

## Cash greens everything around me?

Identifying key barriers and drivers for advancing low-carbon investments in Denmark's finance industry and evaluating the transition efforts of the industry

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## Abstract

Meeting international climate goals require a major reallocation of global investment portfolios. However, in 2016, 74% of all assets under management were still socially and environmentally unchecked. Research has started to address how finance can support the low-carbon transition, but little is known about how the financial sector itself perceives this transition. This thesis seeks to 1) identify key barriers and drivers for advancing low-carbon investments (LCI) in Denmark's finance industry and 2) evaluate the industry's LCI-integration until now. The thesis takes a mixed methods approach through surveys (n=11) and interviews (n=12) with finance professionals in Danish pension funds and financial intermediaries. Key LCI-drivers are identified as a) the risk/return profile of LCI, b) customer/pension fund members' preferences c) top-management, d) increased public awareness of climate change the role of institutional investors, e) expected future climate and energy policy and f) stranding risks for coal and oil sands. Key LCI-barriers are identified as a) a low LCI-supply, b) a lack of current and uncertainty of future climate and energy policy, c) low stranding risks for oil and especially gas and d) conservative organisational cultures. It is found that LCI-integration has progressed rapidly and that it is impacting investment decisions. Yet, it is restrained by a dominating logic of return-maximisation, which is grounded in prevailing organisational cultures and unlikely to change. Although it is still possible to integrate LCI further under current conditions, it will be necessary to compromise slightly on returns, if finance is to take a truly progressive role on climate change. The findings are relevant to anyone who wants to see finance take further steps towards sustainability and can be used to make work on sustainable finance more strategic.

**Keywords: Sustainable Finance, Responsible Investments, Climate Investing, ESG, Institutional Investors, Corporate Organisational Change.**

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## **Acronyms and concepts for clarification**

**Active investing:** As opposed to passive investing, active investing is an investment strategy where the investor him/herself selects the assets to buy and sell.

**Alternative investments:** Investment in 'real world' projects (e.g. owning 20 % of a wind farm) as opposed to obligations or equities.

**Asset manager:** An asset manager manages one or more portfolios of assets on behalf of his organisation or external clients (investors).

**CEO:** chief executive officer

**ESG (Environmental, Social and Governance):** At the moment the most common term for integrating responsible and sustainability (social and environmental) factors in investments.

**ESG-manager:** Refers to an employee responsible for ESG-considerations in the activities of the organisation. In this thesis, ESG-manager also refers to 'Head of ESG'; the title used when ESG is managed by a team as opposed to a single employee.

**Financial intermediary:** An organisation that acts as the middleman between two agents in a financial transaction.

**LCI:** low-carbon investing (see Key Concepts)

**Passive investing:** An investment strategy where the portfolio simply tracks an investment index.

**Top-management:** Board of directors and executive management

## 1. Introduction

In 1993, Clifford M. Smith bluntly stated "Cash rules everything around me" (Smith, Hunter, & Woods, 1993). More than a decade later, influential critical geographer David Harvey pointed to how "neoliberalisation has meant, in short, the financialisation of everything", and that this development has "deepened the hold of finance over all other areas of the economy" (Harvey, 2005, p. 33). Hence, modern globalisation processes has led to a world of borderless financial markets (Hachigian & McGill, 2012). Critical research has pointed to how financialisation processes, and especially financialisation of nature and natural resources has led to social despair and driven environmental degradation (e.g. Clark, 2013; Leach & Scoones, 2015; McAfee, 2012; McAfee, 1999). Yet, others point to how financialisation has (also) meant that financial agents now "can serve as an important mechanism for addressing long-term environmental, economic and social degradation" (Hachigian & McGill, 2012, p. 166).

This role of finance as an agent of change is also recognised with regards to climate change in the Paris Agreement: Next to the goals of limiting temperature increase, and enhancing adaptive capacity, the agreement has a third goal of "making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development" (United Nations, 2015, p. 3). Essentially, this is about changing money-flows from "black" to green and climate-resilient investments and it is a necessary enabler for meeting the goals on mitigation and adaptation. This point was recently reaffirmed in the IPCC's Special Report on Global Warming of 1.5 °C, which emphasised that not transgressing 1.5°C<sup>1</sup> warming requires a "major reallocation of the investment portfolio" (Rogelj et al., 2018, p. 154) and other important actors have reached similar conclusions (OECD, IEA, NEA, & ITF, 2015; The Global Commission on the Economy and Climate, 2014; World Economic Forum, 2013). In fact, finance might be especially important for climate change as "finance is the lifeblood of the myriad large organisations, that shape our collective ecological futures through their actions in the crucial climate-related spheres of fuel extraction, power generation, industrial processing, and transportation" (Christophers, 2019, p. 775). Yet, finance also holds great potential for solutions as investors can be part of accelerating the black-to-green transition by financing renewable energy and energy efficiency, and pushing the carbon-intensive industries via divesting and/or active ownership (Jersild, Guizani, & Kvist, 2018). McKinsey (McKinsey Global Institute, 2013) estimates that, at the global scale, private institutional investors could provide almost half of the annual infrastructure investments needed to limit global warming to 2°C.

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<sup>1</sup> Throughout the thesis, it has been necessary to refer to both the 1.5 and 2°C temperature targets of the Paris Agreement, as the cited literature refers to one goal and not the other.

Unfortunately, the finance goal of the Paris Agreement has received significantly less attention than the two other goals (Thwaites, Whitley, Wright, & Ott, 2018), and in 2016, 74 % of all assets under management were still socially and environmentally unchecked (Global Sustainable Investment Alliance, 2016).

### **1.1. Research on the sustainability-investor nexus**

Over the last decades, researchers of various disciplines have started to engage in investigating the relationships between sustainability, corporations and investors. For investors, perhaps the most important question is whether ESG considerations implies a trade-off for financial performance. In general research has found, that if there is an impact on returns, it is most likely to be positive. For example, a meta-study found that in 90% of 2,200 empirical studies, ESG did not negatively affect financial performance - in fact, the large majority found a positive relationship (Friede, Busch, & Bassen, 2015).

For climate change, Christophers (2019) finds that research has followed at least four paths: 1) investments in carbon credit and other ecosystems-service markets created to price negative environmental externalities and thereby limit emissions, 2) investors' assumption of insurance liabilities related to catastrophic weather events through the use of catastrophe bonds, 3) investments in renewable energy and clean/green infrastructure, and 4) investment and divestment in/from fossil fuel companies. In the latter category, scholars have analysed how climate-progressive investors attempt to influence the business strategies of fossil fuel companies (MacLeod & Park, 2011) and how environmental interest groups attempt to push less progressive investors towards LCI - most notably through the divestment movement (Ayling & Gunningham, 2017).

Nevertheless, Christophers (2019) claims that there is a research-gap of how the finance industry in general approaches climate change issues - partly because "the academics with the best access to finance professionals — scholars of finance — have shown extraordinarily little interest in the topic" (Christophers, 2019, p. 756). From 1998 to 2015, only 0.06% of more than 20,000 articles published in the leading finance journals related substantively to climate change (Diaz-Rainey, Robertson, & Wilson, 2017). Thus, some of the areas identified as understudied are: 1) exactly how social (including organisational) factors mediate the incorporation of information about climate change into price-setting (Christophers, 2019), 2) how internal and external actors can enhance their direct change efforts in organisations, and 3) organisational change processes that aim to embed sustainable practices (Narayanan & Adams, 2017). In addition to these gaps, one perspective is often missing in the sustainable finance research: the investors' own perspectives (Christophers, 2019).

More precisely, such insights could be valuable for regulators and financial supervisory organisations who want develop policy or measures to align investments with climate targets, or for green NGOs aiming to influence investors' LCI-policies and practices.

Across the scientific literature, there is very strong agreement that institutional investors are of particular importance for sustainability and "to global socionatures in the twenty-first century and beyond" (Christophers, 2019. 755). Firstly, institutional investors simply hold large volumes of capital (Christophers, 2019) and already two decades ago, Gordon Clark coined the term "pension fund capitalism" (G. L. Clark, 1998). Secondly, the very nature of institutional investors makes them well-suited to engage with sustainability issues: quite simply, their long-term focus incentivises institutional investors to integrate ESG considerations into investment decisions in order to manage ESG related risks and opportunities (Hachigian and McGill, 2012).

In a global perspective, Scandinavian institutional investors are at the forefront of ESG integration and there is evidence that progressive Scandinavian institutional investors can push financial organisations elsewhere to follow through - as one anonymous North American finance professional states:

"We have to show that we are factoring in these considerations [LCI] to even get in the room with them [Scandinavian institutional investors]" (Christophers, 2019, p. 762).

Hence, it is important to explore LCI in a Scandinavian context, as such insights could provide guidance on how LCI could become even further integrated among the Scandinavian first-movers, in expectation of a 'trickle-down effect' where LCI developments eventually disperse across global investor networks (Christophers, 2019). In addition, insights on how and to what extent LCI was implemented in Scandinavia could be used by agents who seek to promote LCI in other localities.

## 1.2. Research questions

Based on the foregoing reasoning, this thesis aims to answer the following questions:

- 1) What are the most important barriers and drivers for further LCI-advancement in the Danish finance industry?
- 2) To what extent and with what effects have LCI been integrated in the Danish finance industry?

The first question will be answered in the 'Results' (4) whereas the second question will be answered in 'Discussion' (5).

The evaluation of LCI integration is key to assess whether or not LCI is actually changing investment practices, or if change is merely superficial. This question, however, does not make up the backbone of the thesis. Rather, the mainstay of the thesis is the exploration of drivers and barriers. In short, the point is, that if we<sup>2</sup> want to push finance to move further on LCI, "then we need to be able to see what works and what does not in terms of bringing about intra-organisational change" (Narayanan & Adams, 2017, p. 365).

The following section lays out the empirical and theoretical background of the thesis. Next, I present the methods used, after which the results section spells out the identified driver and barriers. The discussion takes a dive into the question of organisational culture, evaluates the overall LCI-integration and the scope of finance as an agent of change and lastly points to some limitations.

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<sup>2</sup> 'We' here refers to the broad scope of agents, who wish to see further LCI-progression - e.g. climate minded pension savers, finance professionals, NGOs and civil society, authorities and politicians.

## 2. Background

This section will outline the contours of LCI in the Danish finance industry before it briefly clarifies some key concepts in and finally proceed to the theoretical background.

### 2.1. LCI in the Danish finance industry

The Danish finance industry is to a large extent driven and shaped by the actions of relatively small number of large-scale actors: a few handfuls of institutional investors and the biggest financial intermediaries (Barsøe, 2018). As such, it is no different from other regions or the global finance industry at large (Christophers, 2019; Silver, 2017). Among institutional investors, pension funds are key agents because of their massive investment capacity, both in Denmark (S. H. Ravn, personal communication, February 25, 2019, 2019) and globally (Christophers, 2019). In 2017, Danish pension funds had an accumulated investment capacity close to DKK 4.5 trillion, up by 370% since 2001 (Forsikring&Pension, 2018). At 208.4%, Denmark has the highest pension saving to GDP ratio among the OECD countries (Despalins, 2018). Combined, the 16 wealthiest Danish pension funds have invested at least DKK 16 billion in coal, oil and gas (Andersen, Gjerdring, & Elkjær, 2019).

In recent years, LCI has gained significant traction among Danish pension funds, and many have

- adopted policies, which require investments to be aligned with the Paris Agreement
- divested from coal and oil sands
- started doing active ownership on climate change
- engaged in various international investor-collaborations on climate change such as the International Investors Group on Climate Change, the Taskforce on Climate-related Financial Disclosures and Climate Action 100+ (Jersild et al., 2018).

In January 2019, Finance Denmark<sup>3</sup> launched their 'Forum For Sustainable Finance' (Brink, 2019), on the governance side, the EU is currently examining and suggesting different initiatives to integrate LCI and other ESG considerations into its financial policy framework (European Commission, n.d.).

Danish civil society have in recent years started paying close attention to LCI. The main actors have been WWF Denmark, who has produced several reports of the pension funds LCI-work (WWF Denmark, n.d.), and AnsvarligFremtid [ResponsibleFuture] who, in addition to producing reports, have proposed LCI-policies at the general assemblies of pension funds and organised members to

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<sup>3</sup> Business association for much of the Danish finance industry

vote for them. Also, media has started paying attention to LCI and during the spring of 2019, Dagbladet Information (n.d.) published a series of articles on the issue.

Thus, there is currently a very strong momentum for LCI. This only qualifies the subject and approach of this thesis further, as there possibly would be no better moment to research LCI from an investor perspective - the transition is essentially happening as I type, and it is a unique opportunity to follow the change process from an inside perspective.

## **2.2. Key concepts**

This section clarifies a few key concepts.

### ***2.2.1. Low-carbon investments (LCI)***

In this thesis I define low-carbon investments as investment in CO<sub>2</sub>-reducing projects/companies, divestment from CO<sub>2</sub>-intensive projects/companies and general integration of climate considerations into investment practices.

### ***2.2.2. Stranded assets***

'Stranded assets' refers to assets that lose value before the end of their expected economic life (Chan, Knight, & Paun, 2015). In regard to climate change, this refers to fossil fuels that will not be burned but instead become 'stranded' under ground, if strict climate policies are adopted and/or as a result of technological development, e.g. electric vehicles (Jersild et al., 2018). Stranded risks are increasing (Chan et al., 2015), but uncertainty around speed and magnitude remains high (Godinot & Vandermosten, 2017). A key point is that stranded risks not only applies to companies that own risk-prone assets, but also to their investors.

### ***2.2.3. Divestment***

Divestment refers to "the action or process of selling off subsidiary business interests or investments" (Oxford Dictionaries, n.d.) In this thesis, I solely discuss climate-related divestment. Climate-related divesting can be driven by a (financial) desire to minimise exposure to stranding risks, or by the moral argument that is unethical to make money of firms that drive climate change (Baron & Fischer, 2015).

### ***2.2.4. Active ownership***

The term refers to "the use of the rights and position of ownership to influence the activities or behaviour of investee companies" (UNEP Finance Initiative & UN Global Compact, 2018, p. 11). In this thesis, I limit the use of active ownership to engagement motivated by climate change. Active

ownership can for example aim to influence a company's governance system or business strategies or encourage disclosure of carbon footprints. The active ownership-toolbox includes informal dialogue with investees and voting at the general assembly of the company (Godinot & Vandermosten, 2017).

### **2.3. Theoretical background**

The literature on organisational change and environmental sustainability underscores how change is a non-linear, messy and often unpredictable process (Broadbent & Laughlin, 2005; Narayanan & Adams, 2017). Hence, it is important to consider carefully which aspects of organisational change to dig into, to ensure a systematic approach and that no significant aspects are overlooked.

The overarching approach is to identify both external and internal drivers and barriers. The literature on drivers and barriers for corporate action on climate change mostly considers external conditions and thus I develop my framework for external conditions from this literature. As this literature is less specific for the internal factors, I turn to theory of organisational change - more specifically, I review a comprehensive model of organisational change to identify potential internal drivers and barriers for LCI.

#### ***2.3.1. External drivers and barriers for LCI: insights from the literature on corporate climate action***

Institutional theory suggests that corporate behaviour is influenced by three forms of external forces: 1) social and cultural norms, 2) formal rules and regulations, and 3) the behaviour of competitors (DiMaggio & Powell, 1983). Thus, I have made sure to consider both normative, regulatory and mimetic factors. The following section explores such factors further.

Mielke (2019) finds that regarding green investment decisions of large European insurance companies, market and policy signals are of equal importance to investors, but civil society can also influence specific areas. She identifies main barriers as the risk/return profile of green investments, regulatory uncertainty and an insufficient supply of financially attractive green investments. Baron & Fischer (2015) found that besides uncertainty around stranding risks, unwillingness of institutional investors to divest from fossil fuel is often due to index practices (i.e. the practice of following an index (passive investing) or evaluating an actively managed portfolio against a given index), as mainstream indexes often carry a significant exposure to fossil fuels. Lastly, Damert and Baumgartner (2018) found that, among a number of factors, the integration of climate change into risk management had the highest influence on corporate climate action. In addition, they found that firms which interact with end-consumers tend to be more inclined towards climate action. For

pension funds, 'end-consumers' are the members of the pension fund (pension savers), for financial intermediaries it is investors. However, for some pension funds the members cannot switch pension-scheme, as the pension is determined in an agreement between the employer and employee organisations. However, in these pension funds, the members have influence over the policies and actions of the fund.

The insights from the above cited literature will be used to develop a list of potential external drivers and barriers for LCI (see 'Methods' (3) and Table 1).

### ***2.3.2. Internal drivers and barriers for LCI: the Burke-Litwin model***

The Burke-Litwin model (BLM) of organisational change is a conceptual framework, which highlights the linkages between various features of an organisation (Burke & Litwin, 1992). It deals mostly with the internal aspects of organisational change. There are numerous different frameworks for considering the internal aspects of organisational change, but the BLM was chosen for several reasons. First of all, it is considered to be comprehensive in coverage and fit for conducting organisational diagnosis (Armenakis & Bedeian, 1999). McKenzie (2017) highlight how it provides analysis of both planned and unplanned change, and how it over numerous practical studies has been validated by researchers. Further, Kraut (1996) points to how the model is useful for strengthening the efficacy of organisational diagnosis and how it can guide actions to follow up on the results from the diagnosis. Hence, the model can address how deliberate change can be influenced (Martins & Coetzee, 2009) by enhancing the understanding of which factors need attention (Armenakis & Bedeian, 1999). The individual factors of the BLM as seen in Figure 1 are specified in the 'Results' (4).

Insights from the BLM will be used to develop a list of potential internal drivers and barriers for LCI (see 'Methods' (3) and Table 1).

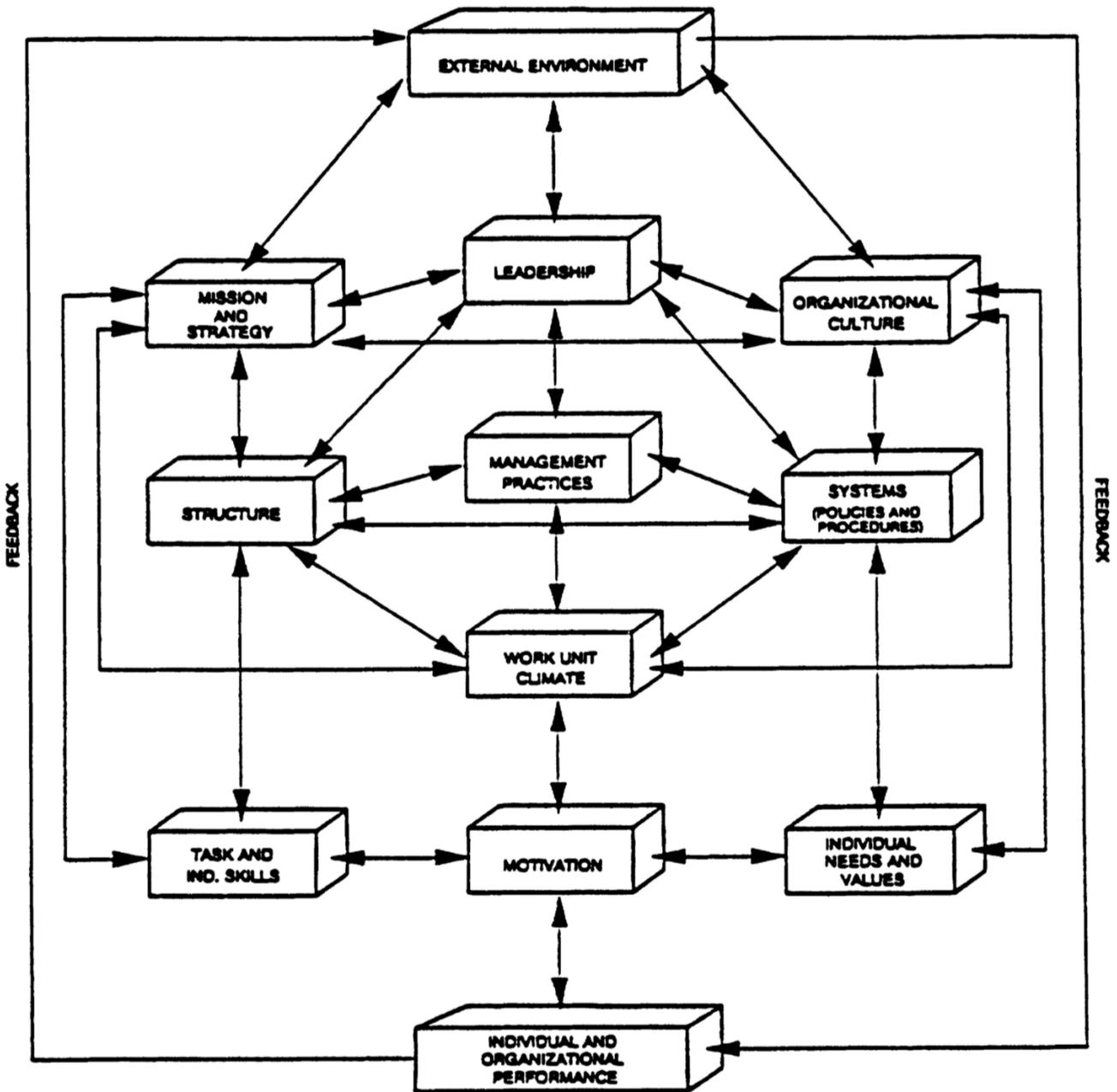


Figure 1: The Burke-Litwin model (Burke & Litwin, 1992).

## 2.4.Sustainability science

This section outlines how the thesis is situated in and influenced by the field of sustainability science.

Firstly, while this thesis focuses on climate and finance, it is clear the investor-sustainability nexus is crucial for 21st century socio-natures broadly (Christophers, 2019), not only climate change, thus reflecting how sustainability science focuses on interactions between natural and social systems (Kates, 2011).

Secondly, this thesis answers to the call for sustainability science to transcend the epistemological divide between problem-solving and critical research (A. Jerneck et al., 2011). More precisely, the primary outset of this thesis was a very empirical, practical and almost client-serving approach: to identify drivers and barriers for LCI by reducing a particular problem into a limited number of variables (Funtowicz & Ravetz, 1993; A. Jerneck et al., 2011; Miller, 2013). This corresponds to the problem-solving wing of sustainability science, which is partly concerned with strategic and operational question and identifying solutions to sustainability problems (Clark & Dickson, 2003; Wiek, Ness, Schweizer-Ries, Brand, & Farioli, 2012).

Yet, it became clear, that this approach would be inadequate to deal with the structural and cultural limitations of finance as an agent of change - an issue far too substantial to ignore. To address and discuss this, it was necessary also add critical perspectives. By this move, the problem-solving logic is by no means overruled or made redundant, and this perspective still forms the backbone of the thesis and my results. Rather, the point is to be problem-solving in a critical and reflexive manner, which insists to calls "contemporary institutions and power relations into question" (Jerneck et al., 2011, p. 77). Essentially keeping eyes wide open for which problems, the research aims to solve, and which it does not address - or as posted by Jerneck et al. (2011, p. 78) "breaking out of a particular reference frame in order to reap the benefit of seeing beyond its boundaries".

Hence, sustainability science is a highly workable framework for this kind or research as it allows "redefining the functions, mandate and scope of scientific inquiry" (Jerneck et al., 2011, p. 70), giving the research access to a broad selection of methods, theory and research designs.

### **3. Methods**

Here I will briefly clarify the research approach and the methods used for data collection and processing.

On the basis of the characteristics of the Danish finance industry (as outlined in 'LCI in the Danish finance industry' (2.1)) I find that, to address the aim of my research, it is appropriate to study the most important actors in the field: the wealthiest organisations. In general, the 'wealthiest' investors are pension funds and a small number of 'financial super markets' (Barsøe, 2018) and I therefore contacted the 16 wealthiest pension funds and two financial intermediaries, who can be classified as 'financial super markets'.

In accordance with the research-gaps outlined in 'Introduction' (1), my empirical data is developed from the insights of investment professionals. Considering the exploratory nature of this thesis, a mixed methods approach was chosen to provide space for multiple perspectives. More specifically, interviews were chosen to advance my understanding of how, why, when, by whom, and with what effects different drivers and barriers play out. In order to identify key barriers and drivers, a quantitative input was needed to weight the various factors against each other. Therefore, I developed a questionnaire to supplement the interviews.

Of the 18 organisations contacted (reminders were sent, and phone calls conducted in case of non-reply), 9 agreed to interviews with one or two employees, reaching a total of 12 interviews, and 11 questionnaires from 11 different organisations were collected. Although more replies to the questionnaire would have been desirable, I find this to be a reasonable population to evaluate my research questions. I requested interviews with top-management, ESG-personnel and asset managers, but I was only allowed access to one ESG-manager and/or one asset manager per organisation. Hence, I had little control over the interview-distribution.

#### **3.1. Potential drivers and barriers for LCI**

Chawane, Van Vuuren and Roodt (2003) argue that as organisational phenomena are highly complex in nature, it can be useful to develop a taxonomy of key organisational dimensions to guide data collection and processing. Thus, in order to qualify my assessment of drivers and barriers for LCI, I developed the following list from the insights outlined in 'Theoretical background' (2.3).

**Table 1.** Internal and external factors with potential to influence low-carbon investment practices in the Danish finance industry. A '+' indicates that two factors from the original source have been combined. Source: own creation (own creation).

<b>Potential external drivers and barriers for LCI</b>	<b>Source</b>
The risk/return profile and available supply of LCI	(Mielke, 2019)
Risk of stranded assets	(Baron & Fischer, 2015; Chan et al., 2015; Godinot & Vandermosten, 2017)
Political regulation (current and expected)	(Baron & Fischer, 2015; Chan et al., 2015; Mielke, 2019)
Inspiration from competitors / market-leaders. I.e. mimetic factors	(DiMaggio & Powell, 1983)
Consumer preferences	(Damert & Baumgartner, 2018)
Member / pension-saver preferences	(Damert & Baumgartner, 2018)
Media and NGOs	(DiMaggio & Powell, 1983; Mielke, 2019)
Public awareness about climate change and the role of the finance industry in relation to climate change	(DiMaggio & Powell, 1983; Mielke, 2019)
Index practices	(Baron and Fischer, 2015)
<b>Potential internal drivers and barriers for LCI</b>	<b>Source</b>
Leadership + management practices + Mission and strategy	(Burke & Litwin, 1992)
Organisational culture	(Burke & Litwin, 1992)
Systems + structure	(Burke & Litwin, 1992)
Individual needs and values + motivation	(Burke & Litwin, 1992)
Task requirements and individual skills	(Burke & Litwin, 1992)

Regarding the factors stemming from the BLM, a few revisions were made. I excluded "external environment", since I account for that (in a much more detailed way) via the range of "Potential external drivers and barriers for LCI". I also excluded "individual and organisational performance", as it refers to performance as business efficiency - I am interested in output on LCI, which is different from business efficiency. In addition, "work unit climate" was also not included because it focuses on employee well-being, which - although important - is not covered in this thesis. Lastly, some related factors were combined (as indicated with a + in Table 1) to allow more space for discussing the overarching trends and issues.

Next, I developed a questionnaire and an interview-guide from the identified factors (Table 1), to ensure that all important factors were discussed. However, rather than translating the 16 factors into 16 corresponding questions, I translated the factors into a more condensed form to make interviews time-efficient and ensure time to discuss specific factors thoroughly. For the questionnaire, a similar process was undertaken. For details, see appendix A (interview-guide) and B (questionnaire).

### **3.2. Interviews**

The 12 interviews with investment professionals lasted on average 40 minutes and were approached semi-structured, as it was important to stimulate discussions of relevant features exogenous to the interview-guide. By asking open-ended questions and following up on relevant aspects addressed by the interviewee, the semi-structured approach allowed the respondents to express themselves more freely and hint to their theories of change, world views, ideology etc. Nevertheless, some structure was also needed to ensure that all important aspects were discussed - hence the need for a semi-structured approach (Kvale & Brinkmann, 2009). Full anonymity was chosen to stimulate respondent's willingness to be open about the challenges they face from themselves, their colleagues and managers.

All interviews were recoded with the consent of the respondents and were, based on Mayrings (2014) recommendations, transcribed with a combination of selective and comprehensive protocol. For the selective transcription, only passages relevant to the research questions are transcribed. Relevance was based on the following criteria: 1) the factors possibly influencing LCI or 2) general considerations about LCI-integration. In the comprehensive protocol approach, the researcher stops the audio file with regular intervals and summarises what has been said (Mayring, 2014). I applied this form of transcription in parts that were in the borderland between relevance (full transcription) and irrelevance (left out), in case of repetitions or long explanations of something trivial. This allowed me to keep an overview of what was discussed and kept the door open for going back to find details. The transcripts were then coded according to the factors from Table 1. A handful of factors emerged inductively from the transcripts, but these were later integrated back into the factors from Table 1. For example, 'World views' became a sub-topic under 'Organisational culture'.

A number of informal interviews were also undertaken to qualify research approach and design. I interviewed an economist at the University of Copenhagen to get an introduction to key agents of change and specific features of the Danish finance industry, an organisational change theory expert at Lund University, and key civil society representatives working with sustainable finance and LCI. These were neither recorded nor transcribed.

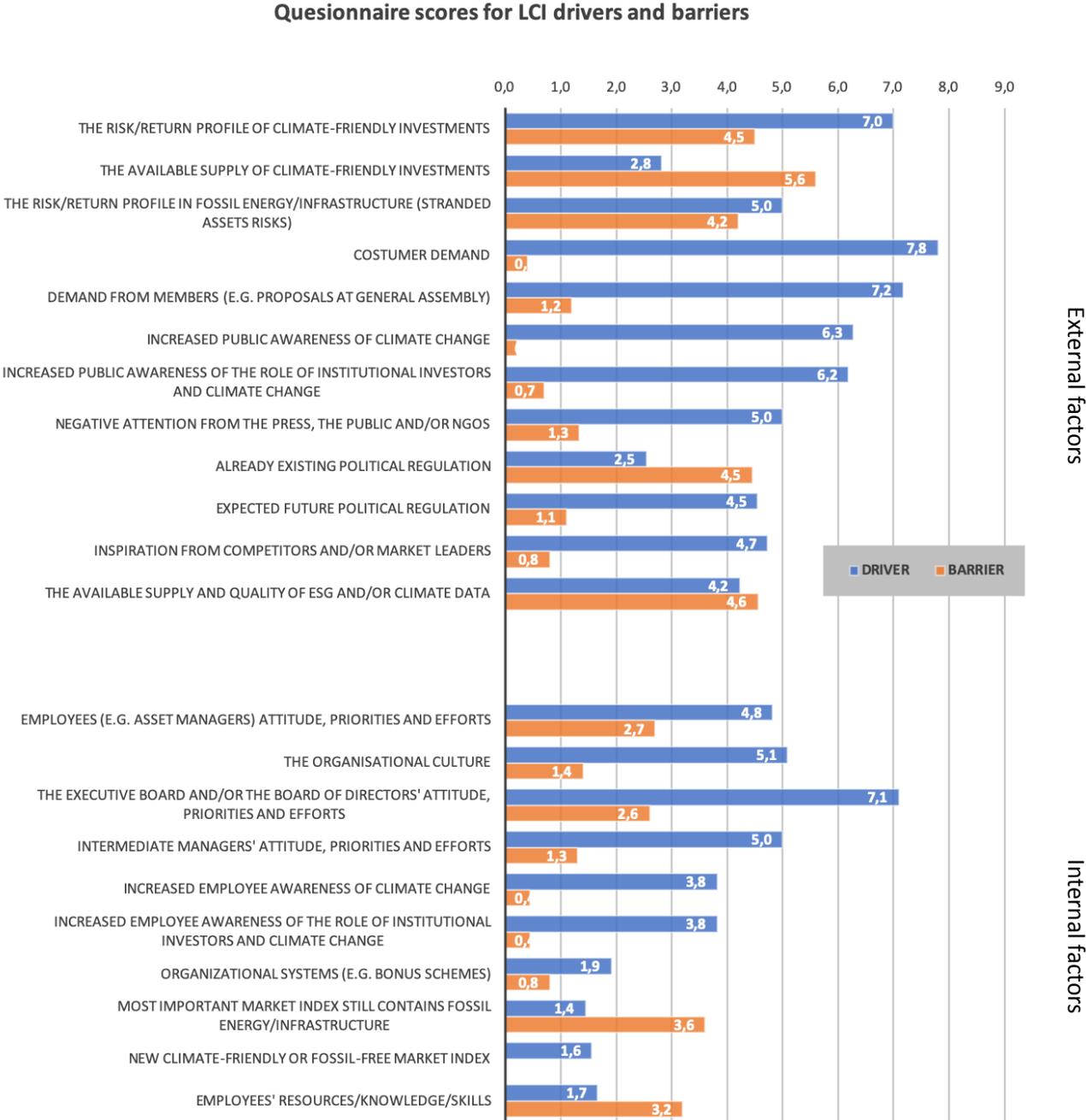
### **3.3. Questionnaire**

In the questionnaire, respondents were asked to provide two values of 0-10 for each factor - one value weighting the factor as a driver, and one value as a barrier. 0 implies 'No importance', and 10 implies 'Very high importance'. I then calculated average values for each barrier and driver.

### 4. Results

This section identifies and weighs barriers and drivers for further LCI-advancement in the Danish finance industry. First, I provide an overview and identify key, intermediate or subordinate LCI-factors. Next, I elaborate on each factor.

The questionnaire (n=11) scored the drivers and barriers as follows from Figure 2.



**Figure 2.** Respondents average score of the various drivers and barriers (own creation)

Based on Figure 2, I developed a typology of key (>5.5), intermediate (3.6-5.5) and subordinate (1.5-3.5) LCI drivers and barriers to categorise the factors. The sorted factors can be found in Table 2 and 3. Note that factors with an average score below 1.5 are deemed insignificant and excluded and that some labels have been shortened (compared to Figure 2).

**Table 2.** Key, intermediate and subordinate drivers for LCI with questionnaire average scores (own creation).

<b>Key drivers (&gt;5.5)</b>	<b>Average</b>
Customer preferences	7.8
Member preferences	7.2
Top-management	7.1
Risk/return profile of LCI	7.0
Increased public awareness of climate change	6.3
Increased public awareness of the role of institutional investors and climate change	6.2
<b>Intermediate drivers (3.6-5.5)</b>	
The organisational culture	5.1
Stranded asset risks	5.0
Media and NGOs	5.0
Intermediate management	5.0
Employees attitude, priorities and efforts	4.8
Inspiration from competitors and/or market leaders	4.7
Expected future political regulation	4.5
Quality and quantity of LCI-data	4.2
Increased employee awareness of climate change	3.8
Increased employee awareness of the role of institutional investors and climate change	3.8
<b>Subordinate drivers (1.5-3.5)</b>	
LCI-supply	2.8
Existing political regulation	2.5
Organizational systems (e.g. bonus schemes)	1.9
Employees competencies	1.7
Fossil-free market indexes	1.6

**Table 3.** Key, intermediate and subordinate drivers for LCI with questionnaire average scores (own creation).

<b>Key barrier (&gt;5.5)</b>	<b>Average</b>
LCI-supply	5.6
<b>Intermediate barriers (3.6-5.5)</b>	
Quality and quantity of LCI-data	4.6
Risk/return profile of LCI	4.5
Existing political regulation	4.5
Stranded asset risks	4.2
Mainstream indexes	3.6
<b>Subordinate barriers (1.5-3.5)</b>	
Employees competencies	3.2
Employees attitude, priorities and efforts	2.7
Top-management	2.6

Table 1 and 2 synergises investors ranking of LCI drivers and barriers. Yet, the interviews added nuance and details to each factor, which should also weigh into a final categorisation. Hence, I propose the following categorisation, based on insights from the questionnaire and interviews (see the following sections for an elaboration of each factor and how the questionnaire results are integrated across factors).

**LCI drivers**

<u>Key</u>	<u>Intermediate</u>	<u>Subordinate</u>
<ul style="list-style-type: none"> <li>• Risk/return profile of LCI</li> <li>• Costumer/pension fund members’ preferences</li> <li>• Top-management</li> <li>• Increased public awareness</li> <li>• Expected future climate and energy policy</li> <li>• Stranding risks for coal and oil sands</li> </ul>	<ul style="list-style-type: none"> <li>• Organisational culture</li> <li>• Stranding risks for oil</li> <li>• Media and NGOs</li> <li>• Inspiration from competitors/market leaders</li> <li>• Quality and quantity of LCI-data is improving</li> <li>• Individual needs, values and motivation</li> <li>• New structures and systems</li> </ul>	<ul style="list-style-type: none"> <li>• LCI-supply</li> <li>• Current climate and energy policy</li> <li>• Employees competencies</li> <li>• Fossil-free indexes</li> <li>• Expected future finance policy (EU)</li> <li>• Intermediate management</li> <li>• Mission and strategy</li> </ul>

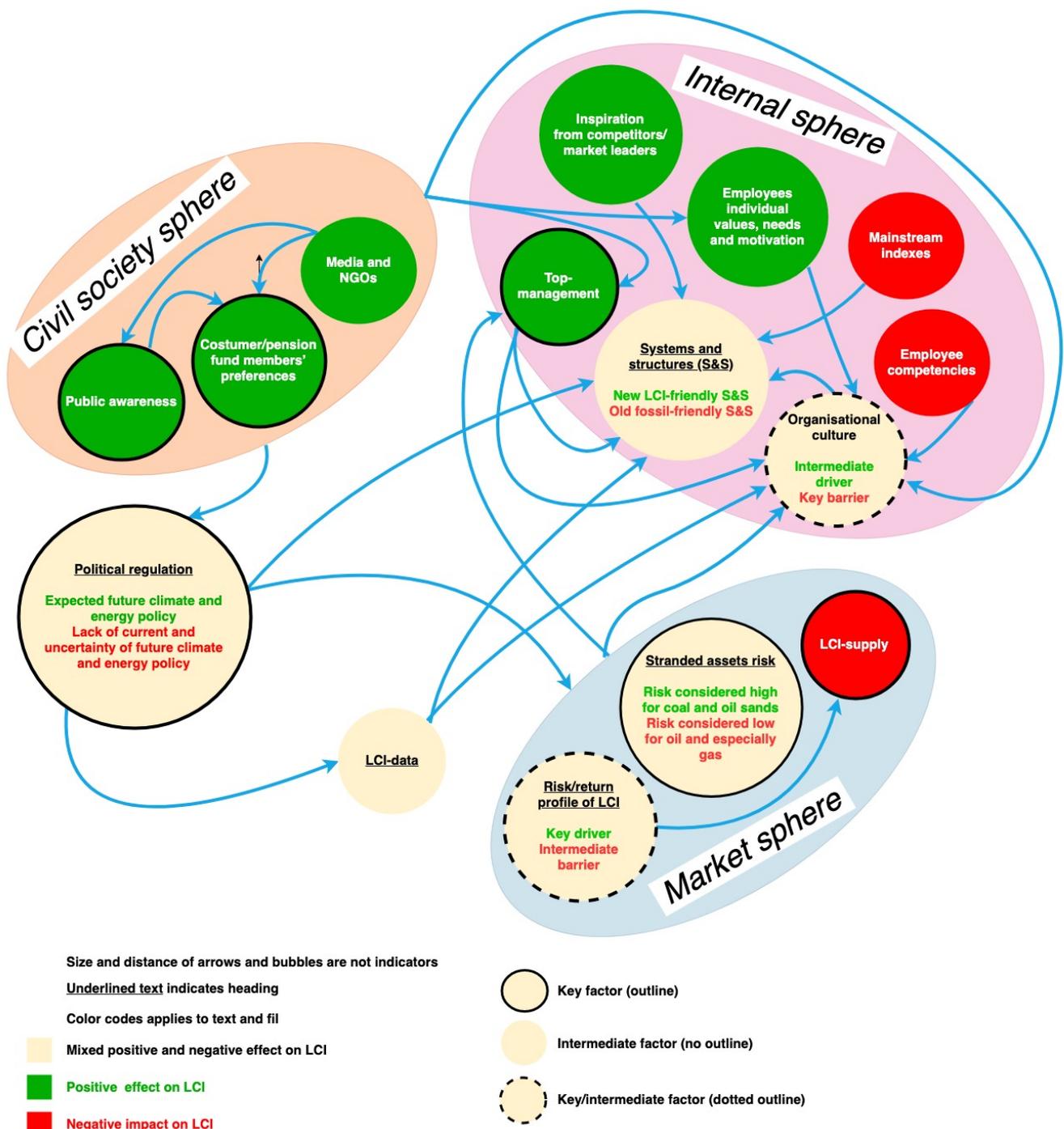
**LCI barriers**

<u>Key</u>	<u>Intermediate</u>	<u>Subordinate</u>
<ul style="list-style-type: none"> <li>• Low LCI-supply</li> <li>• Lack of current and uncertainty of future climate and energy policy</li> <li>• Stranding risks low/immaterial for oil and especially gas</li> <li>• Organisational culture</li> </ul>	<ul style="list-style-type: none"> <li>• Low quality and quantity of LCI-data</li> <li>• Risk/return profile of LCI</li> <li>• Mainstream indexes</li> <li>• Old systems &amp; structures</li> <li>• Employees competencies</li> </ul>	<ul style="list-style-type: none"> <li>• Individual needs, values and motivation</li> <li>• Top-management</li> </ul>

The above categorisation is largely in line with that of Table 1 and 2. Yet, there are a few divergences:

- Political regulation is broken down to 'expected future climate and energy policy', 'current climate and energy policy' and 'expected future finance policy'. In addition, I weigh political regulation a bit higher than the questionnaire because political regulation has significant impacts on other key factors such as 'risk/return profile of LCI' and 'stranding risks'.
- 'Stranding risks' are differentiated across fuel types.
- Organisational systems are merged with 'structures' (which were not asked for in the questionnaire) and upgraded to intermediate driver and barrier based on insights from interviews.
- Indexes factors are moved from external to internal as they are closely linked to the development of new internal systems.
- 'Intermediate management' is downgraded from intermediate to subordinate, as the interviews revealed how intermediate managers supports LCI-initiatives from top-management but rarely drive any significant change.
- 'Mission and strategy' where not present in questionnaire questions but is added as a subordinate driver, as it – in broad terms – has the same function as intermediate management.
- Some questionnaire results are integrated under new headlines, e.g. 'Increased employee awareness of climate change' is now a subcategory under 'individual needs, values and motivation'.
- 'Employees competencies' are weighed higher (subordinate to intermediate), again based on interview insights.
- Lastly, whereas the questionnaire weighs 'organisational culture' as a below-subordinate barrier (1.4), I weigh organisational culture as a key barrier. I will provide a more elaborate argumentation for this in 'Discussion' (5).

From the review of the 14 factors (next section), it is clear that there are significant synergies between many of them. Figure 3 provides an overview of the key and intermediate drivers and barriers, as well as the synergies identified. Note that the drivers and barriers have been grouped according to three spheres: civil society, market and internal (of the finance organisations).



**Figure 3.** Impact of factors on LCI and synergies between them. See legend for interpretation (own creation).

#### **4.1. Elaboration of external drivers and barriers**

This section provides an elaboration of the external factors, developed from the interviews and a handful of qualitative comments from the questionnaires. The following section does the same for internal factors. As my core interest is the general trends in the finance industry, outlier answers (i.e. a single respondent disagrees with all other respondents on some issue) are in most cases not included.

**4.1.1. The risk/return profile and available supply of LCI**

*This factor addresses the financial return and risk rate of available LCIs - how attractive investments are these investments? In addition, it addresses the LCI-supply - how many attractive investments are available?*

Respondents generally agree, that LCI does not imply a compromise for returns nor risk. Nevertheless, there might be minimal differences between

**Risk/return profile is a key driver and intermediate barrier. LCI-supply is a key barrier and subordinate driver.**

Despite a recent boom in LCI-supply, return rates are now lower than previously due to increased popularity of LCI.

Questionnaire		
	Driver	Barrier
Risk/return profile	7.0	4.5
Supply	2.8	5.6

LCI and other investment types. For example, one respondent report that LCI might have marginally lower returns, but also lower risks. For alternative investments, opinions differ. One respondent finds that investing in renewable energy projects is attractive because of low risks and stable returns. Others find what while early renewable energy investments proved highly profitable because of government subsidies, contemporary LCI projects have much lower returns because “there are many takers [investors] and everybody loves something green”.

Some respondents also point to supply-limits of financially attractive LCIs. One respondent state, that supply-limits are the most important if not only external LCI-barrier. Others report, that the availability of attractive LCI depends on the type of investments. For global equity investors with an immense ‘investment universe’ of potential companies to invest in, there is a significant supply of low-carbon equities to consider, yet for investors that only invest in Danish companies, the options are fewer. Christophers (2019) also identified supply as a significant LCI-barrier among North American finance professionals.

**4.1.2. Stranded assets risks**

*I here explore the impacts of how fossil fuels are increasingly exposed to stranding risks - see 'Stranded Assets' (2.2.2).*

<p><b>Key driver for coal divestment, intermediate for oil and subordinate for gas. Key barrier for oil and especially gas divestment.</b></p> <p>Stranding risks are already having material impacts on coal and oil sands. For oil and especially gas, the risks are still considered largely immaterial.</p>		
<b>Questionnaire</b>		
	Driver	Barrier
Stranding risks	5.0	4.2

While some respondents are in the early stages of integrating stranding risks, others state that stranding risks are not currently part of their risk assessments but that it likely will be quite soon. There is wide agreement<sup>4</sup> that coal and oil sands is already becoming stranded, and many pension funds have withdrawn from coal and oil sand companies (Jersild et al., 2018). For oil and gas, however, the assessment is blurrier. The general attitude is, that one should be careful not to be overexposed to oil and gas and that it is important to keep an eye on political, technological and market developments to identify the right timing to divest.

Generally speaking, respondents seem more concerned with how the bio-physical impacts from climate change will impact their investments, than the risk of stranded assets from climate policy. Asked about such regulatory risks, one ESG-manager replies: “We are not there yet.”. Nevertheless, s/he also states that while his/her organisation is currently investing in gas projects with a 10-year repayment period, s/he could not imagine investing in fossil projects with a repayment period of 20 to 30 years.

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<sup>4</sup> If no reference is provided, the statement comes from the interviewees. This applies across the results section.

Silver (2017) argues that investors could in many ways be blind to stranding risks, as risk assessment is normally deduced from historical (as opposed to forecasted) performance of companies. Confronted with this logic, one respondent refers to how his/her organisation has recently implemented an analytical tool which forecast exposure to e.g. fossil fuels and that their decision to divest from many coal companies was partly based on this approach. This is in line with Christophers (2019) findings which emphasise that while investors see stranding risks for coal as material, they are not foreseeing stranded oil in the next 10-12 years (at least) but are wary about 20-30 years bonds for oil companies.

**4.1.3. Customer preferences**

*This section explores the impact of consumer preferences for financial intermediaries and competition-exposed pension funds.*

<p><b>Key driver for financial intermediaries and intermediate driver for pension funds exposed to competition.</b></p> <p>Financial intermediaries experience that customers increasingly request or demand LCI-measures. The same applies to pension funds but to a lesser extent.</p>		
<p><b>Questionnaire</b></p>		
	<p>Driver</p>	<p>Barrier</p>
<p>Customer preferences</p>	<p>7.8</p>	<p>0.4</p>

How customer preferences influence LCI depend on the type of customer an organisation engages with. For financial intermediaries, customers are institutional investors and retail investors (private savings). For pension funds, membership is also different as for some professions, all employees are 'bound' to one pension fund, while in other professions, employees are free to choose. Thus, some funds have a fixed member-base while others have to compete on an open market.

Across competition-exposed pension funds and financial intermediaries, respondents generally agree that customer preferences are an important factor and something that organisations are eager to comply with. Nevertheless, respondents differ in their view of to what extent ESG and LCI is something customers prioritise. According to one respondent from a financial intermediary, ESG and LCI are becoming increasingly mainstream: "It's quite clear, it's not just a small group of leisure hippies. It is not the masses yet, but that's just a question of time". The literature also supports this point: a recent study found that 72% of the US population are to some extent interested in ESG factors when investing (Morningstar, 2019). The respondent further states that customers will "say no thank you if we don't have a solution that fits their needs" [LCI/ESG preferences"]. His/her colleague adds that while some customers find that ESG and LCI "makes good sense", others are still hesitant.

For pension funds, customer preferences seem less important. One pension fund respondent finds that demand is limited and states that "I don't think people are particularly interested in their pension before they approach retirement". Nevertheless, s/he also states that LCI is - although one among many – an important variable for attracting and keeping customers.

**4.1.4. Member / pension savers preferences**

*This section explores the impact of member preferences for pension funds with a fixed member-base.*

<b>Key driver for fixed-membership pension funds.</b>		
All fixed-membership pension funds try to align with their members preferences Those with higher educated members experience more direct member pressure.		
<b>Questionnaire</b>		
	Driver	Barrier
Member / pension savers preferences	7.2	1.2

Among the fixed-membership pension funds, there is strong agreement that the voice of members is taken very seriously: "After all, it's their money". In one pension fund, members suggested that investments should be Paris-aligned. The board supported the decision and it became policy. The ESG-manager of the fund comments: "it is a wish that comes from below - the members, those who own the pension fund - so of course we take it on us".

As the pension funds have members from various professions, their member-bases are also different. An ESG-manager from a pension fund for members with a medium-long education explains that his/her organisation has experienced much less member pressure than the pension funds for academics: "We have a general assembly, but it's not like [the academic pension funds] where everyone has an opinion. We have another type of customers. After all, they are not highly educated."

The difference in member bases also leads to different priorities. For example, the pension fund for industry prioritise workers' rights, while those with health workers prioritise health. Nevertheless, there can be important overlaps, e.g. when a pension fund which prioritises workers' rights chose to divest from coal mines, because of bad working conditions in the mines, climate was also a supporting argument.

**4.1.5. Public awareness about climate change and the role of the institutional investors in relation to climate change**

Public awareness of climate change and the role of finance has been increasing in recent years.

<b>Key driver.</b>		
Public awareness influences many other factors such as customer/member preferences and political regulation.		
<b>Questionnaire</b>		
	Driver	Barrier
Public awareness on climate change	6.3	0.2
Public awareness on climate change and the role of institutional investors (e.g. pension funds)	6.2	0.7

Respondents generally agree that public awareness of climate change has skyrocketed in recent years and that this has been a key driver for furthering LCI. The public attention has "put climate on the agenda everywhere" and as one respondent states "Just the fact that we are all talking about it. That contributes to pushing it [LCI]". Yet some respondents also see the public discourse on climate change as being a bit misguided and incomplete. For example, one respondent states that "there is eaten less and less meat, but people still don't think about their CO<sub>2</sub> impact when they stream Netflix or buy clothes". As an example, on the influence of public discourse, one respondent points to how the recently emerged narrative of plastic-issues has made plastic a top-priority for politics, multinational companies and investors. One respondent emphasises that what is missing now is an awareness of the impact of peoples own investments (e.g. pension savings). Lastly, one respondent points to one key-mechanism for how public discourse influence LCI-momentum in the finance industry: "but what drives the customers? It's the public debate".

**4.1.6. Media and NGOs**

*In recent years, NGOs and media has started highlighting the financial sectors role for climate change.*

<p><b>Intermediate driver.</b>                  Most respondents are aware of media and NGOs addressing LCI, and it has some form of influence. Yet is also clear that there are limits to this influence.</p>		
<p><b>Questionnaire</b></p>		
	<p>Driver</p>	<p>Barrier</p>
<p>Media and NGOs</p>	<p>5.0</p>	<p>1.3</p>

During the spring of 2019, when interviews were conducted, Danish newspaper Information did an extensive series about controversial investments by Danish pension funds (14 articles on LCI to date, 8.5.2019, see Dagbladet Information (n.d.)). When asked about medias influence, respondents often referred to the articles by Information as something that succeeded in creating a pressure as it focused on investments that other pension funds had excluded – hence exposing any outliers. One respondent stated that they did not want to be seen as the only one investing in something others had excluded; “it is not nice, and it is not what our members want. We read Information every morning with excitement”. Thus, respondents argue that such work help strengthening the momentum for LCI integration, and this is further supported by the fact that since Information started exposing pension funds’ oil sand investments, several pension funds approached the newspaper to inform that they had divested from oil sands. By March 29 2019, Danish pension funds had sold off more than 40% (compared to January 2019) of their investments in oil sand companies (Gjerding & Elkjær, 2019).

If Information is the go-to example of media influence, WWF is the corresponding for NGOs. WWF Denmark has since 2013 produced four reports which score and rank LCI policies of all major Danish pension funds (WWF Denmark, n.d.). The respondents generally acknowledge that NGOs can enact influence in ways similar to that of media – i.e. via pressure and insights. One ESG-manager states that media and NGO pressure "does not influence our asset managers - other than that we know it is something that has the attention from media and the public. Perhaps I don't think it has material impact" and "media and NGOs were a part of the puzzle when we withdrew from coal, but only a corner of a very big puzzle". As one alternative investment manager states: "NGO-reports? I'm sure our ESG-manager reads them, I don't. It's not something I care about a lot".

Next to their direct impacts on finance organisations, media and NGOs also exert influence on public awareness and opinion, politics and members and customers of pension funds and financial organisations.

**4.1.7. Political regulation**

Political regulation refers to the impacts of current and expected future policies and political goals (e.g. emission reduction targets).

**Expected future climate and energy policy is a key driver. However, current climate and energy policy is only a subordinate driver, and a lack of stronger contemporary policies and uncertainty of future policy is a key barrier. Expected future finance policy is a subordinate barrier.**

Current and expected climate and energy policy is already impacting investment decisions, but much uncertainty remain, and the general view is that strict climate policy is not lurking around the corner.

Questionnaire		
	Driver	Barrier
Current regulation	2.5	4.5
Expected future regulation	4.5	1.1

Most respondents find that current climate and energy regulation is minimal and that the lack of political leadership and frameworks constitutes a significant barrier for LCI. Nevertheless, climate and energy policy (current and expected) is already having impacts on risk assessments; for example, some respondents point to how they could not imagine investing in fossil fuel projects (alternative investments) with a repayment period of 20 or 30 years.

There is strong agreement that the Paris Agreement constitutes significant progress and it is seen as the by far most important climate political development: "Suddenly you have political momentum and can see that everyone is moving in the same direction, it's not just EU."

Nevertheless, the Paris Agreement does not translate directly into investor implications as it has "a lot of nice intentions, but it has never really been followed up by regulation that makes it attractive for us to turn the money in that direction". Rather, the agreement is meditated through a risk assessment filter: will stricter climate and energy policy come, what it is going to look like and when it will come? Essentially, investors have to bet on the chances of political action versus inaction: if policies fail to follow through, investors over-exposed to LCI will face suboptimal returns – but if policies do follow through, it will hurt those who failed to manage their climate risks.

Hence, investors try to anticipate regulation which could strand their assets. In the words of one asset manager, political risks “have a very low analysability” - there are simply too many unknowns, discouraging investors to spend much time analysing political outcomes. As another respondent states: “we look at the broad trends, but not at the specifics. It [strict climate policy] is not coming in 2021 – all we can see it that it goes in that direction. At one point there will probably be a shock when they come with some regulation”. Political uncertainty is thus a key barrier for LCI. As one respondent states “this uncertainty is worse than even really strict frameworks”. The respondents generally support this call for more climate and energy policy, as it would provide a much-needed direction for them to invest along.

Regarding concrete policy measures, Mielke (2019) finds that investors (in this case, major European insurance companies) favour measures that promote LCI (e.g. feed-in tariffs), over policy with makes carbon-intensive investments less attractive (e.g. removal of fossil fuel subsidies or a carbon price). She further finds that investors currently consider the ETS-carbon (the EU Emissions Trading System) market to have a low impact, that they rank substantial ETS-reform as an important future signal, and that investors emphasise that policy signals should be coherent and credible to coordinate expectations.

Besides climate and energy policy, politics also influence LCI directly via finance policy and the EU is currently underway with a Sustainable Finance Package, which is set to include a number of policies including a sustainability-taxonomy of investments. One respondent emphasised how such tools are much needed as investors struggle to benchmark LCIs against each other.

**4.1.8. Inspiration from competitors and/or market-leaders**

*This factor concerns how respondents think about influences from their peers (i.e. competitors) and market-leaders.*

<p><b>Intermediate driver.</b></p> <p>Competing organisations and market-leaders has inspired some organisations in their LCI-work. Nevertheless, many also emphasise that mimetic factors are of limited influence for their organisation.</p>		
<p><b>Questionnaire</b></p>		
	<p>Driver</p>	<p>Barrier</p>
<p>Inspiration from competitors and/or market-leaders</p>	<p>4.7</p>	<p>0.8</p>

Asked about the influence from market-leaders and competitors, many respondents state that they “keep an eye out”, but it is also clear that some organisations have relied more on ‘mimetic factors’ than others. Regarding market-leaders, one respondent point to Michael Porter (an influential economist) as one source of inspiration for integrating ESG considerations, another states that his/her pension fund largely followed the Norwegian oil fund (The Government Pension Fund Global). Regarding competitors, one respondent from a financial intermediary mentions that they pay attention to what competitors do on LCI and ESG to avoid losing customers to more progressive peers, and a pension fund respondent points to how no one wants to be a ‘last mover’. Nevertheless, some respondents also emphasise that mimetic factors have been of limited influence. One respond sees his/her organisation as a first mover and explains that there simply was not much inspiration available, another stresses the importance of “following your own path, because it has to be part of your identity, otherwise it won’t work”. Nevertheless, this factor scores quite high as a driver in the questionnaire, indicating a higher significance than the picture painted in the interviews.

**4.1.9. LCI-data**

*LCI-data refers to climate data about investments. Carbon footprint data is the most common approach.*

<b>Intermediate driver and barrier.</b>		
While better LCI-data has supported LCI-integration, much uncertainty and noise remain in the data. This significantly constrain further LCI-integration.		
<b>Questionnaire</b>		
	Driver	Barrier
LCI-data	4.2	4.6

The 'data struggle' was repeated across all interviews. The word 'data' appears 40+ times in the compiled interview transcript and rarely with a positive connotation, and I rarely asked directly about the data-situation. In short, respondents are frustrated with the general confusion around, and limited quality of, climate data (e.g. carbon footprints).

Investors usually work with very solid measures – it is hard to argue that 12 Kroner is more than 14 - but carbon footprints involve many estimates and assumptions. In the words of one asset manager: “What makes it difficult is that it is very diffuse. Very qualitative. We try to get some numbers, but they go East and West [i.e. they range a lot]”. Another respondent explains how his/her organisation perform carbon analysis of their equities, but that equities only make up 20% of their total investments. Their alternative investments, which holds the highest share of renewable energy among their investments, are not listed (on the stock market) and therefore not subject to carbon footprint analysis. The core problem for investors is that they want to be able to distinguish wheat from chaff: “We want to invest sustainably, but we also want to be sure to not just get something fluffy with some hip posters”. In addition, there is no consensus on how to calculate and report climate and carbon impacts and different data-issuers often reach very different numbers on the same companies. Despite the challenges, a recurring narrative among all respondents were that data quality and quantity has progressed rapidly over the last decade, enabling LCI-integration, and the forecast is that data will continue to become better.

**4.2. Elaboration of internal drivers and barriers for low-carbon investments**

This section continues the elaboration of specific factors, but now turns to the drivers and barriers internal to the organisations.

**4.2.1. Organisational culture**

*Organisational culture is 'The way we do things around here.' More precisely, it is the sum of formulated and unformulated rules, values, world-views and principles that steer behaviour and provides a meaning system for employees. Organisational culture is shaped by the organisation's history and practice (Burke & Litwin, 1992).*

<b>Key barrier and intermediate driver.</b>		
Most find the organisational culture quite (and increasingly) LCI-supportive but some find that pockets or broader sections of employees remain reluctant. Nevertheless, I postulate that organisational culture constitutes a key LCI-barrier because most if not all respondents 1) considers the role of finance as apolitical 2) subscribe to a 'market and tech-optimistic' position, thus limiting the scope for political action, 3) argue that green investors should still invest in fossil fuels. Yet, organisational culture is under rapid progressive reformation and most respondents agree that finance can affect change by steering investments towards LCI. I will elaborate on this factor in 'Discussion' (5).		
<b>Questionnaire</b>		
	Driver	Barrier
Organisational culture	5.1	1.4
Employee attitude, priorities and effort	4.8	2.7

One group of respondents find that organisational culture is very supportive and has not experienced any opposition to LCI. For example, one ESG manager states that "People suggest that we should stop using cardboard cups and all sorts of things. It's something people [employees] are concerned about". Yet, other respondents express some reservations:

"I have certainly experienced situations where people thought it was cumbersome. That's how it is when you tell someone to change their work. Some think it's fine, they see the purpose. Others say 'I know how to run my shop and I won't change that'".

Some respondents report that broader sections of staff can be reluctant or outright resistant, while other respondents find that resistance is mainly found among individual outliers.

Many respondents point towards educational and professional backgrounds as one explanation of why some are still reluctant about LCI. In short, ESG managers are generally quite benevolent towards LCI, whereas asset managers can be more wary. Many ESG managers argue that one strategy is particularly useful for 'winning over' asset managers: to show how data on climate risk exposure can qualify financial analysis of investments - thereby fostering financial performance in the long run. For example, a utility company who rely heavily on coal will have a high carbon footprint and hence be prone to significant losses in case strict climate policy is implemented. This has implications for the financial analysis of an investment in such a company. One ESG manager states: "We can make them realise the value of this. For them, the highest priority is financial return. But this can affect returns. It can affect business models, there are great risks related to this.", and another: "10 years ago - and I also hear this from many other people in the industry - it was kind of 'oh no what now, I don't have time today' when I walked down the corridor. Today, I'm not the guy who brings trouble, I'm the guy who brings solutions, some options, something to develop from."

A recurrent narrative was that 'it (the world or 'everything') is getting better all the time': societies, investors and companies are increasingly aware of environmental problems and impacts are continuously lowered as data, efficiency and policies are improved and clean-tech is developed. Respondents also have positive views of competitive market economy and many see finance as a key agent of change: "The financial sector and institutional investors are the biggest drivers for getting something done about climate change, because it is not from the politicians nor from the consumers you see much action". Yet, all respondents also agree that they represent apolitical organisations and that they "cannot use people's money to send political signals". Again, these findings are in line with Christophers study (2019).

Adding to this, many (of my) respondents argue that responsible investors should still invest in fossil fuels, as the world will be needing them through the energy transition - although many also emphasise the importance of selecting 'best performers' among the fossil fuel companies. In short, this is a strategy which seeks to steer towards desired change (e.g. less CO<sub>2</sub>) by investing in the companies which performs best towards this outcome - in any given sector. More concretely, one respondent refers to how his/her organisation invests in Shell over other oil companies because Shell has been more progressive on climate change and invested substantially in gas.

**4.2.2. Leadership + management practices + mission & strategy**

Leadership refers to how leaders influences the activities of the organisation. Management practices refers to how intermediate managers carry out the organisation’s strategy. Mission and strategy is what top-management has declared as the organisation’s mission and strategy - and what employees believe it is (Burke & Litwin, 1992).

**Top-management is a key driver and a subordinate barrier. Mission, strategy and intermediate management are subordinate drivers.**

In the majority of organisations, top-management have been instrumental in pushing LCI-strategies and policies. Mission, strategy and medium-level management support the drive towards LCI but does not steer it.

Questionnaire		
	Driver	Barrier
Top-management	7.1	2.6
Intermediate management	5.0	1.3

All respondents agree that top-management (board of directors and executive management) are highly supportive of LCI. Many state that their CEO (chief executive officer) have a high personal interest in specifically climate change and point to strong top-management support as an important factor for anchoring LCI throughout the organisation.

Two respondents argue that, as part of planning for the future, top-management also attempt to identify specific niches for investment which, if the right niche was chosen, will deliver above-market-returns. Thus, top-management tries to identify future markets which are both profitable but also underinvested from other investors, and some Danish pension funds identified wind energy as such a market in the early 2000s. This ‘strategic bet’ proved to reward early-bird investors with high returns and leading market positions on wind energy. In addition to ‘picking winners’, top-management also ‘pick losers’ and one respondent emphasise how his/her organisations divestment from coal and oil sand came directly from the top-management. One respondent also points to how innovative intermediate managers were also decisive in his/her organisations successful early engagement with wind energy, as it was their job to identify attractive investment options under the overarching strategy.

In the questionnaire, top-management was also scored as subordinate barrier. Unfortunately, I have no further elaboration on this available, as the high scores (a 9 and a 5) were given by respondents from organisations who did not agree to an interview.

Respondents are divided on the question if their organisation has a solid LCI mission and/or strategy. Many of those who claim to have a solid strategy also acknowledge that it could be stronger, more

specific, better integrated and/or more ambitious. Other respondents argue that their LCI missions and strategies are “on their way” but that many questions have to be answered before the strategy is in place. Respondents also emphasise that strategies are much stronger now than just a few years ago.

In total, three respondents find that their organisation does not have a solid strategy. One argues that his/her organisation is simply not up-to-speed with current developments and that they are only now (and quite late in the respondent’s opinion) starting to engage LCI. Interestingly, the two other naysayers are from one of the pension funds which leads the WWF LCI index (Jersild et al., 2018). They both argue that although their organisation has been a long-time frontrunner, they are only now starting to systematise their LCI processes and policies. It seems likely that the key driver for this organisation was an early strategic bet on wind energy and that this bet has been able to carry the organisations LCI-performance until now.

**4.2.3. Individual needs and values + Motivation**

Individual needs and values are the psychological factors that stimulate individual actions. Motivation refers to the factors which motivates people to 'get the job done' (Burke & Litwin, 1992).

<b>Intermediate driver and subordinate barrier.</b>		
Three mechanisms drive LCI-motivation: 1) that "it's nice to do good", 2) a personal interest in climate change and 3) a professional interest in LCI.		
<b>Questionnaire</b>		
	Driver	Barrier
Employee attitude, priorities and effort	4.8	2.7
Increased employee awareness of climate change	3.8	0.4
Increased employee awareness of the role of institutional investors and climate change	3.8	0.4

“Does working with climate change make your job more fun?” I asked all respondents. One quote sums up the general response: “Yes. It is a big thing in society, so it is fun to be able to work with it and think about it. It certainly is”. According to one respondent, LCI would not be possible without personal motivation: “If you don’t believe [in LCI], it becomes half-hearted. That just doesn’t work in investing”.

Respondents’ motivation can be categorised into three categories:

1) That it is ‘nice’ to contribute to something 'good'. A few quotes illustrate this point:

“It’s only nice to feel that you have a positive impact on things”

“The fact is, that we all want to get a good result for ourselves *and* do something good for others”

2) A personal interest in specifically climate change. This was mostly expressed by ESG-managers (as opposed to asset managers). One ESG-manager states that climate change is his/her “biggest interest area” and that s/he is especially thrilled to work with LCI as she believes that the financial sector is "the most important driver for mitigating climate change".

3) A professional interest in LCI. Some respondents are more drawn by the technical investment aspects of LCI. One asset manager point to how investments used to be a simpler science: it was very

much about key figures. Now “there is really a movement in investment processes, in goals, in reporting”. LCI has raised new questions and challenges, and an asset manager explain how asset managers are increasingly working with new details about the invested companies – in essence, they have to figure out if companies are part of the green transition or not.

**4.2.4. Systems and structures**

*Systems refers to procedures and mechanisms that facilitate work. Structures refers to arrangement of employees in relationships of authority (Burke & Litwin, 1992).*

<p><b>Intermediate driver and barrier.</b>          Old systems and structures constrain LCI, but new systems and structures are more supportive.</p>		
<p align="center"><b>Questionnaire</b>          (structures were not included)</p>		
	Driver	Barrier
Systems	1.9	0.8

There is a clear trend towards integrating LCI issues into core processes. Many respondents emphasise the importance of a holistic approach: "it's not a box with climate investments. We try to think more holistically about it". Many also underscore the importance of being systematic in their LCI work: "it is important to set up some policies and find a way to work with it [LCI] that is consistent, structured and measurable". One respondent mentions how this might slow down the LCI-integration, but that "because we are a big player, it is important to have a method where we treat everyone equal". Hence, the organisations are implementing several new analytical tools and procedures such as carbon footprinting and projections of future carbon exposure.

Burke and Litwin (1992, p. 537) argue that "perhaps the most important subsystem" is an organisations reward system – after all, "people do what they are rewarded for doing". While many of the organisations have bonus-schemes for asset managers if portfolios show high returns, none have established LCI-related financial incentives. While many respondents gave good arguments for why that would be difficult (e.g. data-issues), the lack of such incentives still indicate that LCI and ESG considerations are a long way from being prioritised on equal terms as maximised returns – a view that was also expressed explicitly by respondents.

All organisations have undergone organisational restructuring to support LCI, and there is a clear trend in this process: whereas previous structures had ESG-managers working mostly on the side-lines of investment teams, new structures try to integrate LCI into investment procedures. Several organisations are establishing new fora for ESG and LCI which include top-management representatives, asset managers, communication staff and ESG-managers.

The new systems and structures give rise to a number of challenges and a significant LCI-barrier is that many 'old' systems and set-ups reinforce carbon intensive investments. The prime example here is indexes (next section). Indeed, the implementation of new systems and structures is not complete - one respondent refers to an internal survey, which found that although 80% of asset managers incorporate ESG considerations in their work, only 5% do it systematically.

**4.2.5. Index practices**

*Indexes practices refers the practice of following an index (passive investing) or evaluating an actively managed portfolio against a given index.*

**Mainstream indexes are an intermediate barrier, new fossil-free indexes are a subordinate driver.**  
 Although mainstream indexes restrain asset managers from divesting from fossil fuels, there are ways to work around this issue. Some respondents have considered fossil-free indexes, but no-one is using them yet.

**Questionnaire**

	Driver	Barrier
Mainstream indexes	1.4	3.6
New fossil-free indexes	1.6	0

Baron & Fischer (2015) report that financial bonus schemes for asset managers are often calculated against market indexes. This finding was also supported by respondents. Therefore, such schemes can be a barrier for LCI, as it becomes risky to diverge too much from the mainstream indexes (Baron & Fischer, 2015), which, according to respondents, always have a significant exposure to fossil fuels. For passively managed funds, this barrier might be even higher, as they simply follow a given index (besides their exclusions). Respondents had diverging opinions on this hypothesis. One group argued that divesting from coal and oil sands does influence asset managers performance (against the index), and that "staying out of a whole sector [fossil fuels] equals a very big risk" and "a big mismatch" if oil prices should increase. Others are not as concerned and emphasise how such 'index-risks' can be mitigated via different portfolio-designs: for example, fossil fuel investments can be replaced with other investments, which would also perform well under a higher oil price. These respondents also pointed to how diverging from an index is not problematic, as long as the client agrees to what that implies for risk.

The index-market, however, is also under reformation and fossil-free indexes are a newly emerging phenomenon. Yet, none of the organisations involved in this thesis have started using fossil-free indexes hitherto. One respondent argues that "the world is not ready to go fossil free", another respondent states that his/her pension fund "slowly has started discussing fossil free indexes" but leaves the impression that it is not happening in the near future.

Once again, the findings of this section are well aligned with those of Christophers (2019) who also points to how passive investing is becoming increasingly popular, thus potentially enhancing the constraining effect of fossil-based index practices.

**4.2.6. Task requirements and individual skills/abilities**

The specific skills, knowledge and competence required for employees to accomplish their assigned tasks (Burke & Litwin, 1992).

<b>Intermediate barrier.</b>		
LCI is new for everyone and often difficult for asset managers and resource-heavy for the organisations. Yet, organisations are - to some extent - prioritising LCI and respondents generally find that sufficient resources are being allocated.		
<b>Questionnaire</b>		
	Driver	Barrier
Employees competencies	1.7	3.2

Regarding the required competencies needed for integrating LCI, the respondents tell very similar stories: LCI was previously not a significant priority, and when it became one, no-one had the needed human resources ready at hand. Thus, every organisation had to build, and continues to build, LCI capacity.

The respondents find that LCI-processes require many resources, but there is agreement that adequate resources are being provided for capacity building of managers, customer-service and investment teams. A recurring statement was that although resources are being provided, no-one have "reached the finish line", and some respondents argued that further resources are needed. Specific areas of capacity intervention were identified as alternative investments, streamlining new decision-making processes and LCI-lingo to avoid misunderstandings, and educating investors to include social and environmental factors. Some emphasise how such a holistic approach can be challenging for highly specialised asset managers.

## 5. Discussion

*Dear investment professionals, thank you for your time, you can stop reading here - unless you are open to have your world views challenged.*

This section discusses the importance of organisational culture for LCI-integration, evaluates the integration of LCI until now, then considers finance as an agent of change and lastly reflects on the contributions of the thesis before addressing two key limitations.

### 5.1. Drivers and barriers for LCI

The analysis identified a number of key, intermediate, and subordinate drivers and barriers for LCI. Many of these factors are under rapid development (e.g. data, systems, political regulation) and hence, the findings of this thesis should be seen as a snapshot in time - things might look very different in five years. Individual factors were discussed in 'Results' (4), so I will here only discuss organisational culture, as it requires a few further considerations.

#### 5.1.1. Organisational culture

I evaluate the organisational culture to be a more significant barrier than the respondents. Here, it is important to highlight that my own ideological starting-points and theories of change, differ significantly from the respondents. More concretely, it is my view, that progressive investors should aim to reach negative emissions in their portfolio, whereas many respondents find that their investor-responsibility stops as soon as the portfolio is in line with a 1.5C° world. Thus, we evaluate the organisational culture against different criteria: I find that it is insufficiently progressive to push for negative emissions, whereas respondents find that it is aligned with the Paris Agreement. Yet in my view, 1.5C° is a global target and as many investors globally do not align their investments with this target - as one North American investor states: "There is so much money in the market that couldn't give a flying fuck about this [LCI]" (Christophers, 2019, p. 759) - some other investors will have to go further.

Although I already have paid significant attention to organisational culture, I will here discuss it a bit further. Because there is reason to consider if organisational culture might be more important than we initially think. Firstly, organisational culture influences many other factors. For example, Tsanakas, Beck, Ford, Thomson, & Ye (2014) argue that even data and outputs from financial models are subject to organisational culture, as the final decisions based on the models are dependent on the culture of

the organisation. In addition, financial risks - which Damert and Baumgartner (2018) identified as the most significant driver of corporate climate action - is subject to cultural review. This is because risks which undermine the prevailing culture "will be resisted as they undermine the belief system under which finance is practised and would also undermine the political and financial power of the sector" (Silver, 2017, p. 109).

Secondly, organisational culture is key if organisations are to achieve core and not only superficial change (Siebenhüner & Arnold, 2007). In continuation of this, Christophers (2019) asks why the investment industry has such hard time giving up "conventional methods and tools, even as the applicability and credibility of those methods and tools is called into question on a daily basis?" (Christopher, 2019, p. 770). Christophers finds some answers in the anthropological literature on corporate culture, which highlights how "corporations generally find it incredibly difficult to extricate themselves from forms and modes of reasoning and calculating on which they have historically relied, especially (although not only) if those approaches have proven successful in the past" (Christopher, 2019, p. 770-771). Even when companies suddenly have to manage situations which to outsiders clearly requires new methods, they still cling on to business as usual for as long as possible (Christopher, 2019). When I proclaimed to a respondent that to me, it seemed like the easiest thing to remove 12 % fossil fuel investments from a portfolio, it was clear from his/her reaction, that this would amount to mutiny in his/her world. This shows that there are very different perceptions of the scope of change between those internal and those external to the finance industry – what we see as tiny steps are often landslides to finance professionals.

## **5.2. Evaluating the LCI-integration**

It is crystal clear that LCI-integration is happening and that it has come very far in one decade with new systems, tools, data, structures etc. Most importantly, it is affecting investment and divestment decisions. This development can be seen as part of an overarching trend where investment processes are becoming more advanced and sophisticated as new risks, opportunities, and data emerges. Climate change is one among other emerging risks and opportunities, and the industry is simply becoming more advanced at tackling such trends. Yet, it is also clear that this integration is not happening without challenges, as it is often difficult to fit the new priorities into existing set-ups, and because LCI is not allowed to affect returns. Hence, LCI-integration is possible as long as it is compatible with return-maximisation. There could, however, be more nuances to this, than traditional critical social science operates with. For example, one pension fund has set a target of 10 % green investments by 2025. Even-though the respondent representing the organisation in question emphasised, that "you can never compromise returns", s/he also explained, how the fund might have to buy some green bonds with below-market returns to fulfil their target. This points to the existence

of multiple institutional logics; one of sustainability and one of return-maximisation. Lander, Koene, and Linssen (2013) claim that whenever new institutional logics arise, four outcomes are possible:

- 1) Segments of the new logic get incorporated into dominating logics
- 2) A hybridisation of elements of both new and old logics
- 3) The new logic replaces existing logics as the dominant one
- 4) A peaceful co-existence of the new and old logics

The findings point to several of these outcomes. The methods to increase financial performance via LCI represent the first outcome. The development of tools, structures and various systems to support this first outcome results in hybrid elements, corresponding to the second outcome. Lastly, the many cases where the sustainability and return-maximising logics are aligned indicate that outcome four is also taking place. Yet, the finding that sustainability is always subject to review of return-maximising indicates that sustainability is a 'sub-logic', and that the return-maximisation logic is by no means substantially challenged. In summary, various external pressures coupled with the possibility of advancing financial gains via LCI and climate data has meant that the return-maximising logic has not sought to derail the emerging sustainability logic, but rather to consume it. One important implication of this is, that as sustainability merely acts as a sub-logic, it can easily be removed by the dominating logic, if it eventually becomes too troublesome or if external pressures diminish (Narayanan & Adams, 2017).

### **5.3. Finance as an agent of change**

The above considerations challenge the initial assumption presented in the introduction of this thesis: that finance is an important agent of change. Perhaps finance is not so influential after all? Some observers point to how - despite intense divestments and active ownership - major oil companies largely continue business as usual. Exxon, for example, the world's biggest private oil company, has continuously neglected investor pressure on climate change (Chasan, 2019), and a 2017 report documents that most oil and gas companies continue to develop new reserves that, if used, would cross the 2°C target (Leaton & Grant, 2017).

In many ways, investors just follow the market. They "want to be part of the transition" and "it feels good to do good", but they also insist to be apolitical and subscribe to a return-maximisation logic, which inevitably makes LCI a second priority. Therefore, it is important to recognise the limits of how much change investors can or want to steer. In essence, finance is only going to push LCI as far as it is profitable. Indeed, Gray, Walters, Bebbington, and Thompson (1995) and Narayanan and Adams

(2017) reason, that under neoliberal socio-political structures, transformative changes might not be possible, and hence reformist-level change is, currently, the deepest possible in the corporate sphere.

Hence, the imperative of maximising returns is perhaps the conclusive structural barrier for LCI. No respondent questioned this logic, and while this might be aligned with investors worldviews, it is not aligned with 37% of Danes, who are willing to accept lower returns in exchange for positive environmental impacts (Deloitte Denmark, 2019). Yet, respondents continuously referred to how the return-maximisation scheme is manifested by law. This finding is also in line with Christophers (2019), who found that investment professionals have a very absolute understanding of fiduciary duty (a law which mandates an investor to maximise returns of clients' assets). Yet, recent developments suggest, that the law is not nearly as strict as investment professionals interpret it to be (Gary, 2019; OECD, 2017; Patterson, 2017). Thus, this barrier might actually be cultural rather than structural. More concretely, a less absolute fiduciary duty would mean the following: Today, if an investor can choose between an LCI with a 2 % yearly return and a normal investment with a 3 % yearly return, s/he has to choose the normal investment. A less strict fiduciary duty would allow him/her to choose the LCI and prioritise environmental (or social) impacts over maximised returns. This would drastically lower or remove many of the LCI-barriers identified in this paper and enable finance to take a much more progressive role in the green transition. The problem is however, that a loose fiduciary duty would require a downgrading of the return-maximising logic - and while it was found that an absolute fiduciary duty is upheld by conservative organisational cultures rather than policy, it was also found that return-maximisation lies at the heart of the finance industry's self-image. Coupled with how organisational cultures are extremely resistant to radical change (Christophers, 2019), this leaves little hope for finance to take a truly progressive lead on climate change.

Nevertheless, it is also my contention, that finance could go significantly further on climate and other socio-ecological parameters, without affecting the logic of maximised returns (i.e. still operating under a strict fiduciary duty). As most respondents refer to active ownership as the cornerstone of their LCI-strategy, I find that the most urgent step forward would be for investors to become more transparent and aggressive with deadlines for potential divestment in their active ownership.

#### **5.4. Contributions to sustainability science and beyond**

This thesis contributes with new understandings about the sustainability-investor nexus and organisational change theory in a number of ways.

Firstly, I show how the Burke-Litwin model can be used as a starting point for empirical inquiry, but that it is possible and valuable to add additional context-relevant factors through literature and field engagement.

Second, while this thesis focus on the relationship between finance and specifically climate change, many of the findings, and especially the more overarching trends, could with some caution be applied to other ESG issues. This applies because finance, generally speaking, handles ESG issues with the same systems, structures and mindset. For example, there are clear links between finance and the following Sustainable Development Goals: decent work and economic growth, no poverty, good health and well-being, industry, innovation and infrastructure and responsible consumption and production.

Third, I hope this thesis will contribute to the sustainability science community by showcasing that investors don't bite, and that sustainability scientists can engage meaningfully with finance - despite limited pre-knowledge (when I started this research, I did not know the difference between bonds and equities). Furthermore, the interdisciplinary and normative outset of sustainability science means that we are well positioned to engage with finance in critical but also solution-oriented and constructive ways.

Last, a list of recommendations for finance, civil society and politicians are provided in appendix D.

## **5.5. Limitations**

A few limitations of this thesis are important to keep in mind.

### ***5.5.1. Data bias***

Access to a broader selection of positions within the finance organisations would have made my data more diverse and representative. Hence, it is a limitation of the study that I only was allowed to engage employees, who to some degree work with LCI. Adding to the bias, there was an overrepresentation pension funds from the greener end of the LCI-spectrum (based on (Jersild et al., 2018)). Nevertheless, I did also interview representatives from LCI-progressive pension funds and some respondents have only recently engaged with LCI and ESG – thus remedying some of this bias. In addition, I lessened the bias further by triangulating findings against theory and scientific literature on the sustainability-investor nexus. Yet, as the primary focus of the research was to prioritise empirical rigour, there was limited scope for such triangulation, again pointing to a limitation of the paper. Taken together, the limitations might skew my findings towards an overly positive evaluation of

LCI-progress. Thus, as I still evaluate the LCI-integration to be rather superficial, this might not be so problematic after all.

### **5.5.2. Financialisation**

This thesis studies the financialisation of climate change - and how it can be advanced. Hence, it does not challenge the overall process of financialisation, which sustainability science has been critical of (Clark, 2013) and which in some cases has been shown to impede mitigation efforts (Jerneck, 2017). In my view, this is a key limitation of the thesis. Yet, even though I agree that it is important to critique and challenge financialisation, I will also argue, that financialisation is - to some extent - happening whether one likes it or not. Hence, it is important to also ask investors how they integrate climate change. Not least because many progressive environmentalists, NGOs, and citizens place much hope and agency on the shoulders of finance. For this reason, it is important that sustainability science also engages with finance in order to make sure that they do it right - or at least less wrong.

Boltanski and Chiapello (2007) point to how capitalism has often managed to disarm its most dire critics by simply integrating or consuming the criticism into the market economy. Is this also happening here? Yes, I will say so, to some extent. While the goal of LCI never was to challenge financialisation, it is still a valid critique that it furthers financialisation. As "theory is always for someone and for some purpose" (Cox, 1981, p. 128), research is also done with a purpose. So, is this thesis 'for' financialisation and capitalism? That is a very valid question. Yet, by pointing to the dominance of return-maximising over sustainability, it is my hope that this thesis also conveys a critique of financialisation. In other words, finance will only support LCI as long as it is profitable, and hence it would be highly naive (if not outright stupid) to put all one's eggs in this basket.

## 6. Suggestions for future research

During the writing of this thesis, a number of questions emerged, which could not be address here. On this background I suggest that future research explore the following questions.

1. It would be highly interesting to qualify the identification of key factors by linking the variables identified in this thesis (drivers and barriers) to actual LCI-performance of various organisations via regression analysis. LCI-performance scores can be taken from WWFs ranking of Danish pension funds (WWF Denmark, n.d.).
2. As the 'trickle-down dispersion' of LCI-practices to less progressive regions were named as a prerequisite for the relevance of this thesis, it would be interesting to explore in more detail if, how, when, and with what effects this dispersion takes place.
3. From a sustainability science perspective, it would be an interesting entry point to evaluate the integration of LCI via a multi-layer perspective approach. This could - supported by the findings of this thesis - help to identify specific steps forward for relevant actors.
4. The finding of this thesis that organisational culture constitutes a significant barrier for further LCI-integration makes it relevant to study this culture in more detail. Here, a more in-depth ethnographic approach would be an interesting way forward.

## 7. Conclusion

This thesis set out to explore and evaluate the integration of LCI in the Danish finance industry, as well as to identify barriers and drivers for further LCI-advancement. The thesis identified a number of key drivers of barriers for LCI:

### **Key drivers and barriers for LCI-integration in the Danish finance industry**

#### Key drivers

- Risk/return profile of LCI
- Costumer/pension fund members' preferences
- Top-management
- Increased public awareness
- Expected future climate and energy policy
- Stranding risks for coal and oil sands

#### Key barriers

- Low LCI-supply
- Lack of current and uncertainty of future climate and energy policy
- Stranding risks low/immaterial for oil and especially gas
- Organisational culture

A number of intermediate and subordinate factors were also identified (see 'Results' 4).

In addition, it was found that LCI has progressed far and wide over the last decade, and that it has influenced systems, structures, tools, investment processes, and - most importantly - investment decisions. Nevertheless, it is clear that the sustainability logic of LCI is fully subject to a logic of return-maximisation. This inhibits further LCI-integration and problematises the notion of finance as an agent of change.

If finance is to take a truly progressive lead towards a low-carbon future, the return-maximising logic must be made subject to disturbance from LCI. It was found that return-maximising is upheld by conservative organisational cultures rather than policy. Yet, as this logic is situated at the core of the finance industry's self-understanding and worldview, it will require a major cultural shift to challenge it. Judging from the views expressed by the respondents in this thesis and the literature on corporate organisational change, such a major cultural shift is unlikely to happen anytime soon.

Nevertheless, it was also found that finance organisations can integrate LCI-considerations significantly further than they do today, without compromising returns. Here, a more transparent and aggressive approach to active ownership was identified as a pressing issue.

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## 9. Appendixes

### Appendix A: interview-guide (English next page)

#### Introducerende spørgsmål

Vil du med to sætninger beskrive dit arbejde for X?

Hvad betyder klimavenlige investeringer for dig? Og vil du sige, at I er en front-runner på området? Er klimaforandringernes alvor tilstrækkeligt reflekteret i jeres investeringsportefølje?

#### Interne forhold

Er der en solid mission eller strategi for det videre arbejde med klimavenlige investeringer i X? (mission & strategy)

I hvilken grad vil du sige at den øverste ledelse og mellemledere prioriterer klimavenlig omstilling af investeringsporteføljen? (leadership + management practise)

Understøtter Xs virksomhedskultur klimavenlige investeringer? Hvad mener de medarbejdere, der ikke arbejder med klima, om emnet? (culture)

Er der udviklet systemer, der sikrer klimavenlighed i Xs investeringsportefølje? Fx klimaaftryk screeninger eller belønningssystemer til ansatte, der opnår solide klimareultater? (systems)

Gør det dit job mere spændende at indtænke klimaproblemstillinger? (Individual needs and values)

Vil du sige at jeres ansatte generelt har de nødvendige kompetencer for at omstille til klimavenlige investeringer? (task requirements and individual skills/abilities).

#### Eksterne forhold

Hvilken betydning har \* for jeres arbejde med klimavenlige investeringer?

\*politik regulering                      \*afkast og risiko for fossile & klimavenlige investeringer  
\*inspiration fra konkurrenter / market-leaders                      \*efterspørgsel fra kunder/medlemmer  
\*offentlighedens holdning                      \*press fra NGO'er                      \*benchmarks

Hvis man politisk skal fremme klimavenlige investeringer, hvad bør man så fokusere på?

Hvad mener du er de primære drivers og barrierer for at den finansielle sektor investerer 100 % klimavenligt?

Jeg har ikke flere spørgsmål - har du noget du gerne vil have med, før vi afslutter?

## **Introductory questions**

Could you describe your work for X in two sentences?

What does climate-friendly investing mean to you? Would you say that you are a front-runner in the field? Is the seriousness of climate change sufficiently reflected in your investment portfolio?

## **Internal matters**

Is there a solid mission or strategy for further work on climate-friendly investments? (mission & strategy)

To what extent would you say that top management and middle managers prioritize climate-friendly restructuring of the investment portfolio? (leadership + management practice)

Does X's corporate culture support climate-friendly investments? What do the employees who do not work with the climate think about the subject? (Culture)

Are systems developed that ensure climate-friendliness in X's investment portfolio? For example, climate impact screening or reward systems for employees who achieve solid climate results? (System)

Does it make your job more exciting to work with climate investing? (Individual needs and values)

Do you want to say that your employees generally have the necessary skills to switch to climate-friendly investments? (task requirements and individual skills / abilities).

## **External conditions**

What importance does \* have for your work on climate-friendly investments?

\* Policy regulation

\* return and risk for fossil & climate-friendly investments

\* inspiration from competitors / market leaders

\* Demand from customers / members

\* public opinion      \* pressure from NGOs      \* benchmarks

If one is to promote climate-friendly investments politically, what should one focus on?

What do you think are the primary drivers and barrier for the financial sector to invest 100% climate-friendly?

I have no more questions - do you have something you would like to bring before we finish?

## Appendix B: Questionnaire (English version next)

Angiv i hvor høj grad den givne faktor er/har været en "driver" og/el. barriere for jeres arbejde med klimavenlige investeringer. Nogle faktorer vil både være driver og barriere - andre vil kun være en af delene.

0 = ingen indflydelse. 10 = meget stor indflydelse. Tomt felt tolkes som 0.

Klimavenlige investeringer skal forstås i sin bredeste forstand, inkl. investering i CO2-reducerende projekter og virksomheder, divestment fra CO2-intensive projekter og virksomheder samt general integration af klimahensyn i jeres investeringer. **Undersøgelsen er fuldt anonym. Dit navn vil ikke fremgå og stillinger bliver sammenlagt.**

Repondentens stillingsbetegnelse:

Nr.	Eksterne faktorer indflydelse på omstillingen til klimavenlige investeringer	Driver 1-10	Barriere 1-10	Eventuelle kommentarer el. eksempler
1	Risiko/afkast-profilen af klimavenlige investeringer			
2	Udbudbet af klimavenlige investeringer			
3	Risiko/afkast-profilen i fossil energi/infrastruktur (stranded assets)			
4	Allerede eksisterende politisk regulering			Giv gerne eksempler
5	Forventet fremtidig politisk regulering			Giv gerne eksempler
6	Efterspørgsel fra kunder			
7	Efterspørgsel fra medlemmer (f.eks. forslag på generalforsamling)			
8	Inspiration fra konkurrenter / "market-leaders"			Giv gerne eksempler
9	Negativ opmærksomhed fra presse, offentligheden og/el. NGOer			
10	Øget offentlig bevidsthed om klimaforandringer			
11	Øget offentlig bevidsthed om institutionelle investorers rolle ift. klima			

12	Vigtigste markedsindeks indeholder fortsat fossil energi/infrastruktur			
13	Nye klimavenlige el. fossilfri markedsindeks			
14	Udbudet og kvaliteten af ESG- og/el. klima-data			
15	Andet:			
16	Andet:			
<b>Nr.</b>	<b>Interne faktorerers indflydelse på omstillingen til klimavenlige investeringer</b>	<b>Driver 1-10</b>	<b>Barriere 1-10</b>	<b>Eventuelle kommentarer el. eksempler</b>
17	Direktionen og/el. bestyrelsens holdning, prioriteter og indsatser			
18	Mellemlideres holdning, prioriteter og indsatser			
19	"Alm." medarbejderes (f.eks. porteføljeforvaltere) holdning, prioriteter og indsatser			
20	Virksomhedskulturen			
21	Organisationssystemers (f.eks. bonus-ordninger)			Giv gerne eksempler
22	Øget medarbejderbevidsthed om klimaforandringer			
23	Øget medarbejderbevidsthed om institutionelle investorers rolle ift. klima			
24	Medarbejdernes ressourcer/viden/kompetencer			
25	Andet:			
26	Andet:			

Indicate to what extent the given factor is/has been a driver and/or a barrier to your work with climate-friendly investments. Some factors will be both driver and barrier - others will only be one.

0 = no influence. 10 = very big influence. **Blank fields are interpret as 0.**

Climate-friendly investments should be understood in their broadest sense, including investment in CO2-reducing projects/companies, divestment from CO2-intensive projects/companies and general integration of climate considerations into your investments.

Respondent organisation\*:

Respondent position\*:

\*The survey is fully anonymous. The name of the organisation will not figure in any publication and respondent positions will be aggregated.

No.	External factors influencing your work with climate-friendly investments	Driver 1-10	Barrier 1-10	Optional: comments or examples
1	The risk/return profile of climate-friendly investments			
2	The available supply of climate-friendly investments			
3	The risk/return profile in fossil energy/infrastructure (stranded assets risks)			
4	Already existing political regulation			Feel free to give examples
5	Expected future political regulation			Feel free to give examples
6	Customer demand			
7	Demand from members (e.g. proposals at general assembly)			
8	Inspiration from competitors and/or market leaders			Feel free to give examples
9	Negative attention from the press, the public and/or NGOs			
10	Increased public awareness of climate change			

11	Increased public awareness of the role of institutional investors and climate change			
12	Most important market index still contains fossil energy/infrastructure			
13	New climate-friendly or fossil-free market index			
14	The available supply and quality of ESG and/or climate data			
15	Other:			
16	Other:			
<b>No.</b>	<b>Internal factors influencing your work with climate-friendly investments</b>	<b>Driver 1-10</b>	<b>Barrier 1-10</b>	<b>Optional: comments or examples</b>
17	The Executive Board and/or the Board of Directors' attitude, priorities and efforts			
18	Intermediate managers' attitude, priorities and efforts			
19	Employees (e.g. asset managers) attitude, priorities and efforts			
20	The organisational culture			
21	Organizational systems (e.g. bonus schemes)			Feel free to give examples
22	Increased employee awareness of climate change			
23	Increased employee awareness of the role of institutional investors and climate change			
24	Employees' resources/knowledge/skills			
25	Other:			
26	Other:			

## Appendix C: Consent form for interviewees (English next page)

### Samtykkeformular

#### Lunds Universitets Center for Sustainability Science

Forsker: Rasmus Bjerring Larsen

Forskningsprojekt: Klimavenlig omstilling i den finansielle sektor

Ved at underskrive dette dokument erklærer jeg mig enig i at:

- I alle publikationer relateret til forskningsprojektet vil hverken mit eller min arbejdsgivers navn fremgå.
- Jeg kan undlade at besvare enkelte spørgsmål eller stoppe interviewet.
- Uddrag af interviewet vil blive transkriberet og analyseret af Rasmus Bjerring Larsen. Jeg kan bede om et udskrift og få rettet eventuelle fejl.

Jeg accepterer at blive optaget

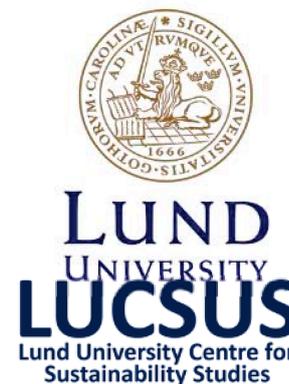
Jeg accepterer at blive citeret direkte (mit navn offentliggøres ikke)

Ved forespørgsel kan det endelige resultat af undersøgelsen deles med mig.

Dato:

Navn:

Underskrift: \_\_\_\_\_



## Consent Form

### Lund University Center for Sustainability Science

Researcher: Rasmus Bjerring Larsen

Research project: Climate-friendly transition in the financial sector

By signing this document, I agree that:

- In all publications related to the research project, neither my nor my employer's name will appear.
- I can refuse to answer any questions or stop the interview.
- Excerpts from the interview will be transcribed and analysed by Rasmus Bjerring Larsen. I can ask for a printout and correct any errors.

I agree to be recorded

I agree to be quoted directly (my name is not published)

Upon request, the final result of the study can be shared with me.

Date:

Name:

Signature: \_\_\_\_\_



## **Appendix D: Recommendations for finance organisations, civil society and politicians**

### **Recommendations for all agents:**

- There is an urgent need for clear communication about the ESG-space in fiduciary duty - investment professionals have an overly absolute interpretation of the law.
- The market is changing - 37% of Danes are willing to accept lower returns in exchange for positive environmental impacts. For 49% it is decisive that their invested savings have positive environmental impacts (Deloitte, 2019, p. 4). 72% of US citizens are at least moderately interested in sustainable investing (Morningstar, 2019).

### **Recommendations for finance organisations (including investors):**

- Inform customers and members about their investment options and develop products that prioritise ESG over maximised returns - 37 % of Danes are willing to make that trade-off!
- Become more transparent and aggressive about active ownership. The 'active-ownership-excuse' for restraining from divestment works for now, but if it does not show concrete results soon, civil society will like start discrediting active ownership if it is not transparent, ambitious and with divestment as consequence in case of non-compliance.
- Don't fear foreign markets. Responsible investing is getting popular overseas where 72% of US are at least 'moderately interested' in sustainable investing (Morningstar, 2019).
- Prioritise resources for
  - training of asset managers in new systems and data-formats.
  - additional capacity for ESG teams.
- Continue processes of advancing various ESG / climate-investment systems and supportive structures.
- Top-management support is decisive for anchoring progressive organisational cultures, that support the transition to low-carbon investing. Therefore it is key to ensure that top-management (board of directors and executive management) are engaged in and exposed to low-carbon investing developments on a continuous basis.
- Inform customers and members about their investment options and develop products that prioritise ESG over maximised returns - 37 % of Danes are willing to make that trade-off!

### **Recommendations for civil society:**

- Target finance sector with high quality communications to address information gaps (see recommendations for all agents)
- Keep pushing the stranded assets debate - it has material impacts
- Follow the money: target pension fund members and customers of financial intermediaries and ask them to set low-carbon demands for their investments.
- Concentrate efforts on top-management and 'regular' investment professionals, intermediate managers have limited influence. Top-management is 'high effort, high reward' targets as they are difficult to access but are very influential.
- Engage recent graduates as younger finance employees are more open to ESG-perspectives than their dinosaur-colleagues.

## **Recommendations for politicians:**

In short, the key task is to implement much stricter climate and energy policy as soon as possible. Danish investors and financial intermediaries are awaiting your next move and they expect to benefit even from very strict regulation because of their strong position in for example wind energy. Uncertainty around future climate and energy policy is a key barrier for low-carbon investments. Investors prefer transnational policies, but it is also clear that national policies have effects. In addition to climate and energy policy, policy which supports sustainable finance (e.g. a taxonomy of green bonds) is also much appreciated by the finance community.

Based on investors perspectives, climate and energy policy should

- Be long term and stable. Institutional investors mainly engage in long term investments and therefore it is crucial to know as much as possible about future policy landscapes.
- Not kill innovation. There should still be space for investors to create innovative and specialised investment products.
- Be as international as possible - if not global, then at least on EU level. A lack of common standards could lead to a situation of "total confusion", which might scare investors off from engaging in low-carbon investments – as they are more comfortable with conventional investments.