2050: Samantekt*. Umhverfisstofnun. https://ust.is/library/Skrar/loft/NIR/Samantekt%202023_v1_14.4.2023.pdf
- Umhverfisstofnun. (2024). *Brúðabirgðatölur* [dataset]. [https://ust.is/library/Skrar/loft/NIR/Losun%20GHL_1990_2022_Kynningar-%20og%20vefs%20ad%20uefni_VALUES_15.01.2024%20-%20Copy%20\(1\).xlsx](https://ust.is/library/Skrar/loft/NIR/Losun%20GHL_1990_2022_Kynningar-%20og%20vefs%20ad%20uefni_VALUES_15.01.2024%20-%20Copy%20(1).xlsx)
- Valiergue, A., & Ehrenstein, V. (2023). Quality offsets? A commentary on the voluntary carbon markets. *Consumption Markets & Culture*, 26(4), 298–310. <https://doi.org/10.1080/10253866.2022.2147162>
- Van Butsic. (2023, May 1). *Carbon market basics: What you need to know before buying carbon credits*. Carbon Direct. <https://www.carbon-direct.com/insights/carbon-market-basics-what-you-need-to-know-before-buying-carbon-credits>

- Van Mossel, A., Van Rijnsoever, F. J., & Hekkert, M. P. (2018). Navigators through the storm: A review of organization theories and the behavior of incumbent firms during transitions. *Environmental Innovation and Societal Transitions*, 26, 44–63. <https://doi.org/10.1016/j.eist.2017.07.001>
- Verra. (n.d.). *Verified Carbon Standard*. Verra. Retrieved 5 January 2024, from <https://verra.org/programs/verified-carbon-standard/>
- Wongpiyabovorn, O., Plastina, A., & Crespi, J. M. (2023). Challenges to voluntary Ag carbon markets. *Applied Economic Perspectives and Policy*, 45(2), 1154–1167. <https://doi.org/10.1002/aapp.13254>
- Yin, R. K. (2009). *Case study research: Design and methods* (4th ed). Sage Publications.
- Yin, R. K. (2011). *Qualitative research from start to finish*. Guilford.

Appendix I

The interview consent form.

This interview is a part of Diljá Eir Ólafsdóttir's data collection for her Master's thesis in Environmental Management and Policy at the International Institute for Industrial Environmental Economics within Lund University. The interview is conducted following a survey to gain deeper insights into the corporation's voluntary carbon market engagement, carbon credit preferences and carbon credit purchasing behaviour.

The aim of this research is to develop an analytical framework that explains what motivates Icelandic corporations committed to decarbonisation to engage with the voluntary carbon market and their specific carbon credit preferences. This will be done by developing an analytical framework based on existing literature which will then be tested and applied in the Icelandic context. Considering the research's aim, there is not a cause to believe that participants will be disadvantaged or suffer damage upon participating in this research.

Interview participants will be anonymous upon their request. However, since Iceland is a small market it is probable that other Icelandic market actors may be able to identify the corporations and their representatives based on their interview answers. Due to this threat, in the cases where participants request anonymity, direct quotes that may reveal sensitive information will not be included in the thesis. When the use of direct quotes is deemed necessary, the relevant corporation representative will be contacted beforehand for approval.

All data collected on that participant will be given a code name only known by the researcher, who will respect confidentiality. The data will be stored on a password protected computer.

All participants may withdraw their consent at any given time up until the thesis is published.

- I have read the terms, and I understand the research's aim, the interview's purpose, and data handling.
- I give consent to being recorded during the interview for data analysis purposes.
- I request anonymity. My name and the corporation's name will not be mentioned in the thesis and direct quotes will not be used unless deemed absolutely necessary. In that case, I will review the quotes beforehand for approval. I acknowledge that full anonymity cannot be guaranteed due to the market's small size, but utmost precautions will be taken to protect my anonymity.

Diljá Eir Ólafsdóttir

Interview participant, date

Appendix II

The survey questions in Icelandic

Ég heiti Diljá Eir Ólafsdóttir og er þessi könnun hluti af lokaverkefningu mínu í MS í umhverfisstjórnun og stefnumótun við háskólann í Lundi (MSc. in Environmental Management and Policy). Ég er að rannsaka hvers vegna íslensk fyrirtæki ákveða að kaupa kolefniseiningar og sömuleiðis hvernig kolefniseiningar þau kjósa þá helst að kaupa. Könnuninni er skipt upp í tvo hluta; fyrri hlutinn inniheldur 8-10 spurningar og miðar að því að skilja stefnu fyrirtækisins í umhverfismálum. Seinni hlutinn inniheldur 9-10 spurningar og miðar að því að skilja kauphegðun fyrirtækisins á kolefniseiningum.

Niðurstöður þessarar spurningakönnunar verða nafnlaus.

Öll gögn verða geymd á læstri tölvu.

Sé þess óskað verða niðurstöðum og ritgerðinni í heild deilt með þátttakendum, en niðurstöður ættu að liggja fyrir í maí og verður ritgerðin síðan birt í lok sumars.

Ef þú hefur einhverjar spurningar, vangaveltur, eða hefur bara almennt áhuga á að spjalla um viðfangsefnið, ekki hika við að hafa samband við mig!

Email:

Sími:

LinkedIn:

Með fyrirfram þökkum

Diljá Eir Ólafsdóttir

Mastersnemi, umhverfisstjórnun og stefnumótun

International Institute for Industrial Environmental Economics

Lund University

Fyrri hluti: Bakgrunnur

1. Hvaða geira tilheyrir fyrirtækið þitt?

Fjármál

Iðnaður

Fasteignir

Neysluvörur og þjónusta

Fjarskipti

Orka

Heilbrigðis- og lyfjageiri

Tækni

Samgöngur

2. Hefur fyrirtækið sett markmið um samdrátt í losun gróðurhúsalofttegunda eða markmið um kolefnishlutleysi (e. net zero)?

Fyrirtækið hefur sett markmið um kolefnishlutleysi (e. net zero)

Fyrirtækið hefur sett markmið um samdrátt í losun gróðurhúsalofttegunda

Ef „Fyrirtækið hefur sett markmið um kolefnishlutleysi (e. net zero)“ er valið, þá:

3. Hvenær stefnir fyrirtækið á að ná kolefnishlutleysi (e. net zero)?

2025

2030

2040

2050

Annað

Ef „Annað“, þá:

4. Ef annað, hvenær stefnið þið á að ná kolefnishlutleysi (e. net zero)?

Stutt svar

5. Í örfáum orðum, hvers vegna hafið þið sett ykkur markmið um samdrátt í losun/kolefnishlutleysi (e. net zero)?

Stutt svar

6. Á skalanum 1 til 5, þar sem 1 merkir „mjög auðvelt“, 2 merkir „frekar auðvelt“, 3 merkir „hvorki auðvelt né erfitt“, 4 merkir „frekar erfitt“ og 5 merkir „mjög erfitt“, hversu auðvelt eða erfitt telur þú að það verði að draga úr losun fyrirtækisins til þess að ná settum markmiðum?

Skali 1-5

7. Hver af eftirfarandi staðhæfingum lýsir best stöðu fyrirtækisins í dag með tilliti til markmiða þess um samdrátt í losun/kolefnishlutleysi (e. net zero)?

Fyrirtækið hefur ekki byrjað að draga úr losun gróðurhúsalofttegunda

Fyrirtækið hefur byrjað að draga úr losun gróðurhúsalofttegunda

Fyrirtækið hefur þegar dregið úr losun gróðurhúsalofttegunda eins mikið og unnt er

8. Á skalanum 1 til 5, þar sem 1 merkir „mjög ósammála“, 2 merkir „frekar ósammála“, 3 merkir „hvorki sammála né ósammála“, 4 merkir „frekar sammála“ og 5 merkir „mjög sammála“, hversu sammála ert þú eftirfarandi staðhæfingum?

Við viljum ná kolefnishlutleysi/draga úr losun gróðurhúsalofttegunda...

... vegna utanaðkomandi pressu viðskiptavina, fjárfesta og/eða birgja

... vegna utanaðkomandi pressu stjórnvalda og alþjóðlegra samninga

... vegna utanaðkomandi pressu vegna umræðu í þjóðfélaginu um áhrif loftslagsbreytinga

... vegna innri gilda fyrirtækisins um samfélagsábyrgð

... til þess að auka skilvirkni í framleiðslu

... til þess að vera leiðandi á markaði og/eða viðhalda samkeppnisforkoti

9. Kaupið þið kolefniseiningar í dag?

Já
Nei

10. Hyggist þið kaupa kolefniseiningar í framtíðinni?

Já
Nei
Ég veit það ekki

Seinni hluti: Kaup á kolefniseiningum

11. Hver af eftirfarandi staðhæfingum lýsir því best hvernig ákvörðunartöku er háttað innan fyrirtækisins?

Fyrirliggjandi gögn og upplýsingar eru greind til hlítar áður en ákvörðun er tekin. Ákvörðunartaka er rökrétt, kerfisbundin og gerð vandlega.

Ákvörðunartaka er ákveðin og athafnarmiðuð (e. action-oriented). Áhersla er lögð á hraða ákvörðunartöku út frá innsæi og reynslu og eru afköst og áhrif tekin fram yfir greiningu.

Áhersla er lögð á „stóru myndina“ og áhrif ákvörðunarinnar til lengri tíma. Ákvörðunartaka tekur ólík sjónarhorn til greina og einkennist af nýjungagirni og óhefðbundnum hugmyndum.

Áhersla er lögð á hópavinnu og samstarf og tekið er tillit til skoðana annarra. Jafnframt er lögð áhersla á að viðhalda góðu sambandi innan hópsins og eru skoðanir og tilfinningar innri og ytri hagaðila hafðar í fyrirrúmi.

12. Hvert af eftirfarandi staðhæfingum lýsir best stjórnunarháttum fyrirtækisins?

Stjórnunarhættir einkennast af því að stjórnandi tekur einhliða ákvörðun.

Stjórnunarhættir einkennast af því að stjórnandi setur kröfu um góð afköst og leiðir með fordæmi.

Stjórnunarhættir leggja áherslu á að byggja upp tengingu á milli stjórnenda og starfsfólks. Stuðlað er að framþróun og nýsköpun með sameiginlegri sýn stjórnenda og starfsfólks.

Stjórnunarhættir einkennast af því að stjórnendur auka skilvirkni starfshópsins; hæfileikar og styrkleikar einstaka starfsfólks eru eflað með því að veita þeim stuðning, endurgjöf og leiðsögn.

Stjórnunarhættir einkennast af því að starfsmenn eru hafðir með í ákvörðunartöku. Stjórnendur óska eftir endurgjöf og skoðunum og styrkja þannig samstarf.

Stjórnendur hlúa að samúð, trausti og opnum samskiptum og skapa þannig jákvætt umhverfi sem ýtir undir og styrkir tengsl starfsmanna.

Stjórnunarhættir einkennast af afskiptaleysi. Stjórnendur veita starfsfólki fullt ákvörðunarvald, en veita þó stuðning og leiðsögn.

13. Á skalanum 1 til 5, þar sem 1 merkir „mjög illa“, 2 merkir „frekar illa“, 3 merkir „hvorki vel né illa“, 4 merkir „frekar vel“ og 5 merkir „mjög vel“, hve vel útskýra eftirfarandi þættir kaup fyrirtækisins á kolefniseiningum?

Hvernig ákvörðunartöku er háttáð innan fyrirtækisins

Stjórnunarhættir fyrirtækisins

Hæfni fyrirtækisins til að aðlaga ferla og venjur að kröfum ólíkra hagaðila

Vilji fyrirtækisins til þess að líkja eftir stefnum annarra fyrirtækja

14. Á skalanum 1 til 5, þar sem 1 merkir „mjög ósammála“, 2 merkir „frekar ósammála“, 3 merkir „hvorki sammála né ósammála“, 4 merkir „frekar sammála“ og 5 merkir „mjög sammála“, hversu sammála eruð þið eftirfarandi staðhæfingum?

Við viljum kaupa kolefniseiningar...

... vegna utanaðkomandi pressu viðskiptavina, fjárfesta og/eða birgja

... vegna utanaðkomandi pressu stjórnvalda og alþjóðlegra samninga

... vegna utanaðkomandi pressu vegna umræðu í þjóðfélaginu um áhrif loftslagsbreytinga

... vegna innri gilda fyrirtækisins um samfélagsábyrgð

... vegna markmiða um kolefnishlutleysi

... vegna markaðsmála

... til þess að fjármagna verkefni sem binda eða draga úr losun gróðurhúsalofttegunda

... til þess að styðja við samfélagslega og umhverfislega ábyrga nýsköpun

15. Setið þið einhverjar skorður á það hvaða kolefniseiningar þið kaupði?

Já

Nei

16. Hvort kjósið þið heldur að kaupa kolefniseiningar frá innlendum eða erlendum kolefnisverkefnum?

Innlendum

Erlendum

Blandað, meira af innlendum en erlendum

Blandað, meira af erlendum en innlendum

Blandað, jafnt af báðum

Ég veit það ekki

17. Frá hvaða löndum kjósið þið helst að kaupa kolefniseiningar frá?

Stutt svar

18. Hvort kjósið þið heldur að kaupa kolefniseiningar af verkefnum sem nota náttúrumiðaðar lausnir (e. nature based solutions) eða tæknilegar lausnir?

Náttúrumiðaðar lausnir

Tæknilegar lausnir

Blandað, meira af náttúrumiðuðum lausnum en tæknilegum lausnum

Blandað, meira af tæknilegum lausnum en náttúrumiðuðum lausnum

Blandað, jafnt af báðum
Ég veit það ekki

19. Hvernig tegund kolefniseininga kjósið þið helst að kaupa?

Frá skógræktarverkefnum
Frá líforkuverkefnum með kolefnisföngun og geymslu (BECCS)
Frá verkefnum sem fanga kolefni úr lofti og geyma (DACCS)
Frá verkefnum sem stuðla að endurnýjanlegum orkugjöfum
Annað
Ég veit það ekki

Ef „Annað“, þá:

20. Ef annað, hvernig tegund kolefniseininga kjósið þið heldur?

Stutt svar

Appendix III

The survey questions in English.

My name is Diljá Eir Ólafsdóttir and I am a master's student in Environmental Management and Policy at Lund University. This survey is a part of my degree project. I am researching what motivates Icelandic corporates to engage with the Voluntary Carbon Market (VCM) and their specific carbon credit preferences. The survey will be split in two parts; the first part includes 8-10 questions that aim to gather background knowledge on your corporation's environmental and/or sustainability strategy, and the second part includes 9-10 questions that aim to understand your corporation's carbon credit purchasing behaviours.

The survey's results will be anonymous.

All data will be stored on a password protected computer.

The research results and the complete thesis will be shared with participants, if desired. Results should be available in May, and the complete thesis will be published at the end of the summer.

If you have any questions, reflections, or simply want to discuss carbon credits and the VCM, don't hesitate to contact me!

Email:

Phone:

LinkedIn:

With gratitude,

Diljá Eir Ólafsdóttir

Master's Student

International Institute for Industrial Environmental Economics

Lund University

Part 1: Background

1. Which sector does your corporation belong to?

Financial Services

Industrial

Real Estate

Consumer Goods and Services

Telecommunications

Energy

Health Care and Pharmaceuticals

Technology Services

Transport

2. Has the corporation set a net zero goal or greenhouse gas (GHG) emissions reductions targets?

The corporation has set a net zero goal

The corporation has established GHG emissions reductions targets

If "The corporation has set a net zero goal" is selected, then:

3. When does the corporation aim to reach net zero?

2025
2030
2040
2050
Other

If „Other“ is selected, then:

4. If you selected “other”, when do you aim to reach net zero?

Short answer

5. Briefly explain why you set emission reduction/net zero targets?

Short answer

6. On a scale from 1 to 5, with 1 being ‘Very Easy’, 2 being ‘Somewhat Easy’, 3 being ‘Neither Easy nor Difficult’, 4 being ‘Somewhat Difficult’ and 5 being ‘Very Difficult’, how would you rate the overall difficulty of reducing emissions within your corporation to reach set targets?

Scale 1-5

7. Which of the following statements best describes the corporation's current efforts to achieve its net zero/emissions reduction goals?

The corporation has not yet started reducing emissions

The corporation has started reducing emissions

The corporation has done its best to reduce emissions, but some hard-to-abate emissions remain

8. On a scale from 1 to 5, with 1 being ‘Strongly Disagree’, 2 being ‘Somewhat Disagree’, 3 being ‘Neither Agree nor Disagree’, 4 being ‘Somewhat Agree’ and 5 being ‘Strongly Agree’, how much do you agree with the following statements?

We want to reach net zero/reduce emissions because of...

... external pressure from customers, investors and/or suppliers
... external pressure from regulatory bodies, the government and/or international treaties
... external pressure resulting from societal discussions on the effects of climate change
... the corporation's internal values
... increased efficiency in the corporation's operations
... internal motives of being market leaders and/or maintain a competitive advantage

9. Do you purchase carbon credits as a part of the corporation's strategy today?

Yes
No

10. Do you plan on purchasing carbon credits as a part of the corporation's strategy in the future?

Yes
No
I am not sure

Part 2: VCM engagement

11. Which of the statements below best describes your corporation's decision-making style?

Data and detailed information are analysed prior to decision making. The decision-making style is logical, systematic and is characterised by a careful approach.

Decisive and action-oriented. More emphasis is put on making quick decisions based on intuition or past experiences, and results are prioritised over analysis.

Focus is put on the 'big-picture' and the long-term effects of a decision. The decision-making style is often characterised by innovation, unconventional ideas and considers multiple perspectives.

Teamwork and collaboration are emphasised. Decisions are made after seeking input from others, with the aim to maintain positive relationships. The corporation's internal and external stakeholders' feelings are prioritised.

12. Which of the statements below best describes your corporation's leadership style?

A single leader makes a decision unilaterally.

Leaders set high performance standards and lead by example.

Leaders inspire and motivate, build strong relationships and foster innovation. They create a common vision aligned with the corporation's goals.

Leaders develop their team members' skills and provide guidance, support and feedback to help their team's performance.

Leaders involve team members in decision-making, seeking their input and opinions, and promoting collaboration.

Leaders create a positive environment and foster strong relationships among team members by valuing empathy, trust and open communication.

Leaders grant team members autonomy and decision-making authority, but provide support and guidance.

13. On a scale from 1 to 5, with 1 being 'Not at all', 2 being 'Slightly', 3 being 'Moderately', 4 being 'Considerably', and 5 being 'Very much', to what extent do the following factors explain the corporation's engagement with the voluntary carbon market?

The corporation's decision making style

The corporation's leadership style

The corporation's ability to adjust processes and routines to different stakeholders' demands

The willingness to imitate or resemble other corporations' strategies

14. On a scale from 1 to 5, with 1 being 'Strongly Disagree', 2 being 'Somewhat Disagree', 3 being 'Neither Agree nor Disagree', 4 being 'Somewhat Agree' and 5 being 'Strongly Agree', how much do you agree with the following statements?

We want to purchase carbon credits...

... because of external pressure from customers, investors and/or suppliers

... because of external pressure from regulatory bodies, the government and/or international treaties

... because of external pressure resulting from societal discussions on the effects of climate change

... because of the corporation's internal values

... to reach net zero goals

... for marketing reasons

... to support projects that sequester or reduce greenhouse gas emissions

... to support socially responsible and environmentally friendly start-ups

15. Do you establish any criteria on what carbon credits you purchase?

Yes

No

16. Do you prefer to purchase carbon credits from domestic or international carbon projects?

- Domestic
- International
- Both, more from domestic than international
- Both, more from international than domestic

Both, equally or almost equally

I am not sure

17. What countries do you prefer to purchase carbon credits from?

Short answer

18. Do you prefer to purchase carbon credits from projects employing nature-based solutions or technical solutions?

- Nature-based solutions
- Technical solutions
- Both, more from nature-based solutions than technical solutions
- Both, more from technical solutions than nature-based solutions
- Both, equally or almost equally
- I am not sure

19. What type of carbon credits do you prefer to purchase?

- Forestry (ARR)
- Bioenergy with Carbon Capture and Storage (BECCS)
- Direct Air Carbon Capture and Storage (DACCS)
- Renewable energy
- Other
- I am not sure

If „Other“ is selected, then:

20. If you selected 'other', what type of carbon credits do you prefer?

Short answer

Appendix IV

The interview guide in Icelandic.

1. Eftir því hvort að fyrirtæki hafa sett sér markmið um kolefnishlutleysi (e. net zero) eða markmið um samdrátt í losun:

Ef markmið um kolefnishlutleysi: Geturðu sagt mér meira frá markmiði ykkar um kolefnishlutleysi og hvernig þið skilgreinið það?

Ef markmið um samdrátt í losun: Geturðu sagt mér meira frá markmiði ykkar um samdrátt í losun?

- Hvað ætlið þið að draga mikið úr losun?
- Hvar í starfseminni er hlutfallslega mesta losunin?
- Hvar í starfseminni ætlið þið að draga úr losun?
- Hvernig ætlið þið að draga úr losun?

2. Fer eftir hvort að fyrirtækið kaupir kolefniseiningar eða ekki:

Ef þau kaupa kolefniseiningar: Geturðu sagt mér hvers vegna þið byrjuðuð að kaupa kolefniseiningar?

Ef þau kaupa ekki kolefniseiningar: Geturðu sagt mér hvers vegna þið hafi ekki keypt kolefniseiningar hingað til?

3. Hver er þín skoðun og upplifun á valkvæða kolefnismarkaðnum?

Ef fyrirtækið setur skorður á hvaða kolefniseiningar þau kaupa:

4. Geturðu sagt mér meira frá skorðunum sem þið setjið á þær kolefniseiningar sem þið kaupðið?

- Ef eftirfarandi er ekki nefnt, spurja hvort að þau hugsu út í eftirfarandi:
Additionality
Leakage
Permanence
Staðfesting óháðra aðila
Co-benefits
Eftirlit, upplýsingagjöf og staðfesting (MRV)

5. Geturðu sagt mér meira frá því hvernig kolefniseiningar þið kaupðið helst?

- Ef frá ákveðnum löndum, hvers vegna?
- Ef ákveðnar tegundir kolefniseininga, hvers vegna?

6. Í spurningakönnuninni spurði ég um þætti er varða fyrirtækjamenningu. Þú sagðir að A, B, C, og D skýra vel/illa kaup fyrirtækisins á kolefniseiningum. Geturðu útskýrt þetta eitthvað nánar?

Ef þau eru ekki viss eða telja þættina ekki skýra kaup fyrirtækisins á kolefniseiningum:

7. Eru einhverjir innri ferlar, hefðir eða venjur sem aukið/dregið úr hvata fyrirtækisins til þess að kaupa kolefniseiningar?
8. Hversu þungt telur þú þessa þætti sem tengjast fyrirtækjamenningu og stjórnunarháttum vega samanborið við hagræn tækifæri og áskoranir þegar kemur að kaupum á kolefniseiningum?
9. Út frá þinni reynslu og þekkingu, hvað heldur þú að skilji að þau fyrirtæki sem kaupa kolefniseiningar og þau sem gera það ekki?

Appendix V

The interview guide in English.

1. Dependent upon whether the corporation stated they are working towards net zero or if they have set emissions reduction targets:

If net zero goals: Can you please tell me how your corporation defines its net zero goal?

If emissions reduction target: Can you please tell me more about your emissions reduction targets?

Consider the following:

- To what extent do they want to reduce emissions?
- Where do they want to reduce emissions?
- Where in your operations do they have the highest relative emissions?
- How do they want to reduce emissions?

2. Dependent upon whether the corporation currently engages with the VCM or not:

If currently engaging: Can you tell me why the corporation decided to start purchasing carbon credits?

If not engaging: Can you tell me why the corporation has not started purchasing carbon credits?

3. How do you perceive the Voluntary Carbon Market?

If they establish criteria prior to purchasing carbon credits:

4. Can you please elaborate on the criteria you establish?

- Consider:
Additionality
Leakage
Permanence
Third Party Verification
Co-benefits
MRV

5. Can you tell me more about what kind of carbon credits you purchase?

- If from specific countries, why?
- If specific type of credits, why?

6. Regarding question 13 in the survey, where I asked about how well certain factors explain the corporation's engagement with the voluntary carbon market. You stated that factors A, B, C, D, explain/do not explain your corporation's engagement with the VCM. Can you elaborate on the arguments or reasoning behind your answer?

If they are not sure or believe these factors don't explain their engagement with the VCM:

7. Are there any internal processes, cultural practices and/or traditions within the corporation that may motivate or reduce motivation for purchasing carbon credits?
8. How important do you believe these organisational factors are compared to possible economic opportunities and challenges that VCM engagement encompass?
9. According to your experience or knowledge, what are the main differences between corporations that engage in VCM, from the ones that do not engage?