Navigating Emissions Reporting in the Shipping Industry

An Exploration of Emissions Reporting and Stakeholder Expectations



Master's Thesis MSc Finance & Investments MSc International Marketing & Management

COPENHAGEN BUSINESS SCHOOL

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Acknowledgements

We would like to express a heartfelt gratitude and appreciation for the individuals who have played a role in the completion of this thesis. First and foremost, we extend our sincerest thanks to our supervisor, Kristjan Jespersen, for the guidance, knowledge, and expertise throughout the writing process. Your dedication, insightful feedback, and motivation have been instrumental in shaping this thesis and expanding our understanding of the subject matter.

We would also like to express our deepest gratitude to Amanda Frøstrup Nørgaard for her invaluable expertise, patience, and continuous support throughout this journey. Her profound knowledge, constructive criticism, and valuable suggestions have immensely contributed to the development and refinement of this thesis. We are truly grateful for the opportunity to benefit from her expertise and guidance.

Furthermore, we would like to extend our sincere appreciation to all the interviewees who graciously participated in this study. Your willingness to share your insights, experiences, and perspectives has been instrumental in enriching the research and providing valuable firsthand information. Your contributions are deeply appreciated.

We would also like to thank all the individuals who have supported and contributed to this thesis in various ways, whether through their insightful discussions, critical feedback, or assistance in data collection and analysis. Your contributions have significantly enhanced the quality and depth of research.

To our families and friends, we extend our sincere gratitude for their continuous support and understanding throughout the completion of this thesis. A special thanks must be extended to Ida Wegener, who through her unwavering support, has helped us overcome such a challenging moment in our lives. We are deeply appreciative of the enduring encouragement that out families and friends have shown as we embark on the final chapter of our academic journey.

Visual Abstract

Research Question: How does emissions reporting represent a risk of non-compliance with stakeholder expectations in the shipping industry?



Findings

Emissions Reporting Index

- Discrepancies in reporting efforts across shipping segments and geographical locations
- Growing inclination towards more standardized and comprehensive emissions reporting

Thematic Analysis

- Increased and divergent stakeholder expectations
- Non-compliance with expectations exposes shipping companies to financial, reputational, and competitiveness risks
- Emissions reporting converging towards a license to operate

Theoretical Framework

Extending upon the fundamental philosophies of institutional theory, the theoretical framework intends to link the evolving applicability of stakeholder theory to the context of sustainability disclosure



Discussion & Conclusion

The study concludes that the risk of non-compliance with stakeholder expectations are **limited** in the **short-term**, but the materiality of this risk will **increase** significantly in the **long-term**



Abstract

This paper explores the role of emissions reporting in the shipping industry, focusing on the risks and disadvantages of not disclosing emissions in compliance with stakeholder expectations. The shipping industry's resistance to disclose company information poses challenges to accurately determine its environmental impact, despite the industry's significant contribution to greenhouse gas (GHG) emissions. Employing a sequential mixed methods approach, this study combines a quantitative analysis of emissions reporting efforts in the industry with thematic analyses of 16 interviews with shipping companies and industry stakeholders. The analysis reveals a discrepancy in emissions reporting expectations among stakeholders, posing a challenge for shipping companies to meet these diverse expectations. The study highlights different reporting efforts across segments and geographical locations, as companies are encouraged to adhere to varying reporting expectations. Non-compliance with stakeholder expectations exposes companies to financial, reputational, and competitiveness risks. Despite their limited immediate impact, the consequences of these risks will increase significantly over time. It is recommended that shipping companies do not disregard emissions reporting in the short term, as it enables them to shape their narrative and develop necessary reporting competences. By employing institutional, stakeholder, and sustainability reporting theory, this study proposes implications that contribute to the practical and theoretical understanding of the results. Isomorphic pressures are shaping the reporting efforts of shipping companies, as emissions reporting is converging towards a license to operate. Nevertheless, the paper accentuates the significance of understanding the specific stakeholder landscape and the necessity for companies to distinguish themselves through reporting efforts. Rather than mandating uniform reporting across the industry, a concurrent application of hard and soft law is advocated, as it enables the elevation of stakeholder expectations while allowing companies to differentiate themselves.

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Abbreviation	Definition
BCG	Boston Consulting Group
CO2	Carbon Dioxide
CSD	Corporate Social Disclosure
CSP	Corporate Social Performance
CSR	Corporate Social Responsibility
coZEV	Cargo Owners for Zero Emissions Vessels
DCS	Data Collection System
DSF	Danish Ship Finance
ERS	Emissions Reporting Score
ESG	Environmental, Social, and Governance
ETS	Emissions Trading System
EU	European Union
GHG	Greenhouse Gas Emissions
GPR	Greening and Performance Relativity
GRI	Global Reporting Initiative
GSCM	Green Supply Chain Management
GSM	Green Shipping Management
H&M	Hull & Machinery
ICCT	International Council on Clean Transportation
IFRS	International Financial Reporting Standards
IMCO	Intergovernmental Maritime Consultative Organization
IMO	International Maritime Organization
ISO	International Organization for Standardization

List of Abbreviations

ISSB	International Sustainability Standards Board
LNG	Liquefied Natural Gas
m/m	Mass to total mass
MEPC	Marine Environment Protection Committee
MRV	Monitoring, Reporting, and Verification
MSC	Maritime Safety Committee
NFRD	Non-Financial Reporting Directive
NGO	Non-Governmental Organization
NFPO	Not-for-Profit Organization
NOx	Nitrogen Oxides
ODS	Ozone Depleting Substances
OILPOL	International Convention for the Prevention of Pollution of the Sea by Oil
PPFI	Poseidon Principles for Financial Institutions
PPMI	Poseidon Principles for Marine Insurance
SASB	Sustainability Accounting Standards Board
SCC	Sea Cargo Charter
SDG	Sustainable Development Goal
SECA	SOx Emission Control Area
SOLAS	International Convention for the Safety of Life at Sea
SOx	Sulfur Oxides
TES	Total Emissions Score
UN	United Nations
UNFCCC	UN Framework Convention on Climate Change
WoS	Web of Science
ZEMBA	Zero Emission Maritime Buyers Alliance

Chapter 1: Introduction

The shipping industry constitutes a vital role in global trade, transporting an estimated 90% of the world's commodities. However, the maritime sector is a significant contributor to GHG emissions, accounting for approximately 2.9% of global anthropogenic emissions (IMO, n.d.-a). Currently, the maritime sector lacks adequate global measures to achieve the necessary emissions reductions. The industry's emissions are on trajectory to increase substantially towards 2050, which poses a potential risk to the objectives of the Paris Agreement. Although a global approach to decrease GHG emissions would conceivably be the most effective and preferable solution, the slow advancement of the International Maritime Organization (IMO) has encouraged industry actors to adopt more ambitious sustainability strategies (European Commission, 2023). The IMO introduced an initial strategy in April 2018, outlining its objective of reducing the industry's GHG emissions towards 2050. The mandatory IMO Data Collection System (DCS) plays a crucial role in comprehending and monitoring the sector's emissions (MEPC, 2018). The introduction of the IMO DCS signifies a notable development in the industry, as shipping companies have historically been conservative and hesitant to disclose company data (Raza et al., 2023; Veson, 2022).

Across industries, stakeholders are increasingly expecting companies to disclose relevant sustainability information using sector-specific reporting standards and various disclosure vehicles to provide stakeholders with insights concerning the material risks and opportunities of specific companies. Companies are expected to regularly disclose sustainability data and targets relating to global operations, demonstrating that they are incorporating sustainability into their modus operandi (Gutterman, 2020). The process of sustainability disclosure is closely related to the principle of "what gets measured gets managed", suggesting that the act of disclosing data fosters valuable changes in strategic thinking (Topping, 2012). Whilst the shipping industry has historically been resistant to disclose company data, the emerging stakeholder pressures across industries may encourage shipping companies' stakeholders to increase their expectations. Topping (2012) states that increased sustainability-related disclosure could lead to corporate change, as enhanced communication to external stakeholders would allow investors, regulators, and other stakeholders to compare and benchmark the performance of companies throughout an industry. The author argues that a growing number of stakeholders are using reporting to comprehend companies' performance and raise their expectations to act responsibly (pp. 46-48).

Despite the increasing prominence of sustainability reporting in the maritime sector, the academic discourse of the topic is novel, and many perspectives remain unexplored. The existing body of literature is predominantly centered on examining the impacts of environmental performance, focusing on how companies may obtain certain competitive and financial advantages. However, there is a notable lack of research on the topic of sustainability reporting, with existing studies primarily addressing appropriate sustainability disclosure practices in the container and cruise segments. The academic landscape lacks insights into how sustainability reporting practices and stakeholder expectations may affect the modus operandi of a shipping company.

1.1. Research Question and Approach

This paper seeks to address the research gap by exploring the role of emissions reporting in the shipping industry and investigate the potential risks of not disclosing in alignment with stakeholders' expectations. The shipping industry is inherently built on trust between shipping companies and their stakeholders in which the importance of aligned expectations is pivotal. As such, it is fascinating to explore the notion of not conforming with stakeholders' expectations of emissions reporting from a risk perspective, which will be explored through the following research question:

How does emissions reporting represent a risk of non-compliance with stakeholder expectations in the shipping industry?

The research question will be explored through a sequential mixed methods approach in which a combination of quantitative and qualitative data will establish the foundation of the analysis. To understand the characteristics of emissions reporting, an emissions reporting index will be compiled. The index will evaluate and score the emissions reporting efforts of the 50 largest publicly listed shipping companies. Based on the outcomes of the index, interviews with shipping companies and industry stakeholders are conducted to explore tendencies and patterns of emissions reporting expectations of stakeholders along with potential risks of not reporting on emissions. To comprehend the analytical findings, institutional, stakeholder, and sustainability reporting theory will be employed, positioning the observations in a theoretical context.

1.2. Delimitations

Building upon the conclusions of Siponen & Klaavuniemi (2019), narrowing the scope of research could increase the practical relevance of the findings. As such, delimitations have been made to increase the applicability of the paper's findings. Initially, the paper was intended to scrutinize the role of environmental performance in the shipping industry; however, the extent of such topic was deemed too comprehensive to generate sufficient and pertinent conclusions. As such, the paper is limited to the topic of emissions reporting, which is considered the most material sustainability aspect of the maritime industry (Karagiannis et al., 2022). In addition, the paper focuses solely on the three most promient shipping segments measured on tons carried, recognized as the container, dry cargo, and tanker segments (Stopford, 2009, p. 68). In this paper, the tanker segment entails oil and liquefied gas carriers.

The quantitative analysis of this paper is constructed upon the emissions reporting efforts of the 50 largest publicly listed shipping companies in the world. The shipping industry is inherently reluctant to disclose information, and several of the largest shipping companies are privately owned with limited disclosure requirements. As such, the use of publicly traded companies provides access to an extensive amount of emissions reporting data, available to a higher degree of granularity.

In addition, the qualitative analysis utilizes interviews with shipping companies and industry stakeholders to generate a foundational understanding of emissions reporting in the shipping industry. The stakeholders interviewed for the analysis have been limited to financial institutions and industry customers to ensure a thorough understanding of their particular perspectives. This does not diminsh the importance of other stakeholders. However, financial institutions and industry customers are considered fundamental to the competitiveness of shipping companies. Furthermore, the interviewees are predominantly headquartered in European countries. Although shipping companies are fundamentally global institutions, the location of shipping companies' headquarters may impact the strategic objectives and consequently the sustainability strategy. As such, the study's findings predominantly relate to European-based shipping companies.

Chapter 2: Literature Review

The following chapter is separated into two overarching parts. The first part of this chapter presents the foundations of environmental regulations in the shipping industry. These sections demonstrate the current state of environmental regulations in the shipping industry and how the regulations have evolved since their introduction. Subsequently, literature is assessed to explore the shipping industry's alignment with the goals of the Paris Agreement along with a proposed decarbonization roadmap for the industry and the surge of non-regulatory climate initiatives. The latter part of the literature review sets out to assess established literature pertaining to environmental performance and sustainability reporting in the industry. These sections aim to uncover how different degrees of environmental performance and sustainability reporting can impact shipping companies. Ultimately, this literature review intends to explore a gap in the existing academic landscape, which this paper seeks to address.

2.1. Environmental Regulations in the Shipping Industry

2.1.1. The Evolution of Environmental Regulation in a Shipping Context

Due to the global nature of the commercial shipping industry, it has historically been difficult to promote and enforce international regulations and standards. As a response, the Convention on the Intergovernmental Maritime Consultative Organization (IMCO) was established at the Geneva Convention in 1948 as a specialized agency by the United Nations (UN) (UN, 1948). The Convention led to the establishment of the IMCO, which later changed its name to the International Maritime Organization (IMO) in 1982. According to Article 1(a) of the Convention, the IMO's purpose is to provide intergovernmental regulations and practices pertaining to maritime safety and efficiency of navigation in international trade (UN, 1948, p. 1). However, the responsibilities of the IMO have since evolved to encompass environmental issues, concerning the prevention and control of marine and atmospheric pollution by ships (UN, 1982).

Although international regulation of the shipping industry predates the establishment of the IMO, the international regulations were not collected under a unified international maritime body. By the time the IMO was established in 1958, it became custodian of the preceding international conventions. Most notably, the IMO assumed responsibility for the International Convention for the Safety of Life at Sea (SOLAS) of 1948 and the International Convention for the Prevention of

Pollution of the Sea by Oil (OILPOL) of 1954 (IMO, n.d.-b). While the SOLAS Convention chiefly concerned the safety of merchant ships, the OILPOL Convention was the first convention that concerned the prevention and control of marine pollution by merchant ships (IMO, n.d.-c). Following the IMO's establishment, both the SOLAS and OILPOL Convention were administered by the IMO through the Maritime Safety Committee (MSC) (IMO, 1998).

The OILPOL Convention recognized that the majority of oil pollution occurred during routine operations of oil tanker ships, e.g., during cargo tank cleaning (IMO, 1998, p. 3). The Convention sought to lessen the environmental impact of these operations by forbidding the discharge of oil and oily mixtures from tanker ships in certain prohibited zones and within 50 miles from land (UN, 1959). Throughout the 1950s and 1960s, as the size of standard oil tankers increased rapidly, the environmental ramifications of the growing international oil trade became increasingly evident (IMO, 1998, p. 3). Emphasized by the world's first major oil tanker disaster in 1967, the IMO revised and amended the OILPOL Convention multiple times to encompass both accidental and operational oil pollution (IMO, n.d.-d). Despite the adoption of several amendments, numerous member states found that the OILPOL Convention had become inadequate. As a result, the IMO Assembly decided to establish a new convention that would incorporate the regulations of the OILPOL Convention whilst being administered by a specialized IMO sub-committee on marine pollution, the Marine Environment Protection Committee (MEPC) (IMO, 1998, p. 5).

The International Convention for the Prevention of Pollution from Ships (MARPOL) was introduced in 1973. The MARPOL Convention sought to cover both accidental pollution and pollution from operations (IMO, n.d.-e). The U.S. Committee of Transportation and Infrastructure (1998) stated that the introduction of the MARPOL Convention "resulted in the adoption of the first ever comprehensive anti-pollution convention" (p. 408). The Convention consisted of five Annexes, incorporating large parts of the OILPOL Convention whilst additionally covering pollution from chemicals, harmful substances carried in packaged form, sewage, and garbage (IMO, 1998, p. 5). The IMO adopted a protocol to the Convention in 1978 and established the MARPOL 73/78, which entered into force in 1983 (IMO, 1998, pp. 6-7).

Following its implementation, the MARPOL Convention was amended several times. In 1997, the Convention was amended with a protocol that expanded the Convention's regulatory framework to include Annex VI, Regulations for the Prevention of Air Pollution from Ships (Committee of Foreign Relations, 2003, p. VI). MARPOL Annex VI entered into force in May 2005, providing a regulatory framework for controlling the emissions released into the atmosphere of specified pollutants from ship exhaust gas (IMO, n.d.-f). MARPOL Annex VI sought to reduce air pollution of ships through initiatives, such as limiting the emission of nitrogen oxides (NOx), governing the sulfur content of marine diesel, imposing a global cap on sulfur oxides (SOx) emissions, and prohibiting deliberate emissions of ozone depleting substances (ODS). Annex VI similarly introduced SOx Emission Control Areas (SECA), with the intention of limiting the sulfur content of marine fuels to 1.5% sulfur mass to total mass (m/m) in specified areas, such as in the Baltic and North Sea (Committee of Foreign Relations, 2003, p. VI).

After entering into force in 2005, the MEPC agreed to revise MARPOL Annex VI, aiming to strengthen its emission limits and obtain significant further reductions in global emissions. In October 2008, the MEPC proposed a revised MARPOL Annex VI that would reduce the SOx cap in SECAs to 0.10% m/m starting in January 2015, and globally to 0.50% m/m starting in January 2020. Similarly, the revision introduced additional technical requirements concerning the reduction of NOx emissions (IMO, n.d.-f). As such, the introduction of MARPOL Annex VI altered the landscape of the shipping industry, shifting the focus towards reducing its environmental impact.

2.1.2. IMO Greenhouse Gas Studies

Parallel with its regulatory changes and initiatives, the IMO conducted a series of environmental studies, examining the environmental impact of the shipping industry. IMO published four GHG studies, which have played significant roles in the development of the MARPOL Convention and the evolvement of environmental regulations of the shipping industry (IMO, 2000).

In connection with the preparation of MARPOL Annex VI in September 1997, the MEPC was invited to administer a study, uncovering which carbon dioxide (CO2) reduction strategies would be feasible for the shipping industry. The IMO studied CO2 emissions originating from maritime vessels, as they sought to establish the total amount of CO2 emissions stemming from the shipping industry. This resulted in IMO publishing its first GHG study on emissions in year 2000. Based on data from 1996, the IMO's findings suggested that the shipping industry contributed to about

1.8% of the global CO2 emissions (IMO, 2000). In 2009, the IMO conducted a second study, estimating that shipping emissions were 880 million tons in 2007, corresponding to 2.7% of worldwide CO2 emissions (IMO, 2009).

In 2014, the IMO released its third study, concluding that the industry emitted 796 million tons in 2012, contributing to approximately 2.2% of global CO2 emissions (IMO, n.d.-g; IMO, 2014). The fourth IMO GHG study was conducted in 2020. The study established that the industry had increased its emissions to 1,076 million tons in 2018, equivalent to an increase of 9.6% from 2012 level and 2.89% of global emissions. Additionally, the report established that emissions from the industry would significantly increase towards 2050, if no measures were taken to reduce them (IMO, n.d.-a; IMO, 2020). As such, the industry's increasing emissions and its lack of appropriate measures could pose a potential risk to the objectives of the Paris Agreement (European Commission, 2023).

2.1.3. The Shipping Industry's Alignment with the Paris Agreement

The Paris Agreement is a legally binding international treaty on climate change. The Agreement was adopted in December 2015 by all 196 parties at the UN Framework Convention on Climate Change (UNFCCC) at COP21 in Paris (UNFCCC, n.d.). The primary goal of the Agreement was to strengthen the global response to climate change, by "holding the increase in global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce risks and impacts of climate change" (UNFCCC, 2015, p. 3). The Agreement aims to reach a global peak of GHG emissions as soon as possible and states that developed countries shall provide support for developing countries to achieve the specified goals. Additionally, all parties of the Agreement must communicate a nationally determined contribution to achieving the goals on a five-year basis (UNFCCC, 2015).

While the shipping industry is responsible for approximately 2.89% of the world's GHG emissions, the shipping industry is not directly impacted by the Paris Agreement (IMO, 2020). The shipping industry is not held liable for its contributions to global GHG emissions to the same degree as the parties of the Agreement. The primary argument for omitting the shipping industry from the Agreement is that the shipping industry is internationally regulated, and emissions are

largely emitted on international waters. As a result, it is difficult to attribute responsibility to individual nations for the industry's GHG emissions (MAN Energy Solutions, 2022, p. 6; Hulac, 2015). At the Kyoto Climate Conference in 1997, similar issues were managed by assigning the IMO the responsibility for regulating emissions of the shipping industry. However, such regulatory measures were not included in the Paris Agreement (Hulac, 2015).

Following the adoption of the Paris Agreement, the shipping industry was urged to adopt GHG emissions reduction goals that were equally as ambitious as the Agreement's goals (UNFCCC, 2016). In response, the shipping industry introduced several GHG reduction initiatives and goals based on the IMO's GHG studies. However, the effectiveness of the IMO's initiatives has been questioned by several organizations, urging the shipping industry to adopt binding regulations for ships (UNFCCC, 2021). The International Council on Clean Transportation (ICCT) advocates that the shipping industry must establish an absolute emission reduction trajectory as soon as possible, providing a clear path to full decarbonization. The ICCT argues that postponing the establishment of such trajectory until 2030 would require the shipping industry to achieve zero emissions in the year 2044 instead of 2050 as illustrated in Figure 1 (Comer, 2021).

Figure 1





Note: The graph was produced by Comer (2021) for the International Council on Clean Transportation. The graph illustrates different international shipping emissions trajectories to 2050 with interim targets for absolute emissions.

2.1.4. Proposed Decarbonization Roadmap for the Shipping Industry

Following the IMO's GHG studies, the MEPC undertook the obligation to devise a strategy to decarbonize the shipping industry. In April 2018, the MEPC adopted the Initial IMO Strategy on Reduction of GHG Emissions from Ships (IMO's Initial Strategy). The strategy introduced mandatory technical and operational emissions efficiency measures, aiming to ensure the carbon footprint of maritime vessels would be quantifiable. Simultaneously, the strategy stipulated that the IMO would provide technical assistance to member states that would need support to adopt energy-efficient technologies. Finally, the strategy introduced the mandatory IMO DCS, aiming at collating fuel consumption data for all ships above 5,000 gross tonnages (MEPC, 2018).

The strategy's objective was to align the industry with the Paris Agreement, particularly addressing climate change. The strategy sets forth the ambition of reducing CO2 emissions per transport work by at least 40% by 2030, aiming at achieving a 70% reduction in emissions per transport work by 2050 compared to 2008 emission levels. Overall, the industry aims to reduce total annual GHG emissions by 50% by 2050 and phase out GHG emissions entirely by the end of the century to align with the Paris Agreement temperature goals. This strategy will be revised and adapted during the year 2023 (MEPC, 2018).

To achieve the objectives of IMO's Initial Strategy, the report proposes certain short, medium, and long-term measures to reduce GHG emissions. Short-term measures are defined as actions or supportive processes that have a direct effect on the reduction of GHG emissions. Specifically, the strategy stipulates 13 measures regarding the development of energy efficiency measures for new and existing ships, the importance of using speed reduction as an emission measure, the initiation of research and development into exploring alternative fuels, and undertaking new GHG studies to further the understanding of the industry's overall contribution to global GHG emissions. The MEPC proposes certain medium-term measures, such as the implementation of a program which encourages the adoption of alternative fuels at a national level, an enhancement of existing energy efficiency measures, and novel mechanisms aiming to reduce emissions through economic incentives. Finally, the long-term measures aim at absolute reductions of GHG emissions originating from oceangoing vessels. Examples of such actions are the dedication towards absolute zero-carbon fuels, enabling the industry to completely undertake decarbonization and encourage the adoption of innovative emission-reducing technologies (MEPC, 2018).

Prior to IMO's Initial Strategy, the European Union (EU) integrated the industry into the EU GHG reduction policies in 2013, as the shipping industry was identified as a major source of GHG emissions on the European continent. The policy introduced several measures to ensure the gradual inclusion of the industry within the overall emission reduction policy of the EU. The EU's emissions reduction policies required ships to collect fuel consumption data through the monitoring, reporting, and verifying system (MRV). Secondly, feasible emission reduction targets for the maritime sector would need to be explored to ensure alignment with the EU's commitment to reduce GHG emissions. Finally, the emissions reduction policy indicated the potential application of market-based measures to effectively reduce emissions (European Commission, 2013).

In July 2021, the European Commission adopted regulatory changes to the EU's emissions reduction policy, highlighting new emission reduction targets for the EU. The changes entailed including the shipping industry into the EU Emissions Trading System (ETS), a cap-and-trade system on CO2 emissions released in the EU. All vessels sailing within or to and from the EU would become a part of the emissions trading scheme, effectively applying a premium on emissions in the EU (European Commission, 2021).

Following the regulatory changes imposing emission reduction demands on the shipping industry, the Boston Consulting Group (BCG) formulated potential drivers of decarbonization and transitional measures that shipping firms could apply to create competitive advantages in the new competitive landscape. The BCG highlights that shipping companies that perform beyond regulatory requirements create lasting advantages through improvements in brand perception, customer loyalty, customer retention, and improved financing terms. Furthermore, BCG accentuates that developing a specific strategy for the transition towards net-zero emissions is imperative in facilitating the development of commercial advantages (Jameson et al., 2021). Previous studies have also identified the presence of similar decarbonization drivers and recognize that pressures originating from stakeholders are expected to drive the emissions reduction of the industry (Garcia et al., 2020; Serra & Fancello, 2020).

To capitalize on the decarbonization drivers, BCG introduced several transition levers aimed at reducing the emissions of shipping firms. The first lever is operational efficiency, where digitalization is emphasized as a novel innovative tool allowing companies to prolong asset life and improve the fuel efficiency of vessels. The report emphasizes that decreasing the speed of vessels cous reduce the emissions of the industry and create cost reductions. BCG describes the second lever as technological efficiency, whereby shipping companies could retrofit their vessels with energy-efficiency technologies to achieve additional fuel savings; however, it is imperative to acknowledge that the feasibility of such technologies varies greatly. Therefore, the maturity of innovations must be factored into the investment decision. To conclude, the BCG underlines the prospects of alternative fuels as a crucial lever in achieving carbon neutrality. While the shipping industry is yet to uncover which zero-emission fuels will be utilized, the BCG emphasizes that shipping companies must be vigilantly prepared for the prospects of future fuels, as it is the only way to achieve climate neutrality (Jameson et al., 2021).

In addition to the findings of the BCG, much academic literature has sought to explore how the shipping industry could reduce its environmental impact. A study by Serra & Francello (2020) investigated how the shipping industry could achieve decarbonization. The authors identify four groups of measures that could influence the emissions reduction of shipping companies. Namely, they consist of technical, operational, market-based, and management measures. The paper suggests that technological measures could reduce the industry's environmental impact in which the adoption of alternative fuels, improving the fuel efficiency of a vessel's hull, switching to conventional fuels with a lower grade of sulfur, etc., may have a positive impact. Operational measures, such as applying limitation on speed and optimize voyage-related activities, are also emphasized as key drivers. In addition, the authors define market-based measures as measures that influence the entirety of the industry, exemplified as levies on carbon emissions and other economic incentives. (Serra & Fancello, 2020).

In a similar study, Issa et al. (2022) identifies key measures to achieve decarbonization. The study focuses on the choice of fuels, energy efficiency technologies, operational improvements, and supportive legislation. The authors examine the role of liquefied natural gas (LNG) as a fuel to achieve CO2 reductions, proving that LNG is more cost-effective than biofuels. The authors present biofuels as a potentially attractive alternative fuel. However, given the lack of supply, biofuels are recognized as too costly and difficult to implement. Additionally, the authors argue that slow steaming is a viable operational improvement, obtaining fuel reductions between 20% and 30%. Ideally, slow steaming should be combined with effective antifouling coatings during

dry-docking to ensure a minimum of added drag originating from marine fouling. As such, the authors highlight that a combination of several measures is needed for shipping companies to achieve significant reductions in emissions (Issa et al., 2022, p. 29).

2.1.5. Non-Regulatory Climate Initiatives

The increasing academic discourse on the shipping industry's environmental impact and the introduction of the IMO's Initial Strategy has led to the introduction of non-regulatory climate initiatives. In 2019, the Poseidon Principles for Financial Institutions (PPFI) was introduced. Building on four principles, the PPFI was the world's first sector-specific, self-governing climate alignment framework for financial institutions (Global Maritime Forum, n.d.). The four principles of the PPFI are assessment of climate alignment, accountability, enforcement, and transparency. The PPFI was developed by global shipping banks, leading industry players, the Global Maritime Forum, and other shipping institutions (PPFI, n.d.-a). Signatories of the PPFI must publish an annual portfolio climate alignment score of its core business activities in line with the PPFI's technical guidance, which will be included in its annual disclosure report (PPFI, 2022a).

The PPFI was developed in response to growing interest from financial institutions to integrate climate considerations into their lending decisions, allowing them to align their ship finance portfolios with the policies and ambitions of the IMO (PPFI, n.d.-b). In 2022, 30 leading shipping banks from 13 different countries were signatories of the PPFI, constituting a total bank loan portfolio to global shipping exceeding USD 200 billion, equivalent to approximately 65% of the global ship finance portfolio (PPFI, 2022b, pp. 8, 10).

Inspired by the ambitions of the PPFI, charterers who were part of developing the initiatives indicated the need for an emission reporting framework related to chartering activities. As such, leading cargo owners, vessel owners, and industry experts launched the Sea Cargo Charter (SCC) in October 2020. In February 2023, the SCC had 34 signatories (SCC, n.d.-a). According to the SCC, its signatories are primarily dry and liquid bulk cargo owners from various segments, commodity traders, and shipping companies seeking to promote good environmental stewardship through its business activities (SCC, n.d.-b). Signatories of the SCC must satisfy the same four principles as signatories of the PPFI.

In its 2022 annual disclosure report, the SCC states that its 25 disclosing signatories moved over 15% of the total bulk cargo transported by sea in 2021. Of the 25 signatories, 12 were aligned with IMO's Initial Strategy (SCC, 2022). In addition, the SCC stated that "many signatories now have a near complete overview of the carbon intensity of their activity which can help them make chartering decisions based on environmental credentials" (SCC, 2022, p. 2).

Building on the same four principles as the PPFI and SCC, the Poseidon Principles for Marine Insurance was launched in December 2021. The initiative adopted the same methodology as previous initiatives to marine insurers, allowing them to align their hull and machinery (H&M) insurance portfolios with the policies and ambitions of the IMO (PPMI, n.d.-a). During 2022, the PPMI reached 18 signatories and affiliate members from the global marine insurance ecosystem (PPMI, 2022). The signatories of the PPFI and PPMI announced in September 2022 that both initiatives would add an additional trajectory to report on climate alignment with a 1.5°C future, aligning the Poseidon Principles initiatives with the Paris Agreement and the most recent climate science (PPFI, 2022b, p. 14; PPMI, 2022, p. 15). As such, the Poseidon Principles initiatives define the new trajectory as:

100% CO2 reduction trajectory to support the move toward climate neutrality by midcentury and the ambition to be consistent with the goals of the Paris Agreement in due course, and to limit global warming to well below 2°C, preferably 1.5°C, compared to pre-industry levels. (PPMI, 2022, p. 17).

Whilst the external climate reporting frameworks could support the shipping industry's transition to net zero by promoting accountability and transparency of the industry's emissions, the frameworks could aid the zero emissions transition through financial incentives. Reports of increasing demand for sustainable finance in the shipping industry show that several of the largest shipping companies have obtained sustainable financing agreements since 2020 (Bockmann, 2022). Several signatories of the PPFI are utilizing the Poseidon Principle's emission reduction targets as operational incentives.

The Danish ship financing bank and PPFI signatory, Danish Ship Finance (DSF), has been using the emissions reduction targets as sustainability targets in sustainability-linked financing agreements and emphasizes that 20% of its new loans in 2021 were sustainability-linked (DSF, n.d.; DSF, 2021). As such, the receivers of sustainability-linked financing must satisfy the

emissions reduction trajectory of the Poseidon Principles, whereas non-compliance would result in an increased interest coupon (Bockmann, 2022). The PPFI could provide financial incentives for shipping companies to improve environmental performance by providing lower financing costs to better environmental performers. Similar initiatives could be implemented by both the SCC and PPMI to provide incentives for shipping companies to improve their environmental performance.

Besides the Poseidon Principles and SCC initiatives, the number of coalitions, initiatives, and pilot projects seeking to support the shipping industry's road towards zero GHG emissions is rapidly increasing. More stakeholders are demanding greener supply chains and are committing to reduce emissions across their supply chains (PPFI, 2022b, p. 11). As such, stakeholders are providing demand signals for the shipping industry to deliver greener transport products. Due to the demand for greener transport products, demand-side initiatives, such as the Cargo Owner for Zero Emissions Vessels (coZEV), have been established.

The coZEV is a cargo owner-led platform established in 2020 that seeks to bring maritime freight customers together, utilizing the freight customers' brand and economies of scale to accelerate maritime decarbonization. Signatories of the coZEV include 19 of the leading container shipping customers, such as Amazon, IKEA, Philips, and Unilever (coZEV, n.d.). The coZEV proposes four initiatives that could support the decarbonization of the shipping industry. Based on the four initiatives, the coZEV aims to ensure that cargo owners can utilize economically viable zero-emission ocean freight by 2040, supporting complete decarbonization of the shipping sector in 2050 in line with the Paris Agreement (coZEV, 2022a). In addition to its current platform, the coZEV will work with cargo owners to establish a similar platform for maritime freight buyers, the Zero Emission Maritime Buyers Alliance (ZEMBA). The coZEV argues that the establishment of the ZEMBA will accelerate the road towards net zero emissions in the shipping industry by benefitting from economies of scale and through collaborative emissions reductions between cargo owners and freight buyers (coZEV, 2022b).

A similar initiative encouraging the green transition of the shipping industry is the Ship It Zero campaign. Instead of supporting the decarbonization of the shipping industry directly, the campaign targets large retail companies that utilize ocean-going transportation in their supply chains. Ship It Zero aims at ensuring that retailers take responsibility for the maritime pollution

that they are indirectly creating and urges the retail companies to choose climate-friendly shipping alternatives (Ship It Zero, 2023a). Specifically, the campaign posits three demands towards the large retailers, as it seeks to end port pollution by requiring shipping companies to utilize electrification and clean energies, ships propelled by fossil fuels are not selected in supply chains, and finally to commit to 100% zero-emissions shipping by 2030 and disclose yearly plans for achieving this goal. Ship It Zero argues that consumers are willing to pay for the decision of choosing green shipping alternatives. The organization states that 74% of consumers would be more likely to shop at retailers that use green shipping methods, and 70% of consumers would be willing to pay more for clean-shipping products (Ship It Zero, 2023b).

Ship It Zero acknowledges that there is a lack of transparency in the data process of shipping companies. The organization has released several reports pertaining to the emissions levels associated with transporting goods via shipping services. Herein, the findings are disclosed as being conservative estimates, as the emissions of shipping companies are difficult to verify. The organization was only able to verify 20% of the container shipping emissions, highlighting the lack of transparent emissions reporting (Ship It Zero, 2021c).

A recent survey by BCG examined the willingness for customers to pay a premium for carbon neutral shipping. The study finds that despite 82% of shipping customers are willing to pay a premium of 3% on shipping services, the earnings from such a premium will not be sufficient to reach net zero by 2050. If cargo owners are to fund the decarbonization effort to reach the 2050 goals on their own, they would have to pay a premium of 10-15% per year. As such, the study emphasizes the need to combine resources gained from premiums as well as resource allocation originating within shipping companies to decarbonize the industry. Furthermore, the BCG highlights that higher ESG scores lead to lower cost of capital, which could incentivize allocating internal resources towards decarbonization. BCG underlines that regulatory bodies could play a significant role in accelerating the decarbonization efforts of the industry by introducing carbon taxes, economic incentives to adopt energy-efficiency technologies, and expanding reporting requirements. BCG argues that customers' willingness to pay a premium for shipping services is not sufficient to ensure alignment with the 2050 objectives of the Paris Agreement. As such, the industry must convene with regulators and financial institutions to facilitate successful alignment (Jameson et al., 2022).

2.2. Exploration of Academic Literature

2.2.1. The Impact of Environmental Performance in the Shipping Industry

Several studies have examined the relationship between corporate social responsibility (CSR) and firm performance. In a study by Tsatsaronis et al. (2022), the researchers uncovers a significant correlation between firms' ability to incorporate and promote CSR practices and their financial performance. In the paper, the authors develop a so-called CSR Index that incorporated 17 key CSR components, establishing a CSR benchmark for the shipping industry. Based on the CSR Index, the authors carry out multiple empirical analyses of 50 listed shipping companies across the major shipping segments in the period 2010-2019 (Tsatsaronis, et al., 2022, p. 2). Concludingly, the authors find that implementing CSR policies adds value to shipping companies and benefit their stakeholders, suggesting that firm performance is shifting from being strictly financially driven towards including broader environmental, social, and governance (ESG) objectives (Tsatsaronis, et al., 2022, p. 12).

In a similar study by Yuen et al. (2017), the authors sought to uncover the relationship between the competitive strategies of shipping companies and the role of CSR. The authors analyze survey data from 223 shipping companies located in Singapore. The results of the analysis highlights that classic competitive strategies of differentiation or limiting costs have a significant impact on the financial performance of companies. CSR has a modest influence on financial performance; however, the effect of CSR increases when combined with the competitive strategy of differentiation. As such, the study illuminates the role of CSR in mediating the financial performance of shipping companies and suggests that managers should incorporate CSR into strategic decisions when pursuing a particular competitive strategy (Yuen et al., 2017, p. 11)

Additional contributions to the impact of CSR in the shipping industry is provided by Yuen & Thai (2016. The authors examined whether imposing CSR and service quality to satisfy customers of shipping firms could create financial synergies or present certain trade-offs for companies. To develop hypotheses, the authors conducts a thorough literature review followed by interviews with eight industry experts. Conclusions from the analysis highlights that customer satisfaction has a mediating role on the relationship between CSR and financial performance. The findings imply that the degree which customers are content with the CSR performance of shipping companies have an impact on their financial gains. The findings suggest a synergistic relationship between

implementing CSR and levels of service quality, whereby the implementation of CSR into shipping activities could lead to enhanced levels of service quality. When the two relations are at a high level, customer satisfaction and the financial performance of the shipping companies are maximized (Yuen & Thai, 2016, pp. 141-142).

Further contributions to the impact of CSR on financial performance in the shipping industry were drawn by Yuen et al. (2018), who found that the effect of CSR and service quality on financial performance were fully mediated by customer and job satisfaction. The authors determine that CSR and service quality could positively impact the financial performance of a shipping company, given that its activities are aligned with its stakeholders' interests. Based on an analysis of survey data and interviews with 156 Singapore-based shipping firms. The authors argue that shipping companies should incorporate CSR practices into their strategies. In doing so, customer perception of the shipping companies improves, and the companies benefit from synergistic effects and higher quality service levels (Yuen et al., 2018, p. 407)

In addition, Drobetz et al. (2014) researched the financial impact of disclosing CSRperformance in the shipping industry. The authors develop a CSR disclosure index for listed shipping companies. The CSR index contains 23 items related to expected best practices in the industry and assigns a binary value to the score, determining whether specific items are reported or not (Drobetz et al., 2014, p. 24). The resulting conclusion is that the disclosure of CSR positively impacts the financial performance of shipping firms. The authors find that several of the items of the CSR index contribute significantly to creating cost-saving maneuvers and reputation enhancing operations, improving the performance of the firm (Drobetz et al., 2014, p. 42).

Existing academic literature on CSR in the maritime sector extends outside the topic of financial performance, as Lu et al. (2009) sought to uncover the relationship between CSR and organizational performance in the container shipping segment. The study analyzes survey sample data from Taiwanese container shipping companies to uncover the potential impact of CSR on organizational performance. Three CSR dimensions are defined from the data, these being community involvement and environment, disclosure, and employee and consumer interests. This conclusion implies that engaging in CSR-enhancing measures could improve growth rate, earnings, return on assets, and other key financial figures. Correspondingly, the disclosure of CSR

performance is expected to positively impact financial performance, as the public perception of the company is enhanced (Lu et al., 2009, p. 130).

The academic discourse has branched outside CSR, as topics such as green supply chain management (GSCM) has been the focus of research. Alexandrou et al. (2021) studied whether GSCM influenced the financial performance of shipping companies. To uncover this relationship, the authors develop two hypotheses. Firstly, there are several clusters of GSCM adopters in the shipping industry and, secondly, firms who adopt progressive GSCM processes generate higher financial performance. The analysis uncovers three types of shipping firms depending on their adoption of GSCM processes, being leaders, proactive, and reactive firms. Reactive firms are defined by their aim to merely align with legislation, whereas proactive firms actively implement GSCM and strive to go beyond legislation. Finally, the leaders are characterized by their efforts to completely revamp their business models to incorporate GSCM, seeking to create competitive advantages based on influencing future regulatory decisions (Alexandrou et al., 2021, p. 387). Conclusively, the authors discover that firms applying a proactive or leadership GSCM strategy experience higher financial performance than reactive firms. Specifically, it is determined that green collaboration with suppliers has a significantly positive effect on the financial performance of shipping firms. As such, the findings indicate that close collaboration is required to capitalize on the green transition (Alexandrou et al., 2021, pp. 389-391).

A similar study by Yang et al. (2013), researched the effect of GSCM on firm competitiveness in the container shipping industry of Taiwan. The authors analyze the role of internal green practices and external green collaboration and its impact on the green performance of container shipping companies. Simultaneously, the authors explore the impact of green performance on firm competitiveness. The results indicate that internal green practices and external green performance of shipping companies in Taiwan. In turn, the authors suggest that improvements in green performance is expected to increase the competitiveness of container shipping companies (Yang et al., 2013, p. 69). Comparable conclusions are drawn by Lin et al. (2021), indicating that shipping companies could increase competitiveness and financial gains by improving green performance. Lin et al. (2021) determine that container shipping companies that adopt green strategies can obtain higher payoffs

than container shipping companies that does not implement green strategies in an environmentally concerned market (p. 10).

Intricately linked to the findings of Lin et al. (2021), Tran et al. (2020) undertook efforts to explore the antecedents of sustainable shipping management. The antecedents contribute significantly to the effectiveness of sustainable shipping management, signifying the importance of investing in green shipping capabilities. Conclusively, the authors corroborate the idea that green shipping practices has a positive impact on organizational performance (Tran et al., 2020, p. 849-850).

Comparably, Lirn et al. (2014) researched the relation between green shipping management (GSM) capabilities and firm performance. The authors identify that GSM consists of three major capabilities, being greener policies, greener ships, and greener suppliers. The three capabilities positively impacts the environmental performance of the shipping firm. Conclusively, it is established that improvements in environmental performance contribute positively to financial performance (Lirn et al., 2014, p. 170).

Further studies on the role of green shipping in influencing the financial performance of companies were conducted by Lun et al. (2015). Lun et al. (2015) examined the role of green shipping and its influence on financial performance in the shipping industry. The authors introduce the concept of Greening and Performance Relativity (GPR) to investigate the relationship between green shipping and financial performance. The GPR score determines the achievability of firms to transform inputs, such as green shipping routines, into outputs in the form of environmental or financial performance (Lun et al., 2015, pp. 296-297). The study concludes that environmental performance is positively correlated with financial performance, highlighting that energy efficiency improvements could lead to lower costs. Additionally, the authors assert that enhanced reputation originating from improved environmental performance could attract new customers. As such, environmental performance can positively influence financial performance through lower operating costs and higher revenues (Lun et al., 2015, p. 298). Similar conclusions are drawn by Adland et al. (2018), emphasizing that energy efficiency is a significant determinant of asset values, as higher energy efficiency is linked to increasing sales prices (p. 358).

Lastly, Pang et al. (2021) investigated green shipping practices, the mediating role of corporate reputation, and their impact on organizational performance in the shipping industry. Survey data discovers that green shipping practices are perceived as tremendously important, due to the potential of achieving reductions in fuel consumption and conforming with environmental regulations. Furthermore, green shipping practices are established as having a significant effect on corporate reputation, as stakeholders recognize the value that green investments can generate. Finally, the authors reveal that green shipping practices indirectly influence organizational performance when corporate reputation acts as a mediator. This implies that the implementation of green shipping practices in shipping firms could improve their corporate reputation, which positively influences organizational performance (Pang et al., 2021, pp. 439-440).

2.2.2. Sustainability Reporting in the Shipping Industry

Research on sustainability reporting in the shipping industry is scarce; however, some authors have sought to understand the application of sustainability reporting within specific segments of the industry. Di Vaio et al. (2021) investigated the ambitions of sustainability reporting in achieving the UN Sustainable Development Goals (SDGs) in the cruise and container segments. The analysis establishes that container companies are committed to the 2030 UN agenda in their sustainability strategies; nevertheless, the sustainability reporting of the companies primarily consists of qualitative measures and has a lack of sustainability performance indicators at an organizational level. The authors highlight the materiality assessment of the companies as a crucial finding. The container shipping companies report that feedback on materiality is collected from stakeholders. Nonetheless, the statements are generic and lack detailed information on the categories of consulted stakeholders as well as the process of collecting feedback. The authors determine that if companies disclose the process of data collection, transparency and trust levels between shipping companies and stakeholders are enhanced. A major limitation of the sustainability reports is the lack of performance indicators pertaining to the specific nature of each shipping segment's operations and sustainability activities (Di Vaio et al., 2021, p. 209).

Wang et al. (2020) extended the research on SDGs in the shipping industry. Their paper researched how the maritime industry could meet the UN SDGs by examining the sustainability reports of container shipping firms. The authors present a unified framework which aims to assess the degree of SDG achievability in the maritime industry. They find that shipping companies have

the most responsibility in achieving SDG number eight, nine, 12, and 14; however, the industry could contribute to the obtainability of all SDGs by extending their sustainability responsibilities beyond their core business areas. A similar study by Zhou et al. (2021) explored the contents of sustainability reports by container shipping companies. The authors determine that the reports are ambiguous and contain considerable qualitative data. A tailored sustainability reporting framework for container shipping companies is presented as a solution to this issue. The framework contains information on three dimensions related to sustainability issues within the industry. The authors argue that the proposed framework allows container shipping companies to adequately report sustainability metrics to their stakeholders. Concludingly, the authors recognize that container shipping companies must place greater emphasis on satisfying stakeholder demand, as it could improve the competitiveness of the firms (Zhou et al., 2021, p. 479).

Further studies on how shipping companies could achieve the UN SDGs were conducted by Di Vaio et al. (2023). The paper researches how cruise companies could address the seventeenth SDG through the lens of stakeholder theory. The authors examine partnerships and collaborative governance of cruise companies to meet the UN 2030 Agenda and highlight the distinct types of partnerships and the strategic endeavors to accomplish them. The partnerships are identified as having bidirectional aspects, where the stakeholder provides knowledge of sustainability issues and how to implement them, and the cruise company funds the initiatives identified by the stakeholders. Hereby, initiatives would only be funded if they align with the firm's corporate sustainability strategy. Concludingly, the authors determine that cruise companies are identified as having poor impact assessments of the partnerships which create uncertainty on the effectiveness of the initiatives. The study ascertains the importance in incentivizing cooperation between the cruise companies and their stakeholders to achieve the UN SDGs (Di Vaio et al., 2023, pp. 15-17).

Ultimately, Geerts et al. (2021) presented a multidimensional approach to the concept of sustainability reporting, where a logic was established to identify antecedents of adopting sustainability reporting practices in the context of port managing bodies. The authors link these antecedents with external forces by incorporating institutional theory to achieve a complete view of the institutional pressures driving ports to adopt sustainability reporting practices. The antecedents are identified as size of the firm, financial performance, country of origin, ownership

structure, stakeholder inclusion, history of performance gathering, proximity to a city, amount of environmental certifications, and the incorporation of sustainability into the DNA of a company. Notably, the size of the firm and country of origin are not found to have any significant effect on the probability of ports adopting sustainability reporting practices. Oppositely, proximity to a city, history of performance data collection, and number of environmental certifications held are found to influence the adaptation of sustainability reporting. The authors conclude that sustainability reporting in the port sector is not fully institutionalized, as multiple practices and points of views still existed (Geerts et al., 2021).

2.3. Research Gap

In recent years, the shipping industry has undergone significant environmental regulatory changes with the introduction of stricter environmental requirements through MARPOL Annex VI in January 2020. While the IMO has implemented its initial strategy, some industry stakeholders argue that the strategy is insufficient, as it is not aligned with the Paris Agreement. To drive the industry towards decarbonization, various industry climate initiatives have gained increasing attention, such as the PPFI and coZEV initiatives.

The literature review has demonstrated that a plethora of previous research has sought to examine the relationship between ESG-related activities and firm performance in the shipping industry. Previous research has focused on the impact of CSR, GSCM, and green shipping practices on firm performance. In addition, literature has established intrinsic links between improving the environmental performance of shipping companies and enhanced financial performance. Related to the study of sustainability reporting in the shipping industry, preceding literature has explored the specific role of sustainability reporting in the container segment, investigating container firms' commitment to the UN SDGs and antecedents of sustainability reporting.

The discoveries and methodological approaches of the current academic literature have led to the formulation of this paper's research question "how does emissions reporting represent a risk of non-compliance with stakeholder expectations in the shipping industry". At the point of writing, no prior research has sought to explore the phenomena of emissions reporting in the shipping industry from a risk perspective. In contrast to existing literature, this paper aims to explore the prospective disadvantages and underpinning risks of not disclosing emissions in the shipping industry. As such, the research gap will be explored from the perspective of the potential risks arising when shipping companies' emissions reporting is inadequate to satisfy their stakeholders' expectations.

Chapter 3: Theoretical Framework

Building on the review of existing academic literature, this chapter intends to outline the theoretical foundation that will facilitate the research of how emissions reporting represents a risk of noncompliance with stakeholder expectations in the shipping industry. The theoretical framework establishes a basis of knowledge that will enable the interpretation and analysis of this paper's data collection, as visualized in Figure 2. Extending upon the fundamental philosophies of institutional theory, the theoretical framework intends to link the evolving applicability of stakeholder theory to the context of sustainability disclosure. In doing so, the underpinning theories of sustainability reporting are outlined, and the concepts of hard and soft law are explored. More specifically, the role of sustainability reporting standards will be touched upon to allow for the exploration of the research question. Lastly, the theoretical foundations of thematic analysis will be explored, constituting the groundwork of the qualitative analysis.

Figure 2

Illustration of Theoretical Framework



Note: This figure has been constructed by the authors of this paper. The figure illustrates the theoretical framework of this paper.

3.1. Institutional Theory

Institutional theory can be defined as "the elaboration of rules and requirements to which organizations must conform if they are to receive support and legitimacy" (Scott & Meyer, 1983, p. 140). Institutional theory emphasizes the importance of understanding the environmental context that institutions operate in. Norms and values are given great concern and are recognized as being drivers for structural change within organizations. As such, many authors have sought to explore why institutions are formulated and constructed in certain ways, developing explanations to the role that environments have on the internal creation of organizational resources (David, Tolbert, & Boghossian, 2019). The developments in theory contribution are plentiful and the theoretical understandings of institutional theory have significantly expanded during the last century. As such, the following sections will explore the historical contributions to institutional theory and dissect major theoretical influences by several prominent authors.

3.1.1. Pre-Conceptualization of Institutional Theory

The era defined as the pre-conceptualization of institutional theory occurred at the start of the 1900s. Scholars tried to define the meaning of institutions and employed varying applications of the term. Eventually, authors concurred on central elements which institutions are considered to consist of, these being exchanges between individuals and institutions and the durability of institutions (Glynn & D'Aunno, 2023, p. 305). Exemplifying the research of this era, Cooley (1909) conducted a study which concerned how institutions are defined through their interactions with individuals. The author notes that institutions are collections created by the attitude of the public perception. This notion emphasizes the existence of a relationship defined by an interconnectedness, whereby the individual creates a perception of the institutions are created by the interactions of individuals, and individual behavior is defined by the impression institutions have on individuals (Cooley, 1909, pp. 314-320). Other academics, such as Durkheim (1901) and Mead (1934), highlight the collection of different parameters, which they hypothesize lead to the creation of institutions. The collection of parameters is recognized as beliefs and cultural systems originating from religion and shared systems of symbols, such as language.

Following the theoretical contributions to understanding how institutions were formulated and the relationship between institutions and individuals, research focused on the role of values and aspects that encouraged the promotion of values. Hereby, research was diverted from assessing the role of the individual towards the role of organizations (Glynn & D'Aunno, 2023). Selznick (1949, 1957) pioneered the idea of employing the organization as a level of analysis through a case study on the Tennessee Valley Authority. Inspired by previous authors, Selznick (1949) evolved the field of institutional theory and sought to understand how organizations fit into their encompassing environment. Selznick' most notable research was his examination of how the Tennessee Valley Authority employed alternating communicative strategies depending on certain environmental pressures. Furthermore, Selznick (1949, 1957) placed great emphasis on the importance of understanding how leaders in organizations could link the objectives of organizations with institutional values to achieve long-term success (David et al., 2019).

3.1.2. Neo-Classical Institutional Theory

Succeeding the pre-conceptualization of institutional theory, academic work shifted towards investigating the micro- and macro foundations of institutions, dividing research into two parallel branches. These points of view were identified as significant contributors to organizational value and were found to not only create value from technical demands but also from social demands (Glynn & D'Aunno, 2023). Zucker (1977) focused on the micro foundations of institutions and the point of analysis was centered on the individual. The author argues that social environments influence the actions of individuals depending on whether the individual adapts to social expectations. This adaptation was found to not be rational, but rather an unconscious choice based on influences originating from institutional norms and values (Glynn & D'Aunno, 2023).

Meyer & Rowan (1977) explored institutional theory through the lens of macro foundations. The authors were inspired by Selznick (1949, 1957) and applied his resolution to focus on the organization as a point of analysis. Specifically, the authors concentrate on understanding how the environment that firms operate in condition the construction of values and norms within institutions. The authors focus on highly institutionalized values of environments and on how firms are affected by such beliefs (Glynn & D'Aunno, 2023). Meyer & Rowan (1977) uncover that companies adapt to environmental values through means of communication, whereby companies

communicate to external environments to achieve legitimacy in their sphere of existence. The authors argue that this communicative action is disclosed through rational myths, whereby firms apply unprovable wordings to indicate the effort to align with the values of their external environment (Lammers & Garcia, 2017). As such, Meyer & Rowan (1977) argue that companies reflect the social values of their institutional environments instead of optimizing on technical demands. Such action is attributed to the occurrence of isomorphic tendencies, whereby organizations alter modus operandi based on phenomena in their environment (Meyer & Rowan, 1977, pp. 341-346).

The idea of isomorphism in an institutional context is not a novel thought-process presented by Meyer & Rowan (1977). Preceding studies have sought to explain how firms gradually became isomorphic over time, as they matched structural capabilities with the technical expertise demanded from their environments (Aiken & Hage, 1968; Hawley, 1968; Thompson, 1967). Nevertheless, according to Meyer and Rowan (1977, pp. 346-347), the emphasis on technical expertise does not fully explain the existence of isomorphism in an institutional context. As such, a unique perspective is that companies seek to reflect the socially constructed reality they exist in. Hence, institutions gradually mimic the social environments which they are actors in, leading to isomorphic tendencies (Parsons, 1956; Udy, 1970). Gradual isomorphism reduces the boundaries of the firm and diminishes unique properties to a degree where it becomes challenging to distinguish between companies. Organizations that undergo isomorphism in institutional environments experience several key implications. External societies demand social values where financial benefits are not guaranteed and external actors scrutinize organizational capabilities to assess whether they generate institutional value. Finally, if companies align their structural capabilities with external institutions, the potential deficiencies originating from non-alignment with environmental values are reduced, given the external institutions satisfy the value demanded by the environment (Meyer & Rowan, 1977).

DiMaggio & Powell (1983) built upon the theoretical base of Meyer & Rowan (1977) and Zucker (1977), reorganizing institutional theory towards an industrial focus (Glynn & D'Aunno, 2023). Specifically, DiMaggio & Powell (1983) framed their scope of analysis around the organizational field, which they defined as "[...] those organizations that, in the aggregate, constitute a recognized

area of institutional life key suppliers, resource and product consumers, regulatory agencies, and other organizations that produces similar services or products" (DiMaggio & Powell, 1983, p. 148). This definition intends to ensure that researchers dedicate sufficient resources into the study of entire industries, considering not only competing firms, but all actors within the defined space. DiMaggio & Powell (1983) sought to understand why many companies adopted similar structures and practices. The authors argue that companies in the initial phase of their lifecycle express a prominent level of heterogeneity and as industries mature companies become progressively similar (DiMaggio & Powell, 1983, p. 148).

The existence of isomorphism arises from two specific types of isomorphism, these being competitive and institutional isomorphism. Competitive isomorphism occurs as companies seek to align with the technical demands of their competitive environment, whereby companies aim to create competitive advantages as they meet competitive demands (DiMaggio & Powell, 1983, p. 150). DiMaggio & Powell (1983) argue that competitive isomorphism is prominent in organizational fields which experience open competition, although competitive isomorphism fails to provide adequate reasonings to why isomorphism occurs in modern fields. Modern corporations do not simply compete to gain economic advantages, as social and political legitimacies have increasingly become a popular goal for firms as well (DiMaggio & Powell, 1983, p. 150).

DiMaggio & Powell (1983) recognize three means through which institutional isomorphism occur, being coercive, mimetic, and normative isomorphism. Coercive isomorphism occurs when organization (a) is forced, persuaded, or invited to cooperate by another organization (b), which organization (a) is dependent upon. This occurrence could be exemplified by an organization sanctioning changes in its structure due to new regulatory changes in environmental law, or when non-governmental organizations (NGOs) pressure organizations to adopt strategies that are in line with the values of the NGO. Mimetic isomorphism occurs due to uncertainties in the market. Uncertainties related to technological expectations, goals of the organizations, or symbolic uncertainties created by external organizations drive companies to mimic competing firms. This is due to the low economic effort associated with mimicking behavior. Specifically, firms mimic competitors that seem more legitimate or powerful, as the firms expect to attain similar status in the organizational field (DiMaggio & Powell, 1983, pp. 151-152).
Normative pressures originate from the notion that professionalization of companies ensue isomorphic tendencies. Although professionals within companies differ, they demonstrate similarities with counterparties in other companies. Professionalization derives from two sources. Firstly, as an increasing number of workers attend academic institutions, their cognitive foundations are shaped similarly, leading to professionals to act based on comparable points of views. Secondly, as professionals build interlinking networks with peers across the organizational field, isomorphic tendencies occur as knowledge-transfer and idea generation transpire within these networks. Furthermore, as organizations hire professionals stemming from the same industry, the normative pressures are incentivized as well (DiMaggio & Powell, 1983, pp. 152-153).

3.1.3. Expansion of Institutional Theory

Following the neo-classical period of institutional theory, authors sought to broaden the scope of institutional theory to encompass behavior across multiple levels of analysis, including the exploration of agency behavior driving change within institutions (Glynn & D'Aunno, 2023). Specifically, an element of research focused on institutional logics emerged during this era, seeking to define the content, and meaning of institutions. The theory combines the micro and macro perspectives applied by previous authors, expecting to arrive at a nuanced descriptive image of institutions (Thornton & Ocasio, 2008). Friedland & Alford (1991) defined institutional logics as "[...] a set of material practices and symbolic constructions – which constitutes its organizing principles and which is available to organizations and individuals to elaborate" (p. 248). The authors define Western institutions and their subsequent institutional logics as an example of institutional logics in practice. The institutions are the capitalistic market, the bureaucratic state, democratic politics, family, and religion or science (Friedland & Alford, 1991). It is noted that each institution's logic constraints the actions of organizations and individuals. However, an opposite view highlights the possibility of institutional members to enact change upon institutions, as they utilize the cultural resources garnered within institutions to transform individuals, organizations, and societies (Thornton & Ocasio, 2008).

Institutional logic is noted as being nested in three layers, the individual, the organization, and the society. Each layer has a direct impact on the preceding layer, creating opportunities and

constraints for action. As each member can impact each other, an existence of agency behavior occurs, where logic can be interpreted and changed to fit each actor's own point of view. However, if specific logics of the institution are highly internalized and accepted, it is difficult to propose a new dominant logic, as the current logic is fully accepted. Notably, the contrary is also applicable as non-internalized institutional logics can be affected by organizations, hereby manipulation could serve the purpose of the manipulator (Haveman & Gualtieri, 2017). This relationship has been a popular subject of study, whereby the existence of multiple logics within organizations lead to internal tensions or coexistence (Greenwood et al., 2011; Kraatz & Block, 2017; Lounsbury, 2007). Concluding, a significant application of institutional logic is its relationship with isomorphism. Logics of companies are highlighted as a root cause for the observed difference in organizational responses to environmental pressures. Organizational actions are dependent on the institutionalized logics of the firm, meaning that the values rooted in company culture influence organizational actions, leading companies to respond differently when faced with specific institutional contexts (Greenwood et al., 2010).

3.2. Stakeholder Theory

The concept of stakeholders was first introduced in an internal memorandum at the Stanford Research Institute in 1963 (Freeman, 1984, p. 31). During the same period, the concept of stakeholder theory gradually appeared in different fields of studies, such as the works of Ansoff (1965) and Rhenman & Stymne (1965) who scrutinized the role of stakeholder theory from the perspective of strategic and organizational literature, respectively (Laplume et al., 2008, p. 1156). However, stakeholder theory was first described and formalized by Freeman (1984) in the book "Strategic Management, a Stakeholder Approach". Freeman (1984) proposed a pragmatic approach in which organizations were urged to cogitate all stakeholders to obtain superior performance. As such, the stakeholder-focused theory challenged the traditional shareholder-focused modus operandi, arguing that companies must include the interest of all stakeholders and not solely the interest of shareholders.

3.2.1. Definition of Stakeholders

When first introduced, Stanford Research Institute defined the concept of stakeholders as "those groups without whose support the organization would cease to exist" (Stanford Research Institute,

1963, as cited in Freeman, 1984, p. 31) and included shareholders, employees, customers, suppliers, lenders, and society (Freeman et al., 2010, p. 31). Although this definition has been widely applied, several authors challenged the theoretical foundation of the definition and presented their own definitions of the concept. Eric Rhenman defined the stakeholders in an organization as:

We shall be using the term stakeholders to designate the individuals or groups which depend on the company for the realization of their personal goals and on whom the company is dependent. In that sense employees, owners, customers, suppliers, creditors as well as many other groups can all be regarded as stakeholders in the company" (Rhenman, 1968, as cited in Freeman, 1984, p. 41).

For this research paper, Freeman's (1984) definition of stakeholders will be utilized, which is "a stakeholder in an organization is (by definition) any group or individual who can affect or is affected by the achievement of the organization's objectives" (p. 46). While Freeman (1984) argues that it is imperative to take all stakeholders into account to be an effective manager, the author similarly argues that "to be an effective strategist you must deal with those groups that can affect you, while to be responsive (and effective in the long run) you must deal with those groups that you can affect" (Freeman, 1984, p. 46). As such, Freeman (1984) recognizes that all stakeholders are important, albeit stakeholders that organizations can directly influence compose a more crucial constituent.

Like Freeman (1984), Freeman et al. (2010) argue that "stakeholders vary in the strength of their bargaining power and thus their ability to influence firms" (p. 127). Laplume et al. (2008) draw similar conclusions, as they determine that proactive management of stakeholders can be beneficial for companies. To benefit from proactive management, companies must go beyond understanding its stakeholders' interests and attempt to predict if and how stakeholders will try to influence the company (Laplume et al., 2008, p. 1162). Supporting this idea, Freeman (1984) claims that strategic planning is inherently connected with understanding a company's environmental opportunities and threats (p. 34). As such, it is imperative for a company to understand its stakeholders' interest to be able to manage them. Jones (1995) suggests that stakeholder management can limit opportunistic behaviour from stakeholders and give firms a competitive advantage.

3.2.2. Defining Periods of Stakeholder Theory

In a study compiled by Laplume et al. (2008), the authors reveal that stakeholder theory has undergone three major periods (p. 1158). The authors assert that the first period lasted from 1984 until 1991. During this period, the available literature on stakeholder theory was limited and predominantly based on theoretical findings, inter alia, from research papers, dissertations, and books. The second period lasted from 1991 until 1998. During these years, publications on stakeholder theory in leading academic management journals significantly increased, the general understanding of stakeholder theory was bolstered, and stakeholder theory emerged as a widely accepted paradigm for the business and societal field. Although the understanding of stakeholder theory had become more sophisticated during this period, it remained an academic construct (Laplume et al., 2008, p. 1159).

Nonetheless, the authors state that stakeholder theory reached a state of maturity during the third period, from 1999 until present time. During this period, the theory has experienced significantly increased attention, particularly within social issues in management. The authors reveal that stakeholder theory is increasingly linked to conversations of sustainable development along with business ethics (Laplume et al., 2008, pp. 1156, 1159).

3.2.3. Application of Stakeholder Theory in Finance and Accounting Literature

Stakeholder theory has its roots within the academic field of strategic management. Freeman et al. (2010) argue that stakeholder theory provides an alternative perspective to strategic management, which can heighten the economic perspective of modern strategic management (p. 83). However, the authors argue that stakeholder theory is increasingly gaining popularity within academic literature on business fields, such as finance, accounting, management, and marketing. For this paper's purpose, the application of stakeholder theory in the context of finance and accounting will be elaborated.

Freeman et al. (2010) define literature on finance as literature that includes topics related to financing the firm efficiently and maximizing financial returns (p. 123). Although the field of finance has traditionally focused on maximizing shareholder returns, the authors argue that the field is progressively recognizing the importance of other stakeholders. In their book, Freeman et al. (2010) find evidence that there is a foundation for stakeholder theory in finance literature,

arguing that stakeholder theory can be utilized to improve firm performance. Freeman et al. (2010) put forth a range of previous studies that investigate the correlation between stakeholder-focused approaches and financial performance/firm performance. The authors determine that several types of stakeholder management can be linked to enhanced financial and firm performance (p. 128). Supporting this idea, Jones (1995) argues that certain types of corporate social performance (CSP) should be positively linked to a company's financial performance (p. 430).

Similarly, Freeman et al. (2010) establish that accounting literature is being linked to stakeholder theory, stating that "accounting becomes a tool used by stakeholders to construct reality" (p. 134). The authors uncover that stakeholder theory affects accounting practices and methods. They determine that stakeholder theory influences corporate social reporting, as accountants use stakeholder logic to develop reporting of social responsibility practices (Freeman et al., 2010, p. 135).

Roberts (1992) provides evidence that levels of social responsibility disclosure are significantly related to stakeholder power, strategic posture, and economic performance (p. 610). In addition, Ilinitch et al. (1998) argue that the disclosure of environmental performance metrics is important for stakeholders to make well-informed, consistent key strategic decisions, and allow stakeholders to compare companies' environmental performance (p. 385). While Ilinitch et al. (1998) uncover that communicating environmental performance can be beneficial, companies must consider whether the costs of gathering the required information is worth the benefit. Additionally, environmental performance metrics must be reliable and verifiable to allow stakeholders to interpret performance and track changes over time (Ilinitch et al., 1998, p. 404).

Wood & Ross (2006) reveal that stakeholders are more effective at impacting companies' environmental performance than subsidization, regulatory costs, or mandatory disclosure (p. 691). The quality and type of corporate social disclosure (CSD) are dependent on the company's country of origin (Smith et al., 2005). Smith et al. (2005) explore this phenomenon and argue that a company's country of origin will define its stakeholders and the extent and quality of its CSD (p. 147). The authors determine that companies from countries with strong emphasis on social issues, such as Norway and Denmark, have a higher level and quality of CSD than U.S. companies. Nevertheless, O'Dwyer (2005) discovers that company management is reluctant to include stakeholders in assurance processes of sustainability reporting. Similarly, the firms that are

considered the best at reporting sustainability performance to stakeholders may not perform as well as they appear (O'Dwyer & Owen, 2005; Freeman et al., 2010). In a research paper by Arena et al. (2015), the authors determine that optimistic environmental disclosure does not solely reflect managerial opportunistic reasons; however, it reflects signals of future positive environmental performance (p. 359).

3.2.4. Stakeholder Theory and Sustainability Disclosure

Expanding on the literature on sustainability reporting, much literature has sought to explain the link between CSR and stakeholder theory. Freeman et al. (2010) emphasize that stakeholder theory should constitute a foundation for CSR analysis by integrating financial and social concerns (p. 236). CSR is a key component of Freeman's (1984) stakeholder theory in which the author argues that effective strategists must incorporate CSR issues in their strategic planning (p. 46).

Freeman et al. (2010) argue that companies can incorporate CSR into their business for many reasons. However, companies will still place financial issues above social concerns, albeit understanding the need to address social concerns efficiently and coherently (Freeman et al., 2010, p. 259). Similar findings are derived by Porter & Kramer (2006), who state that "no business can solve all of society's problems or bear the cost of doing so. Instead, each company must select issues that intersect with its particular business" (p. 84). Matten & Moon (2008) determine that institutional differences and cultural norms between European and American companies result in different approaches to CSR strategies. The authors' findings build upon the idea that European companies are defined by a collective effort to better society. Contrarily, American companies are likely to adopt certain CSR strategies to obtain specific firm-level benefits. Nevertheless, the authors argue that the redistribution of profits to society can be recognized as an instrument that allows firms to generate its profits (Matten & Moon, 2008; Freeman et al, 2010, p. 258).

Previous scholars have exemplified the idea of CSR as a license to operate. Davis (1960) recognizes CSR in a management context as "businessmen's decisions and actions taken for reasons at least partially beyond the firm's direct economic or technical interest" (p. 70). The author later added that "a firm is not being socially responsible if it merely complies with the minimum requirements of the law, because this is what any good citizen would do" (Davis, 1973,

p. 313). As such, Davis (1973) defines CSR as "the firm's considerations of, and response to, issues beyond the narrow economic, technical, and legal requirements of the firm" (p. 313). Corporations that do not utilize their power in a way that society deems responsible are likely to lose their power. This is endorsed by the so-called iron law of responsibility, stating that society grants legitimacy and power to corporations (Freeman et al., 2010, p. 237). Davis & Blomstrom (1971) describe the iron law of responsibility as "in the long run, those who do not use power in a manner which society considers responsible will tend to lose it" (p. 95).

Although Davis' (1960, 1967, 1973) findings were published before Freeman's (1984) conceptualization of stakeholder theory, later studies have linked Davis' approach to CSR to the foundations of stakeholder theory. Davis recognize the importance of broadening corporate obligations and not solely maximizing value for shareholders (Freeman et al., 2010, p. 237). Davis' view differs fundamentally from the shareholder-focused apparoch put forth by Friedman (1962). Friedman (1962) states that "there is one and only one social responsibility of business – to use its resources and engage in activities desgined to increase its profits so long as it stays within the rules of the game" (p. 133). Freeman et al. (2010) interpret Friedman's view as businesses should solely focus on profit maximization and do nothing more than comply with legal requirements (p. 237). As such, the authors suggest that businesses that do nothing more than comply with legal requirements have a stakeholder-focused approach, whereas companies businesses that respond to issues outside of its legal requirements have a shareholder-focused approach.

3.3. Sustainability Reporting Theory

Towards the end of the 1980s, pioneering companies started to incorporate environmental information in annual reports and standalone publications. This movement was initialized as environmental issues gained prominence in societies following a range of global events, such as the nuclear explosion at Chernobyl in 1986 and the grounding of Exxon Valdez in 1989. The early environmental reporting was generally published by environmentally impactful industries and on a voluntary basis since environmental regulation and standards were yet to be established.

During the 2000s, sustainability reporting was incorporated into the modus operandi of most large corporations as the reporting expanded across all sectors in industrial countries. Sustainability reporting became standard practice in Asia along with some of the major economies in Latin

America and Africa throughout the 2010s (Laine et al., 2021, p. 87-88). In the report, Global Survey of Sustainability Reporting, KPMG (2022) finds that 96% of all G250¹ companies and 79% of all N100² companies report on sustainability (p. 13). According to Laine et al. (2021), there is an evident size threshold for sustainability disclosure, emphasized by the lack of disclosure outside of large corporations (p. 88). Baumann-Pauly (2013) argues that firm size does not determine its ability to implement CSR practices; however, the author finds that large firms possess favorable characteristics to effectively communicate and report CSR externally.

Sustainability reporting practices are not a one-size-fits-all and varies across organizations, sectors, nations, regions etc. Laine et al. (2021) state that variance in reporting standards is not necessarily negative, as sustainability reporting functions as a reporting mechanism between an organization and its stakeholders. Organizations have different stakeholders and are therefore subject to different stakeholder expectations and institutional pressures. Supporting this argument, Herzig & Kühn (2017) argue that industries that are more exposed to environmental and societal risks are more inclined to report on corporate responsibility information than companies operating in less polluting industries. This occurs as environmentally sensitive companies face greater stakeholder pressure, which drives the companies to progressively report on environmental issues. In turn, these companies become more involved in sustainability considerations, aiding them to align with future corporate responsibility regulations (Herzig & Kühn, 2017, pp. 212-214).

Nonetheless, the authors establish that a good sustainability report must include three key concepts, being accountability, reporting boundary and materiality (Laine et al., 2021, p. 90). Whilst accountability refers to a firm's duty to disclose an overview of the actions that it is responsible for, boundaries relate to the sustainability report's scope. Providing boundaries support defining the sustainability report's scope and determining the issues that will be included. Lastly, materiality refers to issues or elements that are important to the firm.

¹ G250: World's 250 largest companies by revenue based on the 2021 Fortune 500 ranking (KPMG, 2022)

² N100: Worldwide sample of the top 100 companies by revenue in 58 countries, territories, and jurisdictions (KPMG, 2022)

3.3.1. Standards for Sustainability Reporting

The surge of sustainability reporting and its institutionalization has been propelled by a plethora of sustainability reporting standards and frameworks. In general, "a standard can be defined as a rule for common and voluntary use, decided by one or several people or organizations" (Brunsson et al., 2012, p. 616). While standards represent certain types of rules and have a regulative capacity, they are considered a type of soft law due to their voluntary nature (Rasche & Waddock, 2017, p. 164). Legal theory distinguishes between hard and soft forms of law. Abbott & Snidal (2000) define hard law as "legally binding obligations that are precise [...] and that delegate authority for interpreting and implementing the law" (p. 421). Statutes or regulations in developed national legal systems are considered prototypical types of hard law. In contrast, Gilbert et al. (2011) define soft law as "non-binding and often not as precisely formulated as hard law" (p. 24). Examples of soft law are the UN Committee on Sustainable Development and the Vienna Ozone Convention (Abbott et al., 2000). As such, adopters of standards do not rely on legal mandates or sanctioning mechanisms.

However, hard and soft law should not be treated as a dichotomy. While firms choose which standards they want to disclose, Gilbert et al. (2011) argue that soft law is not completely voluntary, claiming that soft law can harden over time. For example, governmental regulations utilize the International Organization for Standardization's (ISO's) environmental standards to define key terms. The authors find that adopting specific standards is considered a prerequisite for conducting business in certain industries and highlight that ignoring standards can weaken firms' existing stakeholder relations (Gilbert et al., 2011, p. 24). Supporting this argument, Utting (2002) finds that the emergence of multistakeholder initiatives has encouraged firms to adopt standards. The author refers to multistakeholder initiatives as where "NGOs, multilateral and other organizations encourage companies to participate in schemes that set social and environmental standards, monitor compliance, promote social and environmental reporting and auditing, certify good practice, and encourage stakeholder dialogue and 'social learning'" (Utting, 2002, p. 61).

In a study on hard and soft law in international governance, Abbott & Snidal (2000) find that hard and soft laws complement each other in the context of international governance and functions most effectively when used in conjunction with another. The authors assert that international law is unlike typical hard law from domestic legal systems. International law represents a certain type of institutionalization, where actors will utilize the legal framework to maximize their value. It is determined that "international legalization is a diverse phenomenon because it helps a diverse universe of states and other actors resolve diverse problem" (Abbott & Snidal, 2000, p. 455).

In an international context, hard law is used to establish a crucial foundation for international interaction to subsist and prosper. Whilst hard law must satisfy the needs of both states and private actors, by balancing the legal requirements with the sovereignty costs they entail, soft law can effectively help balance the competing considerations among states and private actors. Soft law constitutes an essential element of international governance, as it can support state and non-state actors to obtain many of their goals more easily. Similarly, soft laws can succor actors to handle exigencies of uncertainty and moderate power differentials. Supporting this idea, soft law allows actors to pursue their own interests and values, as it provides a body of norms and procedures that can shape the actors' behavior, interests, and identities. Additionally, soft law complements hard law in its ability to implement changes on a continuous basis, whereas hard law is hindered by bureaucratic discourse and costs of implementation (Abbott & Snidal, 2000). Nevertheless, it is important to recognize that soft law has its limits. Since standardizers do not have the same authority as established legal systems, they cannot impose sanctions or utilize rigorous enforcement mechanisms (Gilbert et al., 2011, p. 24).

Sustainability standards is considered a hypernym which describes types of soft law that establish rules and procedures to guide, assess, measure, verify, and communicate the social and environmental performance of companies (Gilbert et al., 2011). Sustainability standards are established outside the scope of the individual firm, meaning that sustainability standard adopters cannot define the content of the standards entirely. Commonly, sustainability standards are governed as multistakeholder initiatives, where established governance bodies control the nature and content of the standards (Rasche & Waddock, 2017, p. 165).

Sustainability standards vary along different dimensions. In their core, sustainability standards can be categorized into four categories, being principle-based standards, certification standards, reporting standards, and process standards. As such, reporting standards will constitute a key role in this paper's context. Reporting standards establish a critical element of sustainability reporting, as they provide a foundation for common rules in a world where global rules are lacking.

Similarly, reporting standards enable stakeholders to benchmark industry actors and identify industry leaders and laggards (Rasche & Waddock, 2017, pp. 165-167).

3.3.2. GRI & SASB

For this paper's purpose, reporting standards produced by the Global Reporting Initiative (GRI) and the Sustainability Accounting Standards Board (SASB) will be elaborated. The two reporting standards complement each other and can be successfully combined to develop a nuanced view on the sustainability impact of companies. The application of the GRI framework delivers an overview of subjects that are material to the environmental, economic, and social performance of companies. Additionally, the application of the SASB framework can identify financially material sustainability measures on an industry and company level. As such, an overview of the sustainability performance of companies could be determined by combining the two standards. The combination of the frameworks can function to satisfy stakeholder demands (GRI & SASB, 2021). While the GRI is the most widely applied sustainability reporting standard, the SASB framework has developed specific sector standards for material topics of the shipping industry.

According to Herzig & Kühn (2017) the GRI is the most widely applied and accepted corporate responsibility reporting framework in the world. The GRI is a non-profit organization, representing an internationally focused multi stakeholder initiative. Since the initial GRI reporting guidelines were launched in 2000, the organization's contributions to standardizing sustainability reporting standards have become internationally renowned and globally accepted. The guidelines seek to standardize sustainability reporting of companies, aiming at simplifying the process. By utilizing the GRI framework, benchmarking of companies can be achieved as relevant sustainability metrics are required to be disclosed (Herzig & Kühn, 2017, p. 214).

The GRI standards consists of three modules, designed to aid companies in identifying sustainable material subjects and determine the negative or positive impact of the organization. The first module consists of universal standards that outline standards applicable to all organizations, whereas the second module provides sector-specific standards and includes topics that are material to companies in respective sectors. The GRI aims to develop standards for 40 sectors, including shipping. However, thus far only three sector standards have been developed. The final module contains topic standards, where the GRI provides standards on how to disclose

information on particular subjects, such as tax and waste (GRI, 2023). The GRI enables its companies to select disclosure metrics, which they believe to be material for the economic, environmental, or social performance of their company (GRI & SASB, 2021). The extensive adaptation of GRI is evident in the 2022 global GRI reporting rates, where 68% of N100 and 78% of G250 companies utilize the GRI framework (KPMG, 2022).

In addition to the GRI, the SASB seeks to develop sustainability reporting standards that companies can utilize to disclose sustainability efforts. SASB differs from GRI in two major ways. Firstly, SASB focuses on aiding companies to convey information towards investors, rather than applying a multistakeholder approach. Secondly, SASB identifies material issues on an industry-level, rather than on an organizational level (Laine et al., 2021). The material issues by SASB are identified to have a likely impact on the financial performance of companies, within the specific industry (GRI & SASB, 2021). ESG issues are identified across 77 industries, ranging from healthcare to transportation. The marine transportation industry is located in the transportation section in which the standards for the shipping industry are formulated (SASB, 2023). By applying the SASB framework, companies can manage key sustainability metrics in a cost-effective way and enable investors to benchmark companies reporting on the framework (Laine et al. 2021). The global adoption of SASB is lower than the GRI, as 33% of N100 and 49% of G250 companies had adopted the SASB framework in 2022 (KPMG, 2022).

3.3.3. Materiality

The EU defines material information as:

Material means the status of information where its omission or misstatement could reasonably be expected to influence decisions that users make on the basis of the financial statements of the undertaking. The materiality of individual shall be assessed in the context of other similar items. (Directive 2013/34/EU, Article, 21(6))

Under the EU's definition, materiality is understood to illustrate the importance of ESG issues of individual firms, emphasizing that there is no one-size-fits-all for materiality disclosure. Information can be material if the ESG issues could have positive or negative repercussions for the firm (NYU, 2019, p. 2). Materiality must acknowledge the context of the individual firm,

including the sector, firm size, firm strategy, etc. Similarly, companies must disclosure their material information in a clear, balanced, and fair view. Additionally, the concept of double materiality was presented by the EU in the EU Non-Financial Reporting Directive (NFRD) in 2017, denoting that companies must disclose on financial materiality along with ESG-related materiality, as companies' impact on ESG issues can be financially material. Financial materiality refers to ESG issues' impact on individual companies, whereas ESG materiality refers to companies impact on ESG issues. As such, posing both an internal and external view to materiality assessments (EU, 2019, pp. 6-8).

NYU Stern Center for Sustainable Business (NYU) (2019) has mapped how businesses can identify material issues. As such, NYU finds that companies must identify key issues, relevant stakeholder groups, and business drivers. Key issues can be identified using sustainability reporting standards, such as GRI and SASB, and processed using a matrix-based assessment. When using the matrix-based approach, companies identify and map issues according to the issues' potential impact on the company and the issues' importance to stakeholders.

Karagiannis et al. (2022) conducted a cross-sectional materiality analysis of sustainability reporting in the shipping industry, mapping the top material operational aspects of the maritime industry. The authors analyzed 90 maritime organizations from different sectors, reviewing and assessing 544 material economic and ESG issues. By using the GRI Standards guidelines to classify material issues, the authors determine that occupational health and safety of employees, air pollution control, and efficient energy management as the most material aspects of the maritime industry.

3.4. Thematic Analysis

The thematic analysis of Braun & Clarke (2006) will be utilized as a theoretical basis to explore the research question. Braun & Clark (2006) identify thematic analysis as a qualitative tool that can be used as "a method for identifying, analyzing, and reporting patterns (themes) within data" (p. 79). Due to the unexplored nature of the research question, this paper aims to utilize interviews with various shipping companies and industry stakeholders to develop a foundational understanding of the topic of emissions reporting in shipping. The following sub-section will delineate the theoretical foundation of thematic analysis, whereas the application of the theory will be explained later in the paper as part of the analysis.

Braun & Clark (2006) outline the application of thematic analysis as a qualitative analytical method, providing explicit guidelines for employing the method in practice. In doing so, benefits, drawbacks, and potential pitfalls of applying thematic analysis in different settings are acknowledged. Intrinsically, Braun & Clark (2006) recognize that "thematic analysis should be seen as a foundational method for qualitative analysis [...] as it provides core skills that will be useful for conducting many other forms of qualitative analysis" (p. 78). Thematic analysis is not merely an analytical tool but a foundational method in the realm of qualitative research. The method is characterized by its theoretical freedom, wherein it is applicable across a variety of studies and epistemological approaches. Intrinsically, the flexibility of thematic analysis is regarded as an imperative advantage of the model, as it is not situated within a pre-existing framework. Evidently, the theoretical freedom of the thematic analysis exerts certain responsibilities upon researchers to utilize the tool aptly; however, when the method is applied appropriately, it can contribute a rich and detailed perspective of a complex dataset (Braun & Clarke, 2006, p. 78).

Braun & Clarke (2006) assert that a clear demarcation of the methods and inputs of thematic analysis is crucial to ensure the quality and generalizability of its underlying discoveries.

Thematic analysis can be a method that works both to reflect reality and to unpick or unravel the surface of 'reality' [...] Any theoretical framework carries with it a number of assumptions about the nature of the data, what they represent in terms of the 'the world', 'the reality, and so forth (Braun & Clarke, 2006, p. 81).

To employ thematic analysis to its fullest extent, it is imperative that researchers are cognizant of their decisions and disclose the nature of the underlying assumptions and data. As such, thematic analysis necessitates researchers to contemplate fundamental decisions, which are not commonly encompassed in the methodological component of a research paper. Prior to the initiation of the analytical process and data collection, these fundamental decisions must be considered. Similarly, researchers must establish and ensure a continuously reflexive dialogue of the decisions throughout the analytical process (Braun & Clarke, 2006, pp. 81-82). The nature of thematic analysis requires researchers to address "what counts as a pattern/theme, or what 'size' does a

theme need to be" (Braun & Clarke, 2006, p. 82), as the authors define a theme as "something important about the data in relation to the research question, and represents some level of patterned response or meaning within the data set" (Braun & Clarke, 2006, p. 82). The acknowledgement of underlying data and decisions strengthens the transparency and quality of analytical findings.

Chapter 4: Methodology

The following chapter accounts for the underpinning methodological choices made throughout the study. This paper aims to explore the importance of emissions reporting in the shipping industry, whereby the following research has been formulated "how does emissions reporting represent a risk of non-compliance with stakeholder expectations in the shipping industry?". In the following sections, methodological choices will be presented to increase the transparency, reliability, and validity of the study. The sections will provide the underpinning considerations of the research design and strategy, along with potential advantages and disadvantages of the research approach. The methodology book, "Research Methods for Business Students", by Saunders et al. (2016) will constitute the groundwork for the methodology of this study.

4.1. Philosophy of Science

Saunders et al. (2016) state that "the term research philosophy refers to a system of beliefs and assumptions about the development of knowledge" (p. 124). When conducting research, the choice of research philosophy impacts the way knowledge is perceived and thus how knowledge is developed. It is imperative that researchers understand the foundations of opposing research philosophies, and researchers must be cognizant of the assumption upon which their research is constructed. Burrell & Morgan (1979) assert that research is impacted through explicit and implicit assumptions relating to the nature of the social world and how it may be investigated, concerning assumptions of an ontological, epistemological, and axiological nature.

Ontological assumptions entail the realities of the phenomena being researched, regarding the assumptions that shape the way in which researchers perceive their research. Conversely, epistemology is the theory of science and is concerned with the concept of what constitutes acceptable, valid, and legitimate knowledge. Epistemological assumptions are made to understand one's perception of the world along with how knowledge is communicated. Lastly, axiology is the theory of value, denoting the role of values and ethics in research. Axiological assumptions may include how researchers cope with their own and potential research participants values (Burrell & Morgan, 1979; Saunders et al., 2016).

Saunders et al. (2016) identify the five most adopted research philosophies in business and management research as positivism, critical realism, interpretevism, postmodernism, and pragmatism (p. 135). For this study, a critical realist philosophy of science will be employed. A critical realist approach allows the researchers to develop an understanding of the causal mechanisms and structures of the research question. As such, this philosophy of science enables the exploration of the underlying phenomena of stakeholder expectations and how emissions reporting may represent a risk of non-compliance with stakeholder expectations in the shipping industry.

The critical realist approach originates from Roy Bhaskar's initial publication of the book, "A Realist Theory of Science", in 1975 (Bhaskar, 2008). The author proposed a distinctive philosphy of science that offers a radically different view on the perception and generation of knowledge compared to the view of positivists and postmodernists. Within the traditions of realist research philosophies, research is built upon different ontological, epistemological, and axiological assumptions. While positivists commonly subscribe to the concepts of direct realism, where theory-independent data are considered the base of all scientific knowledge, this idea is rejected by critical realists. Contrarily, critical realists endorse the idea that scientific knowledge is derived from the underlying structures and mechanisms upon which the empirical or observable events are constructed, opposed to being derived from the events themselves (Reed, 2005, pp. 1629-1630; Saunders et al., 2016, p. 138).

Bhaskar (2008) asserts that stratification and differentiation of reality are central concepts to the research philosophy of critical realism, stating that "both nature and our knowledge of nature are seen as stratisfied, as well as differentiated" (p. 18). The idea of a stratified reality pertains to the notion that merely some events may be observable. Bhaskar (2008) seeks to demonstrate that the concepts of stratification and differentiated reality is a necessity to adequately account for scientific developments. Supporting this concept, Archer (1998) finds that knowledge cannot be equated with direct experience (p. 6). The author suggests that seperating knowledge into two

different dimensions of science is imperative to understand the complexity of reality. As such, a transitive and intransitive dimension of knowledge is proposed.

The intransitive objects of knowledge pertain to the reality of being and are comparable to the ontological dimension. Intransitive objects of knowledge are not dependent on human activity to substist. Conversely, transitive objects of knowledge concern the reality of human knowledge and are akin to the epistemological dimension. Roy Bhaskar recognizes the transitive objects as Aristotles material causes, signifying that these objects of knowledge are based on human-created science, such as paradigms and models, which would cease to exist if humans do (Bhaskar, 2008, p. 21; Archer, 1998, p. x).

Saunders et al. (2016) assert that the most important philosophical consideration for critical realists is understanding that reality is based upon a stratified ontology. In other words, critical realists argue that we, as researchers, merely experience some parts of the real world through empirical events rather than experiencing the actual event. Critical realists find this to be a core ontological reflection, as senses are easily deceivable. To mitigate the issue of deceivability, critical realists differentitate between the empirical, the actual, and the real (Bhaskar, 2008). These three overlapping domains of reality are illustrated in Figure 3.

Critical realists do not define what is real as a result of their knowledge of it; however, attributes the concept of what is real to the concept of whatever exists. The real consists of causal structures and mechanisms with enduring properties that science attempts to uncover. Whilst the real seeks to define the structures and powers of objects, the actual sets out to understand what happens if the powers of the structures of the real are activated. Setting these powers in motion may produce unpredictable results. The empirical is defined as the domain of experience. The empirical domain pertains to events that are observed or experienced. Whilst all things may not be observable, the observability can make us more confident about what exists (Sayer, 2000, pp. 11-12; Saunders et al., 2016, p. 139).

Figure 3 The Three Overlapping Domains of Reality in Critical Realist Ontology



Note: This figure was produced by Mingers (2004, as cited in Raduescu & Vessey, 2009). The figure illustrates the three overlapping domains of reality of the critical realist ontology as described in Roy Bhaskar's book, "A Critical Realist Theory of Science" (Bhaskar, 2008).

Within the epistemological realm of critical realism, facts and the nature of reality are considered a social construction. Critical realists contend that it is impossible to understand the social world without understanding what has given rise to the phenomenon at hand. Sayer (2000) states that "for realists, causation is not understood on the model of regular successions of events, and hence, explanation need not depend on finding them, or searching for putative social laws" (p. 14). Contrarily, critical realists find that knowledge is derived from understanding wherefore a certain mechanism exists through the exploration of the underlying nature of the structure or object thereof (Sayer, 2000). Additionally, Bhaskar (2008) finds that "science is explanatory, not simply descriptive. Explanation is achieved by reference to enduring mechanisms. Such mechanisms exist as the powers of things and act independently of the conditions that enable us to identify them" (p. 186). As such, critical realism can be utilized for its explanatory powers of which differentiate critical realists from the social constructivistic and interpretivistic nature.

4.2. Research Design and Strategy

Supporting the philosophy of science, the research design and strategy will be accounted for to assert the study's objectives. The aim of this paper is to uncover potential risks of non-compliance with emissions reporting in the shipping industry. To detect and investigate the underlying patterns of the research question, the research design is based on an inductive approach. This

methodological choice enables the exploration of the context in which the research question unfolds.

Saunders et al. (2016) identify three different approaches to theory development, namely deduction, induction, and abduction. The approach to development of theory determines the design of the conducted research. The authors assert that "the extent to which you are clear about the theory at the beginning of your research raises an important question concerning the design of your research project" (Saunders et al., 2016, p. 144). Deduction aims to utilize theory for investigating and testing correlation(s) between concepts and variables. The design of the deductive approach allows the researcher to verify and falsify theory. The deductive reasoning enables the generalizability from academic literature, in which theory is developed, to specific contexts (Saunders et al., 2016, p. 145). Conversely, an inductive approach uses data to detect and identify themes or patterns when exploring phenomena. An inductive approach allows the researcher to make sense of data as part of understanding a phenomenon and the underlying context (Saunders et al., p. 147). Abduction combines deductive and inductive reasoning, in which research moves from theory to data and vice versa. An abductive approach moves across the continuum to develop and generate new theories (Saunders et al., 2016, p. 148).

Sayer (2000) asserts that "critical realism endorses or is compatible with a relatively wide range of research methods, but it implies that the particular choices should depend on the nature of the object of study and what one wants to learn about it" (p. 19). This study will employ an inductive approach to theory development. Along with the underlying risks of non-compliance, the understanding of the phenomenon of emissions reporting expectations in the shipping industry is generated when making sense of the data collection to identify underlying themes. Originating from the social sciences, the inductive approach also considers the context in which the phenomenon takes place, as this contributes to the broader understanding (Saunders et al., 2016, p. 147). The inductive approach allows the researcher to explore the data and derive theoretical themes and patterns, which would then contribute to inducing generalizations for future practice. Supporting the methodological choice of an inductive approach, Saunders et al. (2016) argue that it could be beneficial to work inductively when there is little existing literature within a research field (p. 149).

Traditionally, research based on an inductive approach has smaller sample sizes compared to that of deduction; however, using a variety of methods and a sufficient sample size strengthens the research design (Saunders et al., 2017, p. 147). To establish different perspectives on the phenomenon, the data collection consists of multiple distinct types of data pieces from various sources. The extent of the data collection will be further discussed later in the paper. The data collection is argued to support the research design, as working inductively creates the opportunity to detect and reflect upon theoretical themes and patterns detected in the data collection.

This research project follows a mixed methods research design, in which both quantitative and qualitative data collection techniques and data analysis procedures are adopted. This research design complements the philosophy of science, critical realism, which is argued by Saunders et al. (2016). As critical realists presume that "while there is an external, objective reality to the world in which we live, the way in which each of us interprets and understands it will be affected by our particular social conditioning" (Saunders et al., 2016, p. 169), the combination of quantitative and qualitative methods generate the appropriate research design to carry out the study. This methodological decision is believed to create a research design that is more adaptive when working inductively with the research topic. Using mixed methods allows for different meanings, patterns, and themes to be detected. A one-method research design could potentially have revealed an insufficient data collection or not identified possible themes due to the nature of the data. A mixed methods research design allows for triangulation, which is further called for by critical realism.

As this paper involves more than one phase of data collection and analysis, a sequential mixed methods research approach will be employed. This research approach entails using one method to expand and elaborate on the findings of another. The study will follow the approach of sequential explanatory research design in which a quantitative method is followed by a qualitative method (Saunders et al., 2016, pp. 170-171). This distinct approach of working with mixed methods enables the researcher to develop a richer understanding of quantitative findings through data triangulation. The research design enables the researchers to corroborate quantitative findings through interviews with shipping companies and industry stakeholders.

Denzin (1978) emphasizes the importance of triangulation to ensure the quality of research and states "if each method leads to different features of empirical reality, then no single method can ever completely capture all the relevant features of that reality; consequently, sociologists must learn to employ multiple methods in the analysis of the same empirical events" (p. 15). Similarly, the author identifies four basic types of triangulation, being data triangulation, investigator triangulation, theory triangulation, and methodological triangulation (Denzin, 1978, p. 295). This study will utilize data and methodological triangulation to heighten the quality of research, which will be further elaborated in later sections of the paper.

In addition to the research design, the nature of the research will be accounted for. The intent is for this study to fulfill an exploratory purpose. Exploratory studies are appropriate for gaining understandings of a specific research topic or phenomenon. The nature of this study is to explore how emissions reporting represents a risk of non-compliance with stakeholder expectations in the shipping industry. Furthermore, the exploratory nature of this study complements the research design, as exploratory research is proven to be flexible and adaptable to potential changes (Saunders et al., 2016, p. 175). New data insights can change the study's direction, which is why a mixed methods research design is called for to properly ensure that the methodological choices do not constrain the research findings.

The time horizon of a project concludes the extent of the research. This study has a cross-sectional time horizon. Saunders et al. (2016) defines cross-sectional as "the study of a particular phenomenon (or phenomena) at a particular time" (p. 200). The focus is to investigate the phenomenon in a current context, which also limits the scope of the data collection. The time horizon of this research concerns a current view and understanding of emissions reporting in the shipping industry, whereby it is cross-sectional.

4.3. Collection of Data

The collection of data is important to facilitate the research in this paper. This section will highlight the different methodological considerations pertaining to the gathering and application of primary and secondary data. The sub-sections will demonstrate how the literature review was constructed and provide considerations on the collection of primary and secondary data.

4.3.1. Literature Review

The literature review has been generated by employing a systematic approach. A systematic was applied in the collection of literature to derive a research question that would allow for an appropriate examination of the research topic. The application of a systemic review allows researchers to systematically locate and evaluate the contributions of existing studies in a structured method, enabling the inference of what has been studied and discovering potential gaps in literature (Denyer & Tranfield, 2009). The systematic literature review has been combined with a historical literature review. The first section of the literature review constitutes a historical review, whereby the historical developments of environmental regulations were examined to illuminate how the developments in the regulatory landscape of the shipping industry. The second section of the literature review was conducted utilizing a theoretical review approach in which the accumulation of theory on a particular subject is examined to determine reasonings to explore the research direction of this thesis (Saunders et al., 2016, p. 74). The theoretical review exposed findings in the context of environmental performance and sustainability reporting in the shipping industry.

To conduct the systematic literature review, the citation database, Web of Science (WoS), has been utilized. WoS is a research engine allowing scholars to perform extensive literature searches based on key words. Indexing journals permits researchers to engage in a structured approach to research exploration, highlighting the applicability of WoS in a structured systematic literature review. The database's strength originates from its vast number of cited references and being recognized by more than 9,000 institutions worldwide (Clarivate, 2023). The prominence of research studying environmental performance and sustainable reporting within the shipping industry is lackluster; however, the topics have recently become more significant in research. A notable observation on literature in the maritime industry is the fact that a large amount of journal articles concern the technical aspects of vessels. Therefore, these have been filtered out, as such research is situated outside the scope of this paper. The key words used to identify relevant literature on WoS are illustrated in Table 1. The abstract and conclusions of the identified articles were read to assess the relevance of articles of the research. Relevant articles were read entirely to examine the research's conclusions

Table 1

Systemic Literature Review Key Words

Key Words	Results	
"shipping" and "environmental performance"	183 results	
"shipping" and "sustainability reporting"	6 results	
"shipping" and "sustainability disclosure"	5 results	
"shipping" and "environmental disclosure"	3 results	
"shipping" and "CSR disclosure" or "CSR reporting"	4 results	
"green shipping" and "financial performance"	15 results	
"shipping" and "environment" and "financial performance"	317 results	

Note: This table has been constructed by the authors of this paper. This table demonstrates the results of the search strings from WoS employed in the literature review section.

As demonstrated in Table 1, the systematic literature review on WoS uncovered numerous results on key words pertaining to environmental performance and financial performance in the shipping industry. However, few results concerning sustainability reporting in the industry were identified. These results form the basis of the literature review section, highlighting the scarcity of research conducted on environmental reporting in the shipping industry. The results of the literature search on WoS were combined with a snowball sampling approach, where additional literature was discovered based on references in the journal articles found by utilizing the keywords.

4.3.2. Primary and Secondary Data

Complementing the sequential mixed methods approach of this study, multiple types of qualitative and quantitative data have been collected, introducing aspects of data triangulation to the study. The paper is constructed upon a combination of primary and secondary data, establishing a more comprehensive analytical approach. Secondary data has inter alia been collected in the form of sustainability reports, annual reports, books, legislative texts, and journal articles. Sustainability and annual reports of shipping companies were used to construct an emissions reporting index of shipping companies, which will be elaborated in later sections of the paper.

The application of secondary data has been beneficial for this paper. Secondary data complements the sequential mixed methods research approach of this paper, as the gathering of secondary data requires few resources due to its accessibility. The accessibility of secondary data has allowed

more resources to be dedicated towards the qualitative data collection, which are used to explore the underlying occurrences of the secondary data. The use of secondary data also heightens the replicability of the study, as the data sources are easily accessible and verifiable by external researchers. In addition, it is recognized that emissions reporting may be regarded as sensitive data, whereby secondary data represents an unobtrusive method of gathering such information.

However, it is important to acknowledge the potential disadvantages of working with secondary data. Secondary data has been collected for a different purpose and another context than that of this paper. As such, it is imperative to examine and understand the applicability of the secondary data to understand if it is applicable to this paper's context. Similarly, it is fundamental to recognize that secondary data could be collated to fulfill a specific purpose or demand, meaning that the data has been constructed and presented subjectively (Saunders et al., 2016, pp. 330-335).

The primary data collected consists of interviews with shipping companies and different industry stakeholders. Primary data is expected to establish a fundamental understanding of the potential risks arising from not complying with stakeholders' expectations. The interviews will be used to outline the role of emissions reporting in the shipping industry, expectations of stakeholders, characteristics of emissions reporting, and potential risks of not disclosing emissions data. The primary data collected is expected to contribute to a comprehensive analysis of the research question, providing a variety of perspectives to answer the research question. A description of how the interviews were constructed will be presented in part 4.5. Construction of Interviews.

4.4. Construction of Emissions Reporting Index

To investigate the research question, an emissions reporting index has been composed. Inspired by the CSR indices developed by Tsatsaronis et al. (2022) and Drobetz et al. (2014), the emissions reporting index consists of 50 listed shipping companies from Asia, Europe, and North America. The 50 listed companies are assigned a total emissions score (TES) depending on their degree of emissions reporting and GHG alignment trajectory, which will be further elaborated upon later in the following sections. The intention of the emissions reporting index is to generate a foundational understanding of the individual shipping companies' efforts to disclose in conformity with the emissions reporting standards along with the companies' aspirations to conform with the GHG alignment trajectories. Grounded in the emissions reporting index, the intention is to identify underlying tendencies and patterns, which will be and further investigated through interviews with shipping companies and industry stakeholders.

4.4.1. Development of an Emissions Reporting Score

The 50 listed shipping companies are assigned a rank based on their TES. The TES is calculated based on two metrics, namely companies' disclosure on certain emissions reporting standards of the SASB or GRI and the companies' aspirations to align with the GHG emissions reduction trajectories of the IMO and the Paris Agreement. Companies can obtain a total score of nine points, of which five are attainable through the companies' disclosure on SASB or GRI emissions reporting topics. This score will be referred to as the emissions reporting score (ERS). The remaining four points are dedicated to the companies' aspirations to align with GHG reduction goals, which is referred to as the GHG alignment score. Of the four points, two points are attainable based on the companies' alignment with the IMO's 2030 and/or 2050 goals, and two points are attributed to their ambitions to align with the Paris Agreement 2.0- and 1.5-degree goals. The total emissions reporting score is calculated using Equation 1, and a complete overview of the scoring system is illustrated in Appendix A.

Total Emissions Score =
$$Max(SASB, GRI) + GHG$$
 Alignment Score Eq. 1

The use of GRI and SASB as measurement frameworks to assess shipping companies' engagement in emissions reporting is supported by the findings of Abbott & Snidal (2000). Their conclusions highlight that the appropriateness of these frameworks in evaluating reporting practices. By employing GRI and SASB, shipping companies can align their reporting with globally recognized standards and enhance the transparency and comparability of their data. To investigate the topic of emissions reporting in the shipping industry, the study will utilize SASB's sustainability accounting standards for marine transportation (SASB, 2018). Within these standards, there are two topic areas directly related to the disclosure of air emissions, namely GHG emissions and air quality. These two standards comprise a total of five accounting metrics³, which shipping companies can choose to disclose. Each disclosed accounting metric earns the company one point, allowing for a maximum score of five, if all five SASB accounting metrics are disclosed.

³ Accounting Metric Codes: TR-MT-110a.1, TR-MT-110a.2, TR-MT-110a.3, TR-MT-110a.4, and TR-MT-120a.1

While the GRI is yet to release industry-specific standards for sustainability disclosure in the shipping industry, it remains the most widely adopted set of sustainability standards (Herzig & Kühn, 2017). In the context of this paper, shipping companies' engagement in emissions reporting is represented by the GRI topic standards GRI 302: Energy 2016 and GRI 305: Emissions 2016. The two topics encompass a total of 12 topic disclosure standards⁴. The total obtainable score for aligning with the 12 GRI standards is five points, meaning that disclosure on each topic is equal to $\frac{5}{12}$ of a point.

It is acknowledged that many companies make a choice between one or a few reporting standards for their disclosure their sustainability information. Consequently, companies can only accrue points from either their SASB or GRI disclosure, but not both concurrently. Points will be assigned based on the reporting standards that yields the highest score for each company. For example, if a company reports on both SASB and GRI emissions reporting standards, obtaining a total SASB score of four and a total GRI score of three, their ERS will be based on the SASB score of four.

As illustrated in Equation 1, the TES incorporates the inputs of an ERS and a GHG alignment score. The GHG alignment score enables companies to accumulate a maximum of four points based on their reported alignment with the GHG reduction trajectories outlined by the IMO and the Paris Agreement. Companies accrue two points if they report on their reported alignment with the goals of IMO' GHG reduction strategy in 2030 and 2050. As such, companies must aim to achieve a reduction in GHG emissions of 40% in 2030 and 70% in 2050. Likewise, companies will be rewarded two points based on their reported alignment with the Paris Agreement's 2.0- and 1.5-degree targets. The sum of the alignment points is then collated to produce the GHG alignment score. According to Comer (2021), the 2.0 degree goal entails that companies must achieve net zero emissions in 2050 and net zero emissions reporting standards and GHG reduction targets are provided in Appendix A, in which the mechanisms of the total emissions reporting score are also illustrated.

⁴ Material Topic Codes: GRI 302-1, GRI 302-2, GRI 302-3, GRI 302-4, GRI 302-5, GRI 305-1, GRI 305-2, GRI 305-3, GRI 305-4, GRI 305-5, GRI 305-6, GRI 305-7

The applicable data has been collected from the individual shipping companies' reports and websites. Annual reports, ESG reports, sustainability reports, CSR reports, and similar have been collected and looked through to identify the companies' disclosure on emissions standards and expected GHG reduction alignments. In total, 106 reports were collected to establish the TES for the 50 listed shipping companies for the fiscal years of 2021 and 2020. Although some companies had already published their 2022 reports, these reports were not included to ensure a fair foundation for deriving comparisons between the companies. All the used reports are included in the bibliography, and an overview of the entire emissions reporting index and the underlying ratings are included in Appendix B.

4.5. Construction of Interviews

Building upon the sequential mixed methods approach, the second part of the analysis is constructed on qualitative data. The qualitative analysis consists of primary data from 16 interviews with shipping companies and industry stakeholders. The interviews aims to contribute different perspectives related to the role of emissions reporting in the shipping industry, the expectations of stakeholders, and the perception of potential risks of not reporting. To increase the transparency of the primary data collection, interview guides and interview e-mail templates are provided in Appendix C and D.

Interviews are considered an appropriate supplement to the critical realist research philosophy, as interviews enable researchers to explore the underlying phenomena of the research question. The exploratory and investigative nature of interviews makes it possible to uncover how the underlying mechanisms pertaining to stakeholder expectations could impact the risk of non-compliance for shipping companies. The decision to utilize interviews as a data collection method aligns with the exploratory research design of the paper, as interviews could generate an understanding of how the stakeholder context influences the existence of risks.

Conforming with the definition of stakeholders by Freeman (1984), the interviewees are individuals who can affect or are affected by the achievements of the shipping industry. The 16 interviewees are divided into four overarching groups, being shipping companies, financial institutions, industry customers, and third parties, which are illustrated in Table 2 on page 56.

While shipping companies, financial institutions, and industry customers have the ability to provide an internal perspective on the developments of emissions reporting in the shipping industry, the third parties provide an external view of the changing circumstances. All interviewees hold a position where sustainability is in their sphere of responsibility, ensuring they have appropriate knowledge relating to the research question. The interviews were conducted as a combination of online and in-person settings. As emissions reporting is considered a sensitive topic by the majority of interviewees, the interviewees have been anonymized. Table 2 provides an overview of the respective job positions of the 16 interviewees along with certain facts relating to their relevance for this study. In addition, an interviewee "Reference Code" is provided, which will be the point of reference for the individual interviews are provided in Appendix E, utilized quotes from the interviews are specified in Appendix F, and complete transcripts of interviews are demonstrated in Appendix G.

The interviews followed a semi-structured approach, where the interview guide in Appendix C presented a list of themes to be explored during the interviews. Interviews were initiated with broad questions concerning the interviewee's perception and expectations of emissions reporting in the shipping industry. Questions were tailored to specific stakeholder groups. The interview guide served as a general guide to the interviews; however, the respective interviews differed as the conversation's context shifted towards subjects that suited the interviewee's expertise. By allowing for flexibility in the interviews, opportunities to discover novel aspects to the pre-planned questions were created, as the interviewee could offer their expertise or opinions on questions which the interviewer could not have foreseen otherwise.

Furthermore, the semi-structured approach allowed for a fluid conversation, increasing the trust and comfortability between interviewer and interviewee. The types of questions changed depending on the subject to be explored. In the initial section of the interview, open questions were asked to allow the interviewee to describe their opinions on subjects. Probing questions were used in situations where the interviewer sought to further investigate the interviewee's responses. Furthermore, the researchers emphasized the importance of appearing neutral to the responses of the interviewees, to limit potential biases occurring from the behavior of the interviewer. A similar

emphasis on listening and exhibiting attentiveness was developed, seeking to assure that the interviewer understood and respected the responses of the interviewee.

Table 2

Overview of Interviewees

Shipping Companies					
No.	Type of Company	Interviewee Job Position	Shipping Segment(s)	Reference Code	
1	Container	Head of Decarbonization Standards	Container	SC-A	
2	Diversified	Senior ESG Manager	Container, Dry Cargo, & Tanker	SC-B	
3	Diversified	Investment Director	Container, Dry Cargo, & Tanker	SC-C	
4	Diversified	Head of Communication & Sustainability	Dry Cargo & Tanker	SC-D	
5	Tanker	ESG Manager	Tanker	SC-E	
		Financial Inst	itutions		
No.	Type of Company	Interviewee Job Position	Signatory	Reference Code	
6	Bank	Head of Sustainability	PPFI	FI-A	
7	Bank	Relationship Manager	PPFI	FI-B	
8	Bank	Senior Vice President	PPFI	FI-C	
		Industry Cust	tomers		
No.	Type of Customer	Interviewee Job Position	Shipping Segment(s)	Reference Code	
9	Commodity Trader	Head of Energy Transition - Shipping	Tanker & Dry Cargo	IC-A	
10	Commodity Trader	Global Head of Fuel Decarbonization	Tanker & Dry Cargo	IC-B	
		Third Part	ties		
No.	Type of Stakeholder	Interviewee Job Position	Fields of Expertise	Reference Code	
11					
	Academic	Associate Professor	Maritime Innovation & Maritime Economics	TP-A	
12	Academic	Associate Professor PhD Researcher	Maritime Innovation & Maritime Economics Environmental Sustainability in Investment Decisions	TP-A TP-B	
12 13	Academic Academic Consultancy	Associate Professor PhD Researcher Associate - Climate & Sustainability	Maritime Innovation & Maritime Economics Environmental Sustainability in Investment Decisions Maritime Transport & Energy Transition	TP-A TP-B TP-C	
12 13 14	Academic Academic Consultancy Consultancy	Associate Professor PhD Researcher Associate - Climate & Sustainability Manager	Maritime Innovation & Maritime Economics Environmental Sustainability in Investment Decisions Maritime Transport & Energy Transition Strategy Development & CSR - Transportation	TP-A TP-B TP-C TP-D	
12 13 14 15	Academic Academic Consultancy Consultancy Shipping Research Institute	Associate Professor PhD Researcher Associate - Climate & Sustainability Manager Market Analyst	Maritime Innovation & Maritime Economics Environmental Sustainability in Investment Decisions Maritime Transport & Energy Transition Strategy Development & CSR - Transportation Economic Analysis of Decarbonization	TP-A TP-B TP-C TP-D TP-E	

Note: This table has been constructed by the authors of this paper. The table provides an overview of the 16 interviewees, their respective job positions, and facts pertaining to their relevance for this study.

4.6. Data Quality Issues

When conducting semi-structured interviews, it is essential to understand issues of data quality originating from the lack of standardization. Qualitative research specifically encounters such

issues, as ambiguity associated with the replicability of the study could occur. Specific biases must be considered when researchers contemplate exploiting interviews as a data collection method. These being interviewer, interviewee, and participation bias.

Interviewer biases occur when the interviewer influences the perceptions and responses of the interviewee through verbal and non-verbal behavior. This could occur if the interviewer phrases questions in a biased way, expecting to receive certain responses. Interviewee bias can happen due to the intrusive nature of semi-structured interviews. This bias could occur when the interviewee becomes reluctant to answer open-ended questions on sensitive subjects, as they oppose the possibility of detailed follow-up questions which they may not be willing or entitled to disclose upon. As such, the interviewee may become proponent to cast the actions of their company in a positive light to avoid unintended negative associations of the firm. Finally, a participatory bias could occur due to the willingness of interviewees to engage in interview, whereas some might not. Bias skews the applicability of the findings derived from the interviews, as they might not necessarily represent the views of the selected sample (Saunders et al., 2016, pp. 396-397).

To mitigate biases in the interview process, it is imperative for interviewers to be cognizant of the potential impact on the outcomes. Diligent efforts have been undertaken to minimize biases in which the interviewers sought to limit their impact on the perceptions and responses of the interviewees. The use of open-ended questions has constituted a pivotal role in comprehending the role and perception of emissions reporting in this exploratory study. Interviews have been anonymized to foster an environment where interviewees are comfortable sharing sensitive data, contributing to the validity of the study's findings. Ultimately, efforts have been made to mitigate participatory bias by carefully selecting interviewees based on their roles and positing of their company within the industry.

4.7. Reliability & Validity

Saunders et al. (2016) assert that "reliability and validity are central to judgements about the quality of research in the natural quantitative research in the social sciences" (p. 202). Whilst the term reliability refers to the replicability and consistency of a study, a distinguishment between internal and external reliability is made. Internal reliability is a core concept of qualitative research, as it

refers to the idea of ensuring consistency in research by employing methodological approaches that ensure consistency in the way that data is coded, analyzed, and interpreted. Similarly, external reliability concerns whether the applied data collection techniques and procedures are replicable in the future (Saunders et al., 2016, p. 202). Consistency and transparency of techniques and analytical procedures have been a key consideration in this paper's construction. To ensure the reliability of the utilized approaches and findings, the employed quantitative and qualitative procedures have been stipulated thoroughly in section 4.4. and 4.5. Likewise, interview guides, transcripts, and codes are provided in the appendices to provide a transparent overview of how the qualitative data has been generated, assessed, and analyzed.

To further strengthen the quality of research, the concept of validity constitutes a core reflection during the construction of this study. Throughout this study, internal validity is ensured through triangulation. As such, the validity of this study benefits from the use of data and methodological triangulation, as demonstrated in the previous sections. The study is constructed upon a sequential mixed methods approach and employs a range of both quantitative and qualitative data sources. In doing so, it is possible to amplify the theoretical advantage derived from the methodological choices (Denzin, 1978, p. 295).

Lastly, concerning the concept of external validity, or generalizability, of the study's findings. This study explores how emissions reporting represents a risk of non-compliance with stakeholder expectations in the shipping industry. As such, this research paper does not aim to explore the general; however, it investigates the research question in the context of the shipping industry. Nevertheless, the findings of this study may constitute a foundation for future research. Saunders et al. (2016) state that qualitative research designs are transferable to other, although suitable, contexts, if the study is structured upon reliable and valid approaches (p. 400). Considering this notion, it is argued that the approach and conclusions of this study may be generalized or used as a supplement in the context of other research in other globally regulated industries.

Chapter 5: Results

The ensuing chapter presents the results derived from the data collection. Following the sequential mixed method research design approach, this chapter is separated into two overarching parts that embody the two types of data collected to explore the research question. In the first part, the findings of the emissions reporting index are presented, aiming to explore tendencies and patterns

of the data. The second part pertains to the presentation of data derived from interviews with shipping companies and stakeholders of the industry. The interviews will be used to support the findings of the emissions reporting index and aim to further explore the tendencies and patterns originating from the index. Ultimately, this chapter seeks to comprehend the role of emissions reporting in the shipping industry, intending to outline the expectations of the industry's stakeholders, which will be further scrutinized in the following chapter.

5.1. Emissions Reporting Index

This part presents the findings of the emissions reporting index. The methodological assumptions underpinning the filtration of the publicly listed shipping companies are described and a complete list of the 50 listed companies is put forth. The companies' total emissions score (TES) are presented in which underlying tendencies and patterns of the scores are explored. TESs are explored from different perspectives, as the scores are studied from the respective shipping segments and the continents in which the companies are stock listed. Likewise, the exploration of the underlying tendencies and patterns is separated into sub-sections that are coherent with the respective inputs of the TES from Equation 1. The sub-sections that will be explored throughout this part are illustrated in Figure 4. Finally, the key tendencies and patterns derived from the emissions reporting index are recapitulated. These key findings will constitute a basis for the perspectives investigated through interviews.

Figure 4

Emissions Reporting Index Analysis



Note: This figure has been constructed by the authors of this paper. The figure provides an overview of the sub-sections from which the results of the emissions reporting index will be explored.

5.1.1. Filtration of Companies

To assemble the 50 listed shipping companies, all companies from the shipping and marine transportation sector were filtered from 12 major global stock exchanges. Six Asian, four European, and two North American stock exchanges were filtered through, compiling a total of 87 listed shipping companies. The filtration process involved documenting the companies' name, country of origin, continent of stock exchange, shipping segment, and market capitalization. The country and continent of stock exchange will be referred to as "the country" and "the continent". Inspired by the findings of Baumann-Pauly (2013), asserting that large firms possess favorable characteristics to effectively communicate and report CSR externally, the 87 listed companies were sorted in respect to their market capitalization to identify the 50 largest companies. Since the companies were listed on different stock exchanges and in different currencies, the companies' market capitalizations were converted to USD, using the applicable exchange rates on February 28th, 2023. The 10 largest and smallest companies are illustrated in Table 3.

Table 3

No	Company	Country	Continent	Shipping	Market Cap
No. Company		Country	Continient	Segment	(USDbn)
1	A.P. Moller - Maersk*	Denmark	Europe	Container	80.78
2	Hapag-Lloyd*	Germany	Europe	Container	53.47
3	COSCO Shipping Holding (COSCO)*	Hong Kong	Asia	Container	22.81
4	Nippon Yusen Kabuskiki Kaisha (NYK)	Japan	Asia	Diversified	13.07
5	Evergreen Marine	Taiwan	Asia	Container	10.80
6	Orient Overseas (International)	Hong Kong	Asia	Container	10.73
7	Mitsui O.S.K Lines (MOL)	Japan	Asia	Diversified	9.40
8	Hyundai Merchant Marine (HMM)	South Korea	Asia	Diversified	8.27
9	Yang Ming	Taiwan	Asia	Container	7.33
10	Wan Hai	Taiwan	Asia	Container	7.26
41	Okeanis Eco Tankers	Norway	Europe	Tanker	0.79
42	NS United Kaiun Kaisha*	Japan	Asia	Diversified	0.76
43	Ardmore Shipping	USA	North America	Tanker	0.76
44	Odfjell	Norway	Europe	Tanker	0.75
45	Global Ship Lease	USA	North America	Container	0.73
46	Tsakos Energy Navigation	USA	North America	Tanker	0.69
47	Avance Gas	Norway	Europe	Tanker	0.53
48	GasLog Partners	USA	North America	Tanker	0.50
49	Sincere Navigation	Taiwan	Asia	Dry Cargo	0.49
50	Samudera Shipping Line	Singapore	Asia	Diversified	0.48

Overview of the 10 Largest and Smallest Listed Shipping Companies

Note: This table has been constructed by the authors of this paper. The table provides an overview of the 10 largest and 10 smallest shipping companies identified in the filtration of companies. Companies marked with an asterisk (*) are listed on more than one stock exchange.

The objective of this paper is to investigate and gain insights into the research question within the broader shipping context. To ensure relevance, companies whose main income is generates within the main shipping segments have been excluded from the emissions reporting index. The study concentrates on the on the container, tanker, and dry cargo shipping segments. Shipping companies engaged in more than one of these segments are referred to as diversified. Moreover, companies solely engaged in shipping on a national level have also been excluded, as the inclusion of such companies is not presumed to contribute suitable knowledge to the global nature of the shipping industry. As such, shipping ports, shipyards, cabotage traders, and similar have been omitted from the index. The shipping companies, Wallenius Wilhelmsen Logistics and DFDS, have been excluded from the index because their main income is generated outside of the main shipping segments, despite having the 14th and 25th largest market capitalization, respectively. Table 4 provides an overview of the geographical distribution of the identified listed shipping companies along with the applicable exchange rates used to determine the companies' market capitalization. A complete list of the 50 listed shipping companies is illustrated in Appendix H.

Table 4

Stock Exchange	Country	Continent	Total Companies (Unfiltered)	Total Companies (Filtered)	Exchange Rates	Currencies
New York Stock Exchange	USA	North America	26	18	1.000	USD/USD
Nasdaq U.S.	USA	North America	15	3	1.000	USD/USD
London Stock Exchange	England	Europe	0	0	1.210	GBP/USD
Oslo Stock Exchange	Norway	Europe	19	10	0.097	NOK/USD
Nasdaq Copenhagen	Denmark	Europe	4	3	0.143	DKK/USD
Frankfurt Stock Exchange	Germany	Europe	2	1	1.061	EUR/USD
Hong Kong Stock Exchange	Hong Kong	Asia	2	2	0.127	HKD/USD
Singapore Exchange Limited	Singapore	Asia	1	1	0.743	SGD/USD
Korea Exchange	South Korea	Asia	4	2	0.001	KRW/USD
Tokyo Stock Exchange	Japan	Asia	4	4	0.007	JPY/USD
Shanghai Stock Exchange	China	Asia	0	0	0.144	CNY/USD
Taiwan Stock Exchange	Taiwan	Asia	10	6	0.033	TWD/USD

Overview of Emissions Reporting Index & Applicable Exchange Rates

Note: This table has been constructed by the authors of this paper. The table provides an overview of the geographical distribution of the listed shipping companies identified for the emissions reporting index. In addition, the exchange rates from 28-02-2023, which have been used to determine the companies' market capitalization, are specified in the table.

5.1.2. Total Emissions Score

The filtration of companies has unveiled the 50 largest publicly listed shipping companies from the 12 examined stock exchanges measured on the companies' market capitalization. The 50 companies are distributed across four shipping segments and three continents illustrated in Figure 5. The complete emissions reporting index is provided in Appendix B. The tanker segment is the most represented segment with 21 companies, while the dry bulk segment is the least represented with seven companies. The majority of the identified companies are listed in North America with a total of 21 companies. In addition, 15 of the companies are listed on Asian stock exchanges with the remaining 14 companies listed in Europe.

Figure 5



Overview of Segments and Exchange Continents

Note: This figure has been constructed by the authors of this paper. The figure illustrates the distribution of the 50 listed shipping companies, filtered for the emissions reporting index, across shipping segments and stock exchange continents.

Based on the approach defined in section 4.4.1 Development of an Emissions Reporting Score, the shipping companies have been assigned a total emissions score (TES) for the fiscal years of 2020 and 2021. In 2021, 40 companies disclosed their emissions using either GRI or SASB, and 38 companies had established GHG reduction trajectories in alignment with the IMO or the Paris Agreement. In total, three of the investigated companies achieved the maximum TES of 9.0 points in 2021. On the contrary, seven companies received the lowest possible score of 0.0 points in 2021, as they neither disclosed their emissions based on the GRI or SASB nor established GHG reduction trajectories. A complete overview of the 50 companies' TES in 2020 and 2021 is provided in Appendix I & J.

To explore potential tendencies and patterns of the emissions reporting index, the dataset will be explored from two perspectives. The dataset will be explored from the perspective of the TES of the respective shipping segments and their continent. The characteristics of the top and bottom performers have been put forth in Figure 6. The figure underlines the fact that the 10 highest scoring companies are almost exclusively engaged in either the container or the diversified segment and are predominantly stock listed in Asia. Likewise, only one tanker and zero dry cargo companies are included in the highest scoring companies. Conversely, the lowest scoring companies are mostly tanker or diversified companies listed in North America. No container companies or European listed companies are encompassed in the lowest scoring companies.

Figure 6



Highest and Lowest Scoring Shipping Segments and Stock Exchanges in 2021

Note: This figure has been constructed by the authors of this paper. The figure illustrates the distribution of the 10 highest and lowest scoring listed shipping companies across the four shipping segments and three stock exchange continents in 2021.

Table 5 provides an overview of the 10 companies with the highest and lowest TES in 2021 along with their market capitalization. The average market capitalization of the highest rated companies is USD 13.6 billion, which is driven by the container and diversified segments. In particular, the container company, A.P. Moller – Maersk, is influencing this result with a market capitalization of USD 80.8 billion. Contrastingly, the lowest rated companies have an average market capitalization of USD 1.2 billion, approximately 91.2% lower than the market capitalization of the highest rated companies. A complete overview is provided in Appendix I & J.
Table 5

Overview of the 10 Highest and Lowest Scoring	Listed Shipping Companies
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No	Company	TES 2021	Country	Continent	Shipping Segment	Market Cap (USDbn)
1	A.P. Moller - Maersk*	9.0	Denmark	Europe	Container	80.78
2	Hyundai Merchant Marine (HMM)	9.0	South Korea	Asia	Diversified	8.27
3	TORM*	9.0	Denmark	Europe	Tanker	2.92
4	Mitsui O.S.K Lines (MOL)	8.6	Japan	Asia	Diversified	9.40
5	Kawasaki Kisen Kaisha (K-Line)	8.6	Japan	Asia	Diversified	6.25
6	Global Ship Lease	8.0	USA	North America	Container	0.73
7	Matson	8.0	USA	North America	Container	2.55
8	Danaos	8.0	USA	North America	Container	1.22
9	Nippon Yusen Kabuskiki Kaisha (NYK)	7.7	Japan	Asia	Diversified	13.07
10	Evergreen Marine	7.0	Taiwan	Asia	Container	10.80
41	GasLog Partners	3.0	USA	North America	Tanker	0.50
42	Golar LNG	2.0	USA	North America	Tanker	2.45
43	NS United Kaiun Kaisha*	2.0	Japan	Asia	Diversified	0.76
44	Pan Ocean	0.0	South Korea	Asia	Diversified	2.54
45	U-Ming Marine Transport	0.0	Taiwan	Asia	Dry Cargo	1.68
46	Navigator Holdings	0.0	USA	North America	Tanker	1.06
47	Nordic American Tankers	0.0	USA	North America	Tanker	0.91
48	Ardmore Shipping	0.0	USA	North America	Tanker	0.76
49	Tsakos Energy Navigation	0.0	USA	North America	Tanker	0.69
50	Samudera Shipping Line	0.0	Singapore	Asia	Diversified	0.48

Note: This table has been constructed by the authors of this paper. The table includes the 10 highest and 10 lowest scoring listed shipping companies based on TES in 2021, filtered for the emissions reporting index, across shipping segments and stock exchange continents. Companies marked with an asterisk (*) are listed on more than one stock exchange.

The average TES across all 50 shipping companies have increased by 1.4 points from 2020 to 2021. Whilst the average TES was 3.9 points in 2020, the score increased to 5.3 points in 2021. This increase has primarily been driven by the 10 best scoring companies, which increased their average TES by 1.5 points from 6.8 points in 2020 to 8.3 points in 2021. Contrastingly, the 10 lowest scoring companies improved their average TES by 0.4 points from 0.3 points in 2020 to 0.7 points in 2021.

Figure 7 demonstrates that all shipping segments have increased their average TES from 2020 to 2021 with the container segment securing the highest average TES in both years. The diversified segment was the lowest scoring in 2020; however, the segment obtained the most significant improvement from 2020 to 2021, improving its average TES by 2.0 points from 2.9 points in 2020 to 4.9 points in 2021. Concurrently, the tanker segment was the lowest scoring in 2021, as the segment generated the least improvement in TES from 2020 to 2021, improving its average score by 1.1 points from 3.4 points in 2020 to 4.5 points in 2021.

Comparably, Figure 7 exemplifies the average TES across the three continents in 2020 and 2021. The figure demonstrates that the average TES has increased throughout all three continents. The European listed companies achieved the highest average TES in both years with a score of 4.8 points in 2020 and 6.4 points in 2021. The Asian and North American listed companies achieved an average score of 3.6 points in 2020. However, the Asian listed shipping companies improved their average TES by 1.6 points to 5.2 points in 2021, compared to the 1.0 point increase by the North American companies achieving an average TES of 4.6 points.

Figure 7



TES Across Shipping Segments and Continents

Note: This figure has been constructed by the authors of this paper. The figure illustrates the average TES across the four shipping segments and the three continents in the fiscal years of 2020 and 2021.

5.1.3. Emissions Reporting Score

To develop an understanding of the TES of shipping companies, their emissions reporting score (ERS) will be assessed. Figure 8 shows the development in ERS between continents and shipping segments, highlighting the efforts of shipping companies to disclose emissions. When examining the ERS of shipping segments, the container segment has achieved the highest average score in 2021 at 4.4 points. Oppositely, the diversified segment achieved the lowest average ERS at 2.4 points, illuminating lower efforts to disclose emissions across the segment. Although the diversified segment achieved the lowest average ERS in 2021, the segment experienced the largest increase in ERS from 2020 to 2021 at 1.1 points, demonstrating an increase in the adaptation of sustainability disclosure standards across the diversified segment.

Examining ERS across continents, the European companies have obtained the highest average ERS. Conversely, the Asian companies have attained the lowest average ERS of the three continents. European and Asian listed companies experienced an equivalent increase of 0.9 points in average ERS from 2020 to 2021, whereas North American companies achieved the lowest average increase of ERS from 2020 to 2021 at 0.4 points. Overall, the average ERS across the three continents increased by 0.7 points between 2020 and 2021, from 2.8 points to 3.5 points.

Figure 8



ERS Across Shipping Segments and Continents

Note: This figure has been constructed by the authors of this paper. The figure illustrates the average ERS across the four shipping segments and the three continents in the fiscal years of 2020 and 2021.

As depicted in Figure 4, a central part of understanding the shipping companies' ERS scores involves analyzing their SASB and GRI scores. In 2021, 32 of the 50 shipping companies reported on SASB, whereas 29 companies reported on the GRI framework. Additionally, 21 shipping companies reported on both the SASB and GRI framework in 2021. The total achievable SASB or GRI is five. In 2021, 20 companies achieved the highest achievable score on SASB, whereas no companies achieved a maximum score in the GRI framework.

Figure 9 displays the average SASB scores for each shipping segment and across continents. In 2021, the dry cargo segment achieved the highest SASB score of 3.7 points, followed by the container and tanker segments with a score of 3.5 and 3.1, respectively. The diversified segment reported the least on SASB with an average score of 1.0 points in 2021. The dry cargo segment experienced the largest increase in SASB scores from 2020 to 2021 at 1.3 points, followed by the

container and tanker segment with 0.7 points each. European listed companies achieved the highest average SASB scores in 2021 at 3.8 points. Asian listed companies scored the lowest average score at 1.6 points, signaling a disinclination for Asian shipping companies to employ SASB. The Asian and European listed companies experienced the largest increase in average SASB scores from 2020 to 2021 at 0.9 points each, whereas the SASB scores of North American companies on average increased by 0.6 points.

Figure 9



SASB Scores Across Shipping Segments and Continents

Note: This figure has been constructed by the authors of this paper. The figure illustrates the average SASB scores across the four shipping segments and the three continents in the fiscal years of 2020 and 2021.

In addition to the SASB scores, Figure 10 provides insights into the GRI scores across shipping segments and continents. In 2021 the highest GRI scores were achieved by the container segment at 2.7 points, followed by the diversified segment at 1.9 points. The dry cargo and tanker segment achieved moderately lower GRI scores at 1.2 points and 0.8 points, respectively. The diversified segment experienced the largest GRI score increase from 2020 to 2021 at 1.0 points. Oppositely, the GRI score of the dry cargo segment increased the least at 0.3 points. Asian companies achieved the highest average GRI scores in 2021 at 2.8 points followed by European companies at 1.4 points. North American companies achieved noticeably lower average GRI scores in 2021 at 0.8 points. Furthermore, Asian and European companies experienced the largest increases in average GRI scores from 2020 to 2021, as they achieved increases of 0.7 points.

Figure 10 GRI Scores Across Shipping Segments and Continents



Note: This figure has been constructed by the authors of this paper. The figure illustrates the average GRI scores across the four shipping segments and the three continents in the fiscal years of 2020 and 2021.

5.1.4. GHG Alignment Score

This section will present the findings of the GHG alignment score. The GHG alignment score is the second input of the TES along with the ERS, demonstrated in Figure 4. The score consists of companies' reported efforts to align with the goals of the IMO and the Paris Agreement. Figure 11 displays the average GHG alignment scores across shipping segments and continents in 2020 and 2021. The exploration of shipping segments' GHG alignment score illuminated that the diversified and the container segment achieved the highest scores in 2021 at 2.4 points. Furthermore, these segments experienced the largest increase in GHG alignment scores from 2020 to 2021 at 0.9 points. The tanker segment attained the lowest increase at 0.4 points on average, increasing from 0.9 points in 2020 to 1.2 points in 2021. Considering the GHG alignment scores of continents, European listed companies achieved the highest average score at 2.2 points, followed by Asian listed shipping companies with a score of 2.1 points. North American companies achieved the lowest average GHG alignment score in 2021, obtaining a score of 1.3 points on average. It is evident that a substantial change in GHG alignment scores occurred across continents between 2020 and 2021 with an average increase of 0.7 points across the three continents. Specifically, Asian companies experienced the largest increase at 0.7 points, followed by European and North American companies with increases of 0.6 points, respectively.

Figure 11 GHG Alignment Score Across Shipping Segments and Continents



Note: This figure has been constructed by the authors of this paper. The figure illustrates the development in GHG alignment score for each shipping segment and continent from 2020 to 2021.

The GHG alignment score consists of two inputs stemming from the 50 shipping companies' reported alignment with the IMO and Paris Agreement GHG reduction trajectories. The distribution of the 50 companies' average alignment with the IMO and Paris Agreement trajectories are illustrated in Appendix K. 38 of the 50 shipping companies communicated an alignment with the IMO goals in 2021, compared to 32 companies in year 2020. Reported alignment with the goals of the Paris agreement was significantly scarcer as only 13 shipping companies communicated to align with the goals in 2021. This is a significant increase from 2020, as only a single company reported alignment with the goals. The diversified segment achieved the highest average Paris Agreement alignment scores at 1.0 points, followed by the container segment at 0.5 points. Additionally, it is evident that Asia and Europe are the leading continents in terms of Paris Agreement alignment, achieving 0.6 points and 0.5 in 2021, respectively.

Assessing the IMO scores of the shipping segments, the container segment achieved the highest average score in 2021 at 1.9 points, followed by the diversified segment with 1.4 points. Similarly, European companies achieved the highest score an average score of 1.7 points in 2021, whereas North American companies attained the lowest score of 1.2 points.

5.1.5. Key Findings from Emissions Reporting Index

The emissions reporting index demonstrates a collection of tendencies and patterns observed across shipping segment and geographical locations. Of the 50 listed shipping companies, the results reveal that companies from the container segment achieved the highest average TES in both 2020 and 2021. The above-average TES is indicative of container companies' greater propensity to disclose their emissions through reporting standards and a stronger commitment to disclosing GHG alignment targets, as evidenced by the segment's higher average ERS and GHG alignment score in 2020 and 2021. Table 6 provides an overview of the average emissions reporting index scores of the four shipping segments in 2020 and 2021.

The dry cargo, tanker, and diversified segments obtained analogous TES in which the dry cargo segment achieved an average TES 0.7 points above the lowest-scoring tanker segment. While the dry cargo and tanker segments' TES was primarily driven by their disclosure of emissions using reporting standards, the diversified segment was driven by the companies' reported ambitions of aligning with GHG reduction targets. Interestingly, the results revealed that the analyzed dry cargo and tanker companies disclosed emissions predominantly based on SASB standards, whereas the diversified companies disclosed their emissions using the GRI reporting standards.

		2021								2020						
	Co	ntainer	Dry	y Cargo]	Fanker	Div	versified	Co	ntainer	Dry	/ Cargo	1	anker	Div	rersified
Total Emissions Score	0	6.8	0	5.3	0	4.5	0	4.9	\circ	5.5	0	4.1	0	3.4	0	2.9
Emissions Reporting Score	•	4.4	0	3.7	0	3.3	0	2.4	0	4.0		3.2	0	2.5	0	1.3
SASB Score	0	3.5	0	3.7	igodol	3.1	0	1.0	0	2.8	0	2.4	0	2.4	0	0.4
GRI Score	0	2.7	0	1.2	0	0.8	0	1.9	\circ	2.2	0	1.2	0	0.8	igodol	1.9
GHG Alignment Score	0	2.4	0	1.6	0	1.2	0	2.4	\circ	1.5	0	0.9	0	0.9	\bigcirc	1.6
IMO Alignment Score	0	1.9	0	1.3	0	1.1	0	1.4	\circ	1.5	0	0.9	0	0.9	igodol	1.4
Paris Alignment Score	0	0.5	0	0.3	0	0.1	0	1.0	0	0.0	0	0.0	0	0.0	0	0.1

Table 6

Emissions	Reporting	Index Scores	Across	Segments
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Note: This table has been constructed by the authors of this paper. The table provides an overview of the average emissions reporting index scores across segments. The top-performing segment is denoted by a green dot, the middle by a yellow dot, and the bottom by a red dot. If multiple segments fall within 33% of each other, they are considered part of the same category.

Similar to the analysis of the shipping segments, the exploration of the average emissions reporting index scores across continents revealed different tendencies and patterns, which are illustrated in Table 7. Of the three analyzed continents the European listed companies accumulated the highest average TES. The average TES of European companies is elevated as a consequence of their above-average ERS and GHG alignment scores. European and Asian listed companies exhibit comparable GHG alignment scores, moderately surpassing the scores of North American companies, indicating a greater adoption of GHG reduction targets aligned with the IMO and the Paris Agreement. Lastly, it is evident that European and North American companies demonstrate a stronger tendency to disclose their emissions using the SASB standards rather than the GRI standards. Conversely, Asian listed companies are more disposed to disclose their emissions using the GRI standards rather than the SASB standards. Furthermore, this result corroborates the finding that the diversified companies are more likely to report on the GRI standards, as seven of the nine diversified companies are stock listed in Asia. In the subsequent section, interviews will delve deeper into the identified tendencies and patterns to gain insights into the underlying factors behind their prevalence.

	2021							2020					
		Asia]	Europe	Nort	th America		Asia]	Europe	Nort	h America	
Total Emissions Score	0	5.2	igodol	6.4	0	4.6	0	3.6	\bigcirc	4.8	0	3.6	
Emissions Reporting Score	0	3.1	igodol	4.1	0	3.3	0	2.2	\bigcirc	3.2	•	2.9	
SASB Score	0	1.6	0	3.8	0	3.3	0	0.7	0	2.9	0	2.7	
GRI Score	\circ	2.8	0	1.4	0	0.8	0	2.1	0	0.7	0	0.6	
GHG Alignment Score	\circ	2.1	igodol	2.2	0	1.3	0	1.3	igodol	1.6	0	0.7	
IMO Alignment Score	0	1.5	ightarrow	1.7	0	1.2	0	1.3	\bigcirc	1.5	0	0.7	
Paris Alignment Score	\circ	0.6	0	0.5	0	0.1	0	0.0	igodol	0.1	0	0.0	

Table 7

Emissions Reporting In	dex Scores Across	Continents
------------------------	-------------------	------------

Note: This table has been constructed by the authors of this paper. The table provides an overview of the average emissions reporting index scores across continents. The top-performing continent is denoted by a green dot, the middle by a yellow dot, and the bottom by a red dot. If multiple continents fall within 33% of each other, they are considered part of the same category.

5.2. Thematic Analysis of Emissions Reporting & Stakeholder Expectations

To investigate how emissions reporting may represent a risk of non-compliance with stakeholder expectations, the following sections of the analytical chapter incorporates thematic analyses to unearth salient themes derived from 16 interviews. The interviews are grouped into four distinct categories, namely shipping companies, financial institutions, industry customers, and third parties. As such, four separate thematic analyses will be conducted to depict how different shipping companies and the selected stakeholder groups perceive and value the role of emissions reporting in the institutional context in which they operate. In doing so, the risks of non-compliance with stakeholder expectations would be explored, and the identified themes and patterns of the emissions reporting index scrutinized and depicted. Finally, the most substantial findings of the four analyses will be assembled and presented, outlining to which extent the expectations of shipping companies are aligned with their stakeholders along with the potential risks hereof.

The thematic analyses will be constructed based on the theoretical foundation established in Braun & Clarke's (2006) step-by-step guide. The coded data collection is comprised of primary data collected from the interviews. Following an initial process of familiarization with the data, codes are assembled to unearth preliminary patterns pertaining to emissions reporting and stakeholder expectations. Ensuingly, the codes are examined and categorized into basic, organizing, and global themes to explore potential themes and patterns of the data collection. An example of the categorization of codes is illustrated in Appendix L, and the complete overview of all themes, codes, and the respective data extracts from interviews are included in Appendix B. Supporting the inductive approach of the study, the coding process is not regulated by a pre-existing coding frame or preconceptions (Braun & Clarke, 2006, p. 83). All interviewee quotes are labeled with specific reference codes for citation purposes. Appendix F contains a detailed compilation of reference codes and the corresponding quotes, such as SC-A;1, representing the first quote from shipping company interviewee A.

5.2.1. Shipping Companies

This section of the thematic analysis focuses on how shipping companies perceive the topic of emissions reporting. To understand how shipping companies value the role of emissions reporting, five employees from four different shipping companies were interviewed as illustrated in Table 2.

The interviewees predominantly hold positions within the field of ESG and will be referred to as SC-A, ..., SC-E. Four of the shipping companies are headquartered in Denmark and one company, SC-E, is headquartered in Singapore. The companies' operational activities are spread across the three shipping segments examined in this paper, providing insights from the perspectives of the container, dry cargo, and tanker segments. The thematic analysis of shipping companies unveiled 24 basic themes and eight organizing themes, which is illustrated in Figure 14.

Figure 12





Note: This figure has been constructed by the authors of this paper. The mind map illustrates the global, organizing, and basic themes of the thematic analysis of shipping companies.

The findings from the emissions reporting index suggests a global increase in the reporting efforts of shipping companies in the past years. These findings are echoed by the interviewees emphasizing that the role of emissions reporting standards has increased substantially in recent years (SC-E;1). The thematic analysis uncovers the organizing theme "The Role of Emissions Reporting", consisting of the four basic themes "Benchmarking", "Transparency", Evaluation of Environmental Performance", and "Identify Material Topics". It is evident that voluntary

emissions reporting standards enable shipping companies to identify material topics, as SC-E finds that "it is important that we have a structure because companies don't know what material is for them" (SC-E;2). By adhering to a standardized framework, shipping companies simplify the process for stakeholders to evaluate the emissions performance of the firms, as emphasized by SC-E stating that "so it's important for stakeholders because they need to rate companies and it's easier if you have a structure at the end of the sustainability report" (SC-E;3).

In addition, the standardization of emissions reporting enables stakeholders to benchmark the emissions of shipping companies, as they have the ability to evaluate emissions metrics calculated based on equivalent methodologies (SC-B;1). Similarly, the frameworks allow shipping companies to benchmark their own performance against industry peers, which serves as a powerful exercise to ensure competitiveness (SC-E;1). The interviewees find that by conducting emissions reporting companies can significantly improve transparency in their emissions data. Specifically, SC-D finds that "the benefit of using such a standard is that we cannot manipulate data to fit our own agenda" (SC-D;1). As such, shipping companies may utilize standardized frameworks to ensure quality and creditability of their data. Such understandings of data could also be utilized internally, which could lead to stronger business decisions (SC-A;1).

The interviewees expressed several viewpoints pertaining to the expectations of their stakeholders. A specific emphasis is placed upon the expectation of financial institutions and customers, as statements containing these stakeholders are frequently identified during the coding of interviews. The organizing theme of "Stakeholder Expectations" is recognized to convey four explicit expectations, categorized into the basic themes "Increased Minimum Requirements", "Not Pay a Premium for Green Services", "Alignment with Industry Initiatives", and "Weighing Transparency Over Action". Interviewee SC-C highlights that "what you actually report is important. Whether you are below environmental benchmarks or above is not important at the moment" (SC-C;1). As such, it is evident that financial institutions expect shipping companies to enforce transparency in the emissions reporting data. The expectations of transparency are also highlighted by several interviewees, as financial institutions are increasingly expecting shipping companies to comply with the disclosure requirements of the PPFI (SC-C;2)

Parallel with the expectation to report on emissions, financial institutions expect shipping companies to continuously decrease their emissions as emphasized by SC-D, asserting that "the

financial institutions want to see us gradually improving our environmental performance" (SC-D;2). The reduction of emissions as a minimum requirement for customers was highlighted during the interview with SC-E, who expressed that "we received a tender from a customer, and they were saying that if you want to continue to work with us, you need to have in place a strategy to reduce your emissions" (SC-E;4). As such, this underlines that some customers expect shipping companies to formulate tangible decarbonization strategies. Nevertheless, several interviewees emphasizes that their respective companies have undertaken efforts to deliver green shipping services to the market; however, they find that the demand for green services has not yet matured. Such observation was made by interviewee SC-B, stating that "we've had customers that were very reluctant to paying a premium for greener shipping services" (SC-B;2). This indicates that customers are not yet willing to pay a premium for greener transportation services.

The analysis discover that the emissions reporting expectations of stakeholders diverge depending on shipping segments, geographical location, company size, and cultural differences. The difference in expectations for shipping segments are highlighted by interviewee SC-C, as their company is present in multiple segments. The interviewee acknowledges that reporting expectations are greatest in the container segment (SC-C;3). These variations are further emphasized by SC-D, stating that "being present in multiple segments, we have experienced great differences in the expectations of our customers" (SC-D;3). It is perceivable that the container segment experiences higher demands of transparency, as the goods carried on container vessels are closer to the end consumer. This conception is supported by SC-D, highlighting that "the container industry is facing a lot of pressure from its customers. However, it is easier for container liners to add a premium on the price for the consumers, which is more difficult in other segments" (SC-D;4). This statement is corroborated by SC-A, who expressed that "we can then see that a lot of customers are requiring us to report on emissions" (SC-A;2).

In a similar manner, it is apparent that the expectations of stakeholders vary on a geographical scope, exemplified by the notion that financial institutions in Northwestern Europe have the highest emissions reporting requirement (SC-C;4). Similar to financial institutions, interviewees recognized the expectations of customers to vary across a geographical spectrum, as SC-D emphasized that "customers based in Europe have a higher expectation of transparency when it comes to potential emissions, than for example Middle Eastern customers" (SC-D;5). These

findings substantiate the perspectives uncovered in the emissions reporting index, where it was disclosed that European companies are at the forefront of emissions reporting efforts. Moreover, interviewees highlighted that cultural characteristics of shipping companies could provide an argument for the observed differences in emissions reporting efforts. SC-A exemplified this by stating "German companies don't want to disclose anything, and they say this is a business secret, which is likely rooted in their culture" (SC-A;3). In summary, it is evident that the reporting efforts of companies may be influenced by a combination of factors, including stakeholder expectations and unique company characteristics.

The stakeholders of shipping companies are increasingly expecting higher quality emissions reporting, interviewees discussed the potential risks arising if companies fail to conform with stakeholder expectations. In this respect, the thematic analysis unveiled the organizing theme of "Risks of Not Reporting", wherein three basic themes were found "Reduced Access to Financing", "Impact on Financing Terms", and "Decreased Competitiveness". The interviews revealed that a risk of decreased competitiveness may arise if shipping companies fail to comply with their stakeholders' expectations. Emissions reporting is progressively being employed as a hygiene factor for many customers, indicating that transparent emissions disclosure is converging towards a license. In this respect, SC-D elaborated that "if we are not being transparent with the potential emissions of choosing our vessel for a voyage, customers are reluctant to engage with us" (SC-D;6). An increasing amount of customers are using emissions reporting as a benchmarking mechanism to understand specific vessels' efficiency before chartering them. Several interviewees highlighted occasions in which the attractiveness of vessels increased as energy efficiency was improved, such as SC-B stating that "if we can show that our vessels have a better performance than the vessels next to ours, they are also willing to pay more to get that vessel" (SC-B;4).

It is apparent that other parts of the shipping industry is also utilizing emissions reporting as a hygiene factor, when assessing the performance of shipping companies. The coding of interviews revealed that emissions reporting is becoming a prerequisite for shipping companies to obtain financing, as financial institutions expect transparency in emissions data when examining the credit application of clients. This relationship was recognized by all interviewees, exemplified by SC-B accentuating that "if we didn't commit to a high level of emissions reporting, we would have

a hard time securing financing" (SC-B;3). Concurrent to the reduced access to financing, the environmental performance of shipping companies is recognized to impact financing terms. If shipping companies are unable to keep their emissions performance within certain trajectories, their loan margins would increase. This notion is exemplified by SC-C, asserting that "our margin will increase or decrease depending on whether we are above or below the PPFI trajectory" (SC-C;5).

However, the interviewees contended that the financial impact associated with the margin adjustments were negligible, as it constitutes an insignificant additional loan cost in which "the margin adjustment is very limited. So, in terms of financial impact, it is definitely limited, and it is not going to drive investments decisions per se" (SC-C;6). The insufficient capacity to financially impact shipping companies was also recognized in the limited ability of PPFI to restrict access to financing. Several interviewees acknowledged that the ability to secure financing exists outside of PPFI signatories. This understanding was substantiated by SC-D, stating that "certainly the expectations of the PPFI constraints our financing options; however, it is important to understand that shipping companies can secure funding from banks who are not members of that initiative" (SC-D;7).

The emissions reporting index revealed significant discrepancies in the degree to which companies are engaged in emissions reporting, suggesting that some companies are hesitant to disclose their emissions. The coding of interviews provide potential reasonings for this phenomenon, as the basic themes "Necessity to Establish an Overview of Emissions", "Little Understanding of Value Proposition", and "Administrative Costs" have been derived. To effectively conduct emissions reporting, companies must construct a reliable approach to gather data. Given the complexity of disclosing emissions data, some shipping companies find it difficult to estimate emissions related to their operations and refrain from engaging in emissions reporting (SC-E;5). In addition, interviewees underlines that administrative costs associated with reporting are perceived as disproportionately large in perspective to the potential gains. This perspective is further accentuated by SC-D, stating that "what we have experienced from some of our industry peers, is a reluctance to report simply due to them not being able to understand the value of emissions reporting" (SC-D;8). As such, the interviewees highlight that some companies find it difficult to

evaluate the value of disclosing their emissions, as the costs of producing the data is considered to outweigh the potential benefits.

Evidently, shipping companies undertake efforts to improve emissions reporting and environmental performance to satisfy stakeholders' expectations, as the thematic analysis uncovered the organizing topic "Shipping Company Actions", relating to the actions of shipping companies to align with their stakeholders' expectations. The organizing theme consists of the four basic themes of "Be Ahead of the Curve", "Follow Industry Peers", "Support Decarbonization Initiatives", and "Reduce Emissions". The emissions reporting index accentuates that certain shipping companies actively strategize to decarbonize at a faster pace than stipulated by regulation. These targets are predominantly driven by industry leaders setting ambitious goals (SC-A;4). SC-B recognizes this behavior, stating that "when Maersk went out and said that they would reach net zero in 2040, we were very surprised and thought, that was really a front runner" (SC-B;5). Interviewees note that companies are actively imitating the behavior of industry leaders, by engaging in similar initiatives and adopting comparable procedures. Interviewee SC-B expressed the existence of a bandwagon effect, stating that "the more shipping companies which sets targets of net zero in 2050 or 2040, the more you are pressured to do the same" (SC-B;6).

Several interviewees conveyed the notion of improving the efficiency of vessels as a lever to reduce the company's overall emissions. Numerous other actions were mentioned, such as investments in digital emissions tracking technology, which could positively impact their stakeholders' expectations concerning transparency of emissions, supported by SC-D, expressing that "we have, for example, invested in the creation of a digital tool which allow customers to see emissions on a voyage-by-voyage basis" (SC-D;9). Likewise, the potential of alternative fuels was discussed during the interviews. However, interviewees corroborated that alternative fuels are not a viable option, and must be assessed as a long-term solution. SC-E talked about the divestment of older tonnage as a strategic choice to reduce emissions, mentioning that "then we also have another step in our decarbonization strategy, which is to replace all vessels with new ones" (SC-E;6).

5.2.2. Financial Institutions

The shipping industry relies on various stakeholder groups to function effectively. This section of the thematic analyses concentrates on defining how financial institutions perceive emissions reporting and their expectations to the emissions reporting of shipping companies. The importance and effectiveness of industry decarbonization initiatives will be examined to develop an understanding of how financial institutions value their impact. The importance of financial institutions in the shipping industry has increased significantly since the turn of the century, as investments in merchant ships have increased (Stopford, 2009, p. 270). The inherent capital requirements to finance newbuilding programs and second-hand vessel acquisitions accentuate the importance of financial institutions in the shipping industry. Although shipping companies have turned to various methods of raising funds to finance investments, bank debt financing remains the most important source of capital for the shipping industry (Giannakoulis, 2016, pp. 71-74).

Three Northern European banks have been interviewed to understand their perception of emissions reporting. The banks are heavily engaged in ship financing and are all signatories of the PPFI. The three interviewees will be referred to as FI-A, FI-B, and FI-C. The thematic analysis revealed 27 basic themes and seven organizing themes pertaining to the role of emissions reporting illustrated in Figure 15. In general, the interviewees shared similar expectations and derived equivalent conclusions concerning the importance and underlying risks of emissions reporting. Through the thematic analysis, the emissions reporting expectations of financial institutions are delineated and are characterized as "Disclosure of Sustainability Strategy", "Increased Minimum Requirements", "Participation in Industry Initiatives", "Higher Expectations to Young Companies", and "Lower Expectations of Northern European banks have increased remarkably since 2019, in particular driven by regulatory changes and increasing pressure from the banks' stakeholders (FI-A;1). Similarly, the increased expectations were driven by the introduction of the PPFI for which emissions data was collected for the first time in 2019 (FI-C;1).

The interviewees demonstrated that financial institutions in Northern Europe have established expectations towards their clients' ESG reporting in which emissions reporting constitute a critical element. Clients must be able to disclose a sustainability strategy pertaining to how they provide emissions data and stipulate their GHG reduction targets and commitments. FI-A stated that "it is a good thing that they can provide data, but do they have a strategy for their own emissions reduction? Do they have any long-term targets that are beyond the current IMO targets, which are completely redundant" (FI-A;2). As such, banks have increased their minimum

requirements in terms of acceptable reporting. In addition, it is evident that shipping companies must be cognizant of the materiality of their business activities as the act of not reporting on emissions is considered a red flag. "If you do not tell us the story, then we are less informed about the potentially material risks to the company" (FI-C;2). While these terms apply to all the banks' clients, FI-B stressed that the extent to which they pertain are lower for existing clients and higher for newly founded companies, as the interviewee stated that "emissions reporting is becoming more important, and I would say that it is especially important for a young company. It is also very important for new clients because you haven't seen what they have done in the past" (FI-B;1). This notion suggests that emissions reporting may carry greater significance for newly founded companies than for already established ones.



Figure 13

Mind Map of Thematic Analysis of Financial Institutions

Note: This figure has been constructed by the authors of this paper. The mind map illustrates the global, organizing, and basic themes of the thematic analysis of financial institutions.

It is apparent that the growing expectations of financial institutions are partly attributed to the increasingly significant role of emissions reporting in the shipping industry. The interviewees

underlined the importance of a universal framework for emissions reporting in an inherently global industry and highlighted the difficulties of promoting and enforcing voluntary emissions standards on a global scale (FI-A;3). Nevertheless, the interviewees recognized a list of benefits relating to emissions reporting disclosure, as FI-A stated that "the emissions reporting of shipping companies allow us to benchmark the environmental performance of firms" (FI-A;4). As such, financial institutions are able to utilize emissions reporting standards as a benchmarking tool to draw performance comparisons across clients and shipping segments.

The financial institutions shared a common conception in which the primary role of emissions reporting is to assert commitments towards decarbonization. Emissions reporting is a vital tool to establish a mutual approach to reporting, as it can be deployed to establish a collective understanding of when companies are actively engaged in their sustainability strategy (FI-A;5). As more shipping companies have commenced disclosing their emissions through PPFI and other reporting standards, banks have obtained insights into the total emissions of their loan portfolios. From the perspective of financial institutions, emissions reporting increases the trustworthiness of a client, as FI-A specified that "it gives me confidence that you can't just decide on your own terms what information you provide. There is a bit of guidance in terms of how to do it and what to put forward" (FI-A;6). Based on the emissions reporting information, banks could reevaluate their portfolio construction in the future, with FI-B, asserting that "our portfolio of assets will definitely look different in the years to come than what it has in the past" (FI-B;2).

Although the interviewees share similar viewpoints concerning the role and importance of emissions reporting, the willingness and quality of reporting are not equivalent across shipping companies. Based on the coding of interviews, the organizing theme "Characteristics of Emissions Reporting" has been identified, in which four basic themes are determined to characterize the reporting efforts of shipping companies: "Geographical Location", "Shipping Segment", "Company Size", and "Ownership Structure". It is evident that the financial institutions shared the impression that large, publicly listed, Northern European-based container companies are typically more heavily engaged in emissions reporting, which supports the findings of the emissions reporting index. Underpinning this notion, FI-A stated that "I also think it's on a geographical dimension. For example, if you're south of Germany, and you maybe have bulkers or tanker vessels and you're privately held then we definitely see more challenges" (FI-A;7). This statement

implies that companies exhibit different reporting aspirations depending on their unique situations, and different tendencies in reporting inclinations can be facilitated by considering the identified characteristics.

The interviewees claimed that the differences in the adoption of reporting standards are likely a result of varying stakeholder expectations across the four identified basic themes. For example, FI-B argued that "it is very much dependent on how close you are to the end consumer definitely" (FI-B;3), which is supported by FI-A stating that "it is much easier to see a commercial value for a container company than for a bulk company that transports iron ore, because you're so much further away from the end customer" (FI-A;8). Nevertheless, it is evident that the interviewees shared the notion that companies located outside of Northern Europe have significantly increased their reporting efforts. Companies are inspired by the best performers and sustained by the perception that financial institutions find that "it is only a negative not to report" (FI-A;9).

The thematic analysis of financial institutions revealed reasons concerning why shipping companies are not conducting emissions reporting. FI-A argued that a general ambivalence towards voluntary and private initiatives restrain some companies from employing them (FI-A;10). Companies are displaying reluctance to disclose their emissions data due to the notion that "there is less leniency in terms of not showing progress and I think that the commitment to continuously report data in the future is daunting for some companies" (FI-A;11). Similarly, a pattern was revealed where the administrative burden of compiling and publicizing sustainability figures hinders shipping companies from reporting data, which relates to smaller companies in particular (FI-A;12).

However, in the eyes of financial institutions, the act of not performing emissions reporting is a weighted decision of risk versus reward. The coding of interviews revealed the organizing theme "Risks of Not Reporting" in which the basic themes relate to the different risks that shipping companies are exposed to when conducting business with financial institutions. The thematic analysis uncovered that emissions reporting is moving towards a license to operate when obtaining bank financing, as FI-A stated that "if that's missing, it's definitely something that we are increasingly critical about. For us it's also not just that if you're a client, you will automatically also be a client in 20 years" (FI-A;13). It is apparent that banks must satisfy increasing expectations of their stakeholders, such as bondholders and other investors (FI-A;1). To align their portfolio with these expectations, banks would increase the cost of financing for companies that do not engage in emissions reporting, "so at some point it will become more and more expensive for the companies not disclosing their strategy and data" (FI-B;4).

It is perceptible that the overall access to financing would be affected for companies not conducting emissions reporting because "if you do not have transparent reporting, you might end up in a high risk evaluation, which will influence them and make it more difficult to get access to capital as credit decisions might be harder" (FI-C;3). These increased expectations of financial institutions are emulated by FI-A stating that "when looking at new financings, we always ask for the emission data and we are assessing that as part of our credit application. So that's definitely important for us" (FI-A;14). Nevertheless, FI-C emphasized that "you will always find finance or funding available at a certain price. There will always be players that are willing to look beyond things" (FI-C;4). As such, it is apparent that companies that are not engaged in emissions reporting will not lose their access to financing; however, their access to financing will be limited.

Accentuating the urgency of establishing an emissions reporting strategy, FI-A has established a target "to by 2025 not be making new loans to clients that are not actively engaged in the transition" (FI-A;15). Reinforcing this target, the bank will gradually increase the administrative burden of non-reporting clients and is likely to divest clients that are not reporting emissions in the long term (FI-A;12). Evidently, the concept of not reporting on emissions constitutes financial and reputational risks among shipping companies engaged with PPFI signatories and Northern European banks.

The coding of interviews revealed that the PPFI comprise a key role in encouraging the adoption of emissions reporting standards, as the PPFI is attributed to two organizing themes: "PPFI Impact Decarbonization" and "PPFI Aid Financial Institutions to Facilitate Change". The number of signatories of the PPFI has increased significantly in recent years (PPFI, 2022b). It is evident that being a signatory of the PPFI is also a matter of competitiveness for some banks, as PPFI signatories are more inclined to collaborate and engage in syndicated loan facilities with other signatories (FI-B;6;7). The analysis uncovered that the PPFI have impacted financial institutions' focus on decarbonization by establishing a sense of urgency to align their portfolios with GHG reduction trajectories, emphasized by FI-A stating that "suddenly everybody understood that the

timeline in terms of when you need to start changing your normal behavior is much closer than I think people have thought" (FI-A;16). It is evident that the increasing number of PPFI signatories are positively affecting the impact of the initiative, as it eases the dialogue with clients to disclose data, as FI-A asserted that "the dialogue with clients in terms of getting them to understand why this information is important to us or why we want it. It's so much easier" (FI-A;17).

By asserting common goals across financial institutions, the PPFI are seemingly creating a trickle-down effect from banks to shipping companies, incentivizing emissions reporting and GHG reduction trajectories, as one of the interviewees stated that "it's our target to have a net zero portfolio in 2050 [...] We also have a target to by 2025 be aligned with the Poseidon Principles" (FI-A;18). Hence, it is apparent that financial institutions depend on the PPFI to support their decision-making and aid them in steering the flow of capital towards a more sustainable agenda (FI-B;8).

5.2.3. Industry Customers

In this section, the thematic analysis of the customers of shipping companies is presented. Shipping companies are inherently reliant on the support and confidence of their customers to exist and remain competitive. The analysis explores the emissions reporting expectations that industry customers have for shipping companies and scrutinizes how they perceive the importance of emissions reporting. Shipping companies transport a vast variety of products, ranging from dry and liquid cargoes to containerized goods. As such, customers of the shipping industry are no one-size-fits-all, as the cargo transportation requirements of customers are multifarious. Consequently, the thematic analysis of industry customers consists of interviews with two of the world's largest commodity trading companies. The two companies are employed in a wide variety of segments; however, they are predominantly engaged in the dry cargo and tanker segments of the shipping industry. The interviewes will be referred to as IC-A and IC-B. The analysis will present viewpoints from two perspectives of the SCC, as interviewee IC-B is a signatory of the initiative whereas IC-A is not a signatory. Overarchingly, the thematic analysis of industry customers revealed 12 basic themes and six organizing themes, which are demonstrated in Figure 16.

Figure 14

Mind Map of Thematic Analysis of Industry Customers



Note: This figure has been constructed by the authors of this paper. The mind map illustrates the global, organizing, and basic themes of the thematic analysis of industry customers.

Comparable to the thematic analysis of financial institutions, the interviews with industry customers uncovered the pattern that stakeholders are exerting certain expectations upon the emissions reporting of shipping companies, reflected in the organizing theme "Expectations of Industry Customer". IC-B expressed that customers are required to examine the emissions of their voyages, stating that "we have the demand that we need to understand the exact emissions that have been happening on our voyages" (IC-B;1). Furthermore, IC-B emphasized that customers are increasingly expecting shipping companies to utilize akin emissions reporting procedures, as it enables them to compare the efficiency of vessels. The interviewee stated that "what I think charterers are missing is standardized emissions reporting, as it enables us to evaluate the performance of potential clients" (IC-B;2), highlighting the need for such standardized reporting standards.

While shipping customers acknowledged a limited value proposition of emissions reporting, the industry customers argue that standardized emissions reporting is value-adding from their perspective. The thematic analysis revealed the organizing theme "Value Proposition of Emissions Reporting", wherein the value contribution of emissions reporting is addressed. The interviewees underlined that emissions reporting efforts provide value to industry customers as it reduces the administrative costs associated with emissions data collection. IC-B exemplified this notion by stating "as a charterer, it is very helpful if shipping companies use standardized emissions reporting frameworks, as it saves us time" (IC-B;3). In addition, IC-B specified that shipping companies' efforts to provide transparent emissions reporting data is more important than the environmental performance in the current context of the shipping industry, as "you don't have to be number one. It's not a ranking system. It's about understanding emissions for the industry" (IC-B;4).

The significance of emissions reporting is being emphasized by industry customers, as shipping companies face evident consequences if they fail to disclose emissions adequately. The thematic analysis uncovered the organizing theme "Risk of Not Reporting" in which the basic theme "Reduced Competitiveness" was unearthed. Interviewees accentuated the increasing ability of using benchmarking as a tool. Shipping companies may perceive the concept of comparing environmental performance to industry peers as a risk, as it can potentially increase challenges in securing vessel employment. Moreover, companies that fail to provide adequate data for disclosure may find industry customers unable to compare their performance with other shipping companies, placing them at a disadvantage. This relationship was stressed by IC-B, asserting that "I think very soon if ship owners don't report emissions, that's going to influence the charterers choice, as they cannot compare vessels" (IC-B;5). In addition, the coding revealed that the energy efficiency of vessels is increasingly becoming a competitive metric for customers, as IC-A disclosed that "because the energy saving technologies go hand in hand with economic benefits, then we do find ourselves heavily attracted to eco vessels and actively seek out ships on the basis of efficiency" (IC-A;1). Such competitive metric was stressed to raise the commercial attractiveness for shipping companies to ensure fleet modernization (IC-A;2).

Despite the interviewees highlighting a commercial incentive for shipping companies to improve the energy efficiency of vessels, it is apparent that industry customers are currently not willing to pay for greener shipping services in the existing shipping environment, in which IC-B stated that "it's too early for cargo owners to pay a premium for low emission transportation" (IC-B;6). Nevertheless, the interviewees stressed that differences are observable across shipping segments, as segments closer to the end-consumer are more exposed to competitiveness risks. The interviewed industry customers operate in the dry cargo and tanker segments, which are further down the value chain and therefore less exposed to the same pressures as the container segment (IC-B;7).

Whilst the interviewed industry customers did not express a willingness to pay a premium for green shipping services, the thematic analysis unveiled that customers are changing their behavior in relation to emissions reporting. In the organizing theme "Customer Actions", key patterns of changing customer behavior are disclosed and reflected in the based themes "Align with Regulations", "Reluctance to Set Ambitious Goals", and "Cooperation with Shipping Companies to Reduce Emissions".

The interviewees recognized that the strategies of their respective companies were to merely align with regulation, which IC-A emphasized by stating "we are guided very much by the mandatory regulation and the IMO targets" (IC-A;3). By disclosing their emissions data, industry customers can provide transparency to stakeholders and signal their commitment to decarbonize their companies (IC-B;8). Even though the interviewees expressed the valuable signaling effect of emissions reporting, the coding uncovered a reluctance for customers to set ambitious emissions targets. IC-B substantiated this idea, expressing that "a lot of customers are scared to set ambitious goals because they are afraid of potential consequences arising if they underdeliver compared to their peers" (IC-B;9). The interviewee further elaborated that "as a company, can we be held accountable because suddenly we get a metric that we are not keen on reporting yet?" (IC-B;10). Nevertheless, the interviewees expressed that industry customers are increasing dialogues with shipping companies to report on emissions, in which IC-A stated that "we are the world's biggest spot charterer on tankers, which means we do have a big scope three footprint, and that is something we need to work through with the owners" (IC-A;4). While customers are increasing their expectations towards shipping companies' emissions reporting, they are reluctant to assert goals that exceed the regulatory requirements, and are unwilling to pay a premium for greener shipping services.

The commitment to engage in dialogue with shipping companies was further demonstrated by IC-B, where the coding revealed the organizing theme "The Role of SCC". SCC is understood to drive transparent emissions reporting by consolidating the reporting expectations of cargo owners and ship operators (IC-B;11). This consolidation drives a reduction in administrative costs associated with compiling emissions reports for shipping companies and customers, as expectations towards data would converge on a single framework (IC-B;12). Furthermore, substantial knowledge

generation on emissions is created, as the initiative invites companies with different perspectives (IC-B;13).

Although the SCC was established to have an impact on the decarbonization of the shipping industry, several shortcomings of the initiative were identified. IC-A explained that some customers displayed a reluctance to join the initiative as "we felt that there was too much opportunity for companies to not give completely accurate true data" (IC-A;5). IC-B revealed that some companies incorrectly believed that the initiative would rank the emissions performance of signatories, although this claim is unsubstantiated (IC-B;14). Finally, IC-B mentioned that the initiative mistakenly focused mainly on charterers, neglecting the importance of shipping companies, stating that "I think that the SCC has made a mistake in terms of leaning out towards charterers" (IC-B;15).

5.2.4. Third Parties

The final thematic analysis pertains to third parties of the shipping industry. In this section, stakeholders that do not fit into the groups of the previous sections are analyzed. The third-party stakeholders are divided into three separate groups, being academics, consultancies, and not-for-profit organizations (NFPOs) as illustrated in Table 2. All interviewees have distinct connections with the shipping industry, and each group is represented by two interviewees. The third-party stakeholders are regarded to provide an overarching perspective into the developments and value of emissions reporting in the shipping industry. Similarly, the third-party stakeholders have the ability to deliver a theoretical and external perspective to the varying adoption of emissions reporting standards in the shipping industry. All interviewees have a distinct connection with the shipping industry. The interviewees will be referred to as TP-A, ..., TP-F.

The interviews with third-party stakeholders were utilized to corroborate and augment the discoveries of the previous three thematic analyses. The thematic analysis of the six third-party interviews unearthed eight organizing themes and 30 basic themes illustrated in Figure 17. Although the majority of organizing and basic themes are recapitulating the findings of the previous analyses, the coding of third-party interviews broadened the understanding by contributing additional perspectives. The organizing themes identified based on the third-party interviews are "The Role of Initiatives", "Risks of Not Reporting", "Limited Impact",

"Characteristics of Emissions Reporting", "The Role of Emissions Reporting", Shortcomings of Regulations", "Converging Behavior", and "Stakeholder Expectations".

Figure 15





Note: This figure has been constructed by the authors of this paper. The mind map illustrates the global, organizing, and basic themes of the thematic analysis of third parties.

The interviewees shared the perception that the shipping industry lagged behind other industries' emissions reporting efforts, due to the industry's inherent conservative history (TP-C;1). These viewpoints are further acknowledged in the organizing theme "Shortcoming of Regulations" in which TP-E asserted that the requirements of the IMO should be considered as the bare minimum (TP-E;1), and TP-A stressed that the demands of the EU exceed those of the IMO (TP-A;1). To support the shortcomings of regulations in shipping, the interviewed consultancies and NFPOs encouraged the role of industry initiatives and voluntary emissions reporting standards to promote the focus on decarbonization through transparency across the shipping industry. The coding of

data revealed that "frameworks and alliances are underpinning the pressures for change and adoption of reporting" (TP-D;1). In addition, the industry initiatives are benefitting from the conception that "they effectively gather a lot of stakeholders from different parts of the industry together to try to solve some of these issues" (TP-D;2), exemplified by the ambitions of Mærsk Mc-Kinney Møller Center For Zero Carbon Shipping.

Evidently, the role of emissions reporting is progressing continuously as stakeholders are perceptibly raising their ambitions and expectations (TP-D;3). Underpinning the increasing expectations, the interviewees asserted that a universal framework for reporting is imperative, as "it's much easier for shipping companies to actually understand what they're reporting on and for stakeholders to understand the reporting" (TP-F;1). The coding of interviews revealed that emissions reporting could function as a signaling tool (TP-D;4). In doing so, companies can situate themselves in a leading position, wherein they can control their own narrative and demonstrate that they have nothing to hide (TP-F;2). Furthermore, the thematic analysis ascertained that emissions reporting standards increase transparency of shipping companies, which could improve the ease of doing business for shipping companies (TP-F;3). Supporting this viewpoint, TP-F stated that "collecting emissions data enables shipping companies to do better internal business decisions" (TP-F;4), which was endorsed by TP-C emphasizing that "emissions reporting is extremely important for the ease of doing business" (TP-C;2).

Although the coding of interviews revealed various positive properties of industry initiatives and emissions reporting, the interviewees emphasized the potential limited impacts thereof. Several interviewees shared critiques pertaining to the ambitiousness and rudimentary benefits of conducting emissions reporting. It became apparent that "shipping companies haven't felt the need to report until now" (TP-F;5), as TP-B noted that "the pushback has been that there's no incentives. I mean, there's no economic incentives and they cannot see the benefits of doing this" (TP-B;1). In addition, TP-C highlighted that the commercial impact of voluntary emissions reporting is very limited and only advantageous for certain companies (TP-C;3).

The interviewees shared similar perspectives regarding industry initiatives, in which the ambitiousness of the initiatives was emphasized. The initiatives were critiqued by several interviewees because of their limited environmental impact. In this respect, TP-C stated that "my best understanding is that it has not really put pressure on anybody" (TP-C;4). TP-A ratified this

statement and shared that "in a study that we did some time ago, we clearly found that it didn't have a big impact" (TP-A;2). Therefore, the absence of comprehensive emissions reporting across the shipping industry may be attributed to the lack of sufficient incentives to promote and encourage increased reporting practices and the limited environmental impact of industry initiatives.

Despite the interviewees critiquing the shortcomings of industry initiatives and emissions reporting, the coding of data exposed the conception that voluntary emissions reporting standards are converging towards a license to operate, as they are becoming mandatory to a certain extent. This development is perceivably twofold. Firstly, it is apparent that voluntary standards are increasingly becoming a hygiene factor that shipping companies must disclose to satisfy their stakeholders (TP-B;2). Secondly, several interviewees expressed that voluntary emissions reporting standards are gradually being integrated into obligatory reporting standards by regulatory bodies, wherein the voluntary nature of the reporting standards is becoming mandatory (TP-B;3). In particular, the interviewees specified that "the reporting frameworks of the EU wouldn't be able to come together if GRI or SASB didn't exist" (TP-F;6). Similarly, TP-B highlighted that "these voluntary frameworks are super important, especially with the SASB's integration into the IFRS" (TP-B;4).

In addition, the coding of interviews uncovered the idea that the shipping industry's reporting efforts are converging towards the leading companies. This correlation was uncovered, as several interviewees shared the perception that "you need big companies to kind of show what is possible and set a precedence on how you adopt this, and then the small companies will follow" (TP-F;7). The conception was exemplified by TP-E, stating that "Maersk was a first mover on that and then now we see increasing numbers of companies setting net zero targets and so on" (TP-E;2). As companies establish more ambitious emissions targets and increase their engagement in emissions reporting, other companies are gradually encouraged to conform with the new norm of reporting and reevaluate their sustainability strategy to remain competitive. As such, geographical and segmental differences are expected to converge over time (TP-F;8).

The coding of data identified that the apprehensible increase in stakeholder expectations is multifarious and attributable to various aspects. The third-party interviewees suggested that

shipping companies are experiencing increasing expectations of emissions reporting from multiple stakeholders; however, they asserted that the main pressures are originating from financial institutions and industry customers, as TP-F emphasized that "shipping companies are starting to feel it not just from the customers but from the financial institutes" (TP-F;9). The stakeholders are progressively putting pressure on the shipping companies to incentivize them to increase their levels of emissions reporting (TP-C;4). These viewpoints are discovered in the thematic analysis in which customers are revealed increasingly willing to pay a premium for greener services in recent time (TP-C;5). Whilst the interviewees acknowledged that the trend is predominantly visible in the container shipping segment, other shipping segments are moderately converging towards this norm (TP-C;6).

The thematic analysis revealed that the inability to satisfy the emissions reporting expectations of the industry's stakeholders would leave shipping companies exposed to a variety of risks. Although the coding of third-party interviews unearthed similar risks as the previous three thematic analyses, the interviews contributed additional perspectives to the impending risks of not reporting, which is illustrated in Figure 17. In particular, the interviewees highlighted the underlying disadvantages of being a late adopter of emissions reporting, which could impact shipping companies' competitiveness (TP-F;10). TP-B stressed that late adopters of emissions reporting are vulnerable to transitional risks and are missing potential premiums for sustainable assets (TP-B;5). Other interviewees corroborated these findings and emphasized that late adopters are exposed to reputational risks in which negative reputational developments could reduce stakeholders' incentive to conduct business with them (TP-C;7). TP-E argued that companies that have not addressed their GHG reduction targets are losing credibility among stakeholders and thereby diminishing their competitiveness (TP-E;3).

5.2.5. Key Findings of Thematic Analyses

The thematic analysis unveiled an overarching collection of themes and patterns pertaining to the characteristics of emissions reporting, the expectations of stakeholders, and the underlying risks of not complying with these expectations. The themes of the analyses affirmed the findings of the emissions reporting index, corroborating the notion that efforts of emissions reporting differ across a geographical and segmental scope. In addition, the role of industry initiatives and emissions

reporting were analyzed along with the possible reasons for not reporting, wherein the findings are exemplified in Figure 18.

Figure 16



Mind Map of Key Findings of the Thematic Analyses

Note: This figure has been constructed by the authors of this paper. The mind map illustrates the key findings of the preceding four thematic analyses divided into global, organizing, and basic themes.

Imperatively, the analyses scrutinized the role of stakeholder expectations, unearthing the idea that stakeholders have increased their minimum reporting requirements in general. It became apparent that stakeholders expect shipping companies to disclose their emissions strategies, provide increasing amounts of emissions data, and align with the requirements of industry initiatives.

However, it is evident that stakeholder expectations are not identical across stakeholder groups in which contrasting expectations were identified between financial institutions and industry customers. The coding of data identified that the inability to conform with the expectations of respective stakeholders constitutes a multiplicity of risks. As such, the analyses determined that non-reporting companies are exposed to a range of financial and reputational risks in which companies would experience diminished competitiveness relative to reporting peers. Stakeholders emphasized that emissions reporting was imperative to their business, as it is progressively employed as a hygiene factor and developing towards a license to operate. Nevertheless, the coding of interviews revealed that the risks of not reporting vary across shipping segments, where the container segment is substantially more exposed than the dry cargo and tanker segments. However, industry leaders are paving the way for emissions reporting in the shipping industry, influencing the industry's ambitions to adopt voluntary emissions reporting standards. Through the interviews with third parties, it became evident that the role of emissions reporting is shifting from voluntary to mandatory. This shift is driven by the integration of voluntary emissions reporting standards into mandatory reporting frameworks and the growing expectations from stakeholders for standardized emissions disclosure.

Chapter 6: Discussion

In the following chapter, the practical and theoretical implications of the paper's results will be discussed. The paper has sought to investigate the role of emissions reporting in the shipping industry, in which the following research question has been explored "how does emissions reporting represent a risk of non-compliance with stakeholder expectations in the shipping industry?". The first part of the ensuing chapter will demonstrate the practical implications of the study's findings, discussing how the results may be valuable for shipping companies and other industry stakeholders. Followingly, the theoretical implications of the paper are presented, utilizing the underpinning theories of the theoretical framework to explain the uncovered differences in reporting efforts. Lastly, this chapter will discuss the research approach of this study and provide examples of how future studies could utilize the framework and conclusions of this study for further research.

6.1. Practical Implications

The subsequent sections evaluate the practical implications of the analysis, discussing the potential value of the paper's findings for shipping companies and other stakeholders. The section will explore the value of understanding stakeholder requirements and discuss the actual consequences of not complying with stakeholder expectations. Finally, this section will present recommendations on how risks can be used as a tool to incentivize shipping companies to disclose their emissions.

Additionally, suggestions will be provided on how shipping companies should navigate the existing risk landscape.

6.1.1. Discrepancy in Emissions Reporting Expectations

The analysis uncovered a discrepancy in emissions reporting expectations among the stakeholders of shipping companies. Stakeholders express varying degrees of ambition pertaining to decarbonization targets and exert different pressures on shipping companies to disclose their emissions. Financial institutions aim to facilitate change in the shipping industry, as they have the power to direct capital towards sustainable ventures and demand greater involvement from shipping companies. Financial institutions are pressured by their own stakeholders and industry initiatives, such as the PPFI, to increase their transparency and disclose the scope of their environmental footprint. However, the analysis underscored the fact that industry customers face dissimilar pressures from their stakeholders, resulting in different types of pressures being placed on shipping companies from industry customers. Contrary to financial institutions, the industry customers' agenda is purely driven by regulatory requirements, which financial institutions recognized as highly redundant (FI-A;2). Whilst the interviewed industry customers provided insights from the perspective of the dry cargo and tanker segments, interviewees from the container segment resonated similar expectations from their customers.

The discrepancy in stakeholders' emissions reporting expectations presents shipping companies with a challenging predicament, requiring them to assess the extent to which they wish to fulfill their stakeholders' expectations. On one hand, shipping companies have limited incentive to enhance their emissions reporting efforts, as industry customers are displaying little to no willingness to pay a premium for increased transparency. On the other hand, shipping companies are facing pressure from financial institutions to implement transparent emissions reporting methods. Failure to comply could result in adverse effects on the companies' ability to secure financing and lead to increased financing costs. Conceivably shipping companies must properly identify and grasp the expectations of their stakeholders, allowing them to determine the level to which they wish to fulfill the expectations. In doing so, companies must proactively balance the potential risks of non-compliance with financial institutions' expectations against the costs associated with emissions reporting (Laplume et al., 2008).

6.1.2. Perception & Materiality of Risks

Developing an understanding of the risks associated with non-compliance and their severity is crucial in comprehending the need to balance these risks against stakeholder expectations. The thematic analyses of stakeholder interviews revealed the presence of numerous risk factors related to the conception of not conducting emissions reporting in accordance with stakeholder expectations. The majority of interviewees emphasized the perception that emissions reporting is converging towards a license to operate, where stakeholders are increasingly utilizing emissions disclosure as a hygiene check. However, this raises the question of "what is the risk of losing your license to operate?".

The emissions reporting index revealed that shipping companies are engaged in emissions reporting to varying degrees. Two contributing factors may account for this phenomenon. Firstly, shipping companies strive to meet the expectations of their unique stakeholders, as discussed in the previous section. Secondly, shipping companies perceive the risks associated with noncompliance in different ways. The inconsistent perception of risks is arguably rooted in the reality that the severity of risks is limited in the current regulatory and stakeholder environment. The interviewed stakeholders acknowledged the significance of employing emissions reporting; however, they found it challenging to identify the immediate impact of not complying with stakeholder expectations. Nevertheless, the stakeholders concurred that the materiality and risks associated with emissions reporting would have greater implications in the long run. Although the absence of immediate consequences may suggest that shipping companies could overlook the short-term emissions disclosure, the thematic analyses identified numerous disadvantages of being a late adopter of emissions reporting. Late adopters of emissions reporting may find themselves trailing their industry counterparts and needing to allocate significant resources towards developing the necessary competencies and implementing suitable reporting processes. Consequently, their ability to remain competitive may be compromised in the future.

The analysis uncovered that companies' failing to implement adequate emissions reporting procedures are exposed to various risks. Several interviewees pointed towards the importance of reputational risks in which they emphasized that non-reporting shipping companies are not able to control their own narrative. If emissions data is not disclosed, third parties, such as sustainability rating agencies, are forced to make assumptions about a company's emissions performance, which

puts the obligation of reputation-building on the third parties. The perception of reputational risks vary across shipping companies, with some organizations considering the capacity to control their narrative as a material concern. For such companies, a diminished reputation is regarded as having a substantial impact on their competitiveness. This observation is embedded in the idea that customers are gradually using environmental performance of shipping companies as a benchmark for their decision-making, resulting in a reduced utilization rate of vessels with inferior environmental performance.

However, while some shipping companies recognize the importance of controlling their narrative to mitigate reputational risks, others argue that the administrative burden of conducting emissions reporting is too high. In the short term, there is limited incentive for shipping companies to manage their narratives since stakeholders are not yet utilizing emissions reporting to measure the performance of shipping companies to a meaningful extent. Nevertheless, it may be posited that opposing viewpoints are discernible across shipping segments, with companies in close proximity to end consumers being more sensitive to the potential impact of reputational risks.

Examining the consequences of reputational risks from a time-related perspective is imperative to understand why shipping companies act the way they do. Although the analysis did not reveal any particular immediate consequences, the potential long-term effects relating to reputational risks could be significant. The importance of maintaining a coveted reputation was emphasized by stakeholders as a critical consideration in deciding whether to continue conducting business with shipping companies. Financial institutions stressed that clients who did not demonstrate a commitment to decarbonization would likely face difficulties securing financing in the future, leading to decreased access to capital and increased financing costs for non-reporting companies.

Whilst financial institutions expressed the idea that non-reporting companies would be exposed to certain risks, the extent to which these risks are material to shipping companies are divergent. As PPFI signatories increasingly incorporate emissions reporting inquiries in their loan evaluation process, non-reporting shipping companies will experience more pressure to disclose emissions, which in turn will increase the administrative burden of obtaining financing. An opposing standpoint contends that the measures taken by the PPFI signatories to encourage the adoption of emissions reporting are inadequate. As the thematic analyses suggested, shipping companies can

secure funding from non-signatories and circumvent the obligations stipulated in the PPFI. Obtaining financing from non-signatories entails substantially lower reporting requirements, resulting in lower administrative costs for shipping companies. The prospects of obtaining financing from Chinese leasing banks highlight potential opportunities for shipping companies to avoid the disclosure requirements of PPFI signatories (TP-C;8). According to several interviewees, Chinese financial institutions generally impose less stringent emissions reporting requirements. Therefore, there is considerable potential for financial institutions to influence shipping companies' adoption of emissions reporting; however, it would require significant structural changes to the demands of the global financial landscape.

6.1.3. Recommendations

Given the disparity in stakeholder expectations and the limited short-term consequences of noncompliance, two recommendations are presented to create a more equitable competitive landscape. To address the discrepant expectations, stricter regulatory requirements for emissions reporting could be enforced, which would lead to increased demands from industry customers. The gradual adoption of emissions reporting into mandatory disclosure requirements, such as the incorporation of GRI standards into the ESRS, suggests that this perception is becoming more prevalent (GRI, 2022; TP-B;3). Similarly, several interviewees pointed out that the IMO is under pressure from various stakeholders to adopt more ambitious GHG goals and increase their reporting requirements, which may be implemented at MEPC 80 on the 3rd of July 2023 (IMO, 2022). Alternatively, change could be implemented from a top-down approach. Financial institutions may collaborate to impose stricter penalties on shipping companies that do not comply with emissions reporting expectations, creating an environment that encourages emissions reporting through financial consequences. For this approach to succeed, banks would need to collaborate to a considerably greater extent than what the PPFI currently facilitates. Although it is possible that some shipping companies could secure funding outside of traditional bank financing, this would conceivably not suffice the industry's capital needs.

Navigating the existing risk landscape could be difficult for shipping companies due to the complex regulatory environment and fast-changing stakeholder expectations. Despite the limited short-term consequences of not complying with stakeholder expectations, it is recommended that

shipping companies do not neglect emissions reporting in the short term. The interviewees emphasized that shipping companies do not need to be the best performers in terms of emissions reporting, as emissions reporting should not be regarded as a competition. Instead, by disclosing their emissions, shipping companies can control their own narrative and develop competencies and processes that may be advantageous in the future. The degree to which the benefits of emissions reporting could impact a company would differ depending on a range of factors, such as the size and location of the company. A large container company in Northern Europe may benefit more from the ability to control its narrative than a small dry cargo company in Taiwan.

The potential benefits of emissions reporting must be weighed against the initial and ongoing capital costs associated with establishing and maintaining such processes. It is crucial for shipping companies to report in accordance with the preferred standards of their stakeholders rather than following industry norms. Laine et al. (2021) argues that variations in reporting standards play a crucial role in sustainability reporting, as they enable organizations to communicate with the stakeholders, considering the unique expectations of each stakeholder group. This necessitates a comprehensive understanding of the stakeholder landscape and their specific reporting requirements (Jones, 1995).

6.2. Theoretical Implications

The following sections discuss the theoretical implications of the research findings, elucidating how they substantiate the foundation of the theoretical framework presented in this paper. The section explores the ways in which institutional logic and stakeholder theory can explicate the fundamental distinctions in reporting expectations among stakeholders and employs the logic of isomorphism to explain the varying efforts and characteristics within the emissions reporting landscape. Moreover, the principles of sustainability reporting theory are applied to gain insights into why emissions reporting is developing in certain ways, and the overlapping nature of the employed theories is highlighted. Based on the theories discussed, this section will ultimately provide an expectation of how the emissions reporting landscape in the shipping industry will develop in the future.
6.2.1. Underpinning Differences of Reporting Expectations

The results of this paper demonstrate the significance of shipping companies comprehending their stakeholders' motives and interests to make well-informed business decisions. Freeman (1984) provided the definition that "a stakeholder in an organization is (by definition) any group or individual who can affect or is affected by the achievement of the organization's objectives" (p. 46). Robert Edward Freeman later asserted that effective strategists must deal with the groups that can be impacted as "stakeholders vary in strength of their bargaining power and thus their ability to influence firms" (Freeman et al., 2010, p. 127). This paper has focused on two stakeholders with a significant ability to influence shipping companies. Despite their influence, the stakeholders have opted for vastly different strategies to exert their bargaining power.

The regulatory environment in the shipping industry is conceivably fostering a "race to the bottom", which industry customers are using as their guiding expectations for shipping companies to adhere to. However, Davis (1960) argued that "a firm is not being socially responsible if it merely complies with the minimum requirements of the law, because this is what any good citizen would do" (p. 313). Building on this notion, the author later articulated the iron law of responsibility stating that "in the long run, those who do not use power in a manner which society considers responsible will tend to lose it" (Davis & Blomstrom, 1971, p. 95). The iron law of responsibility posits that only satisfying minimum requirements would eventually harm the competitiveness of both shipping companies and stakeholders. However, this conception assumes that society agrees that these organizations are exercising their power in a responsible manner.

The different ways in which stakeholders exert their bargaining power could be attributed to the different expectations that society has for financial institutions compared to those for industry customers. This viewpoint implies that the expectations of financial institutions' stakeholders are more demanding than industry customers' stakeholders. The analysis supports this conception as various interviewees mentioned that companies' engagement in sustainability is dependent on their proximity to the end consumer. An argument could be made that the shipping segments of the interviewed industry customers are not exposed to the same societal values as the financial institutions, which could explain the differences in reporting expectations. Following this reasoning, reporting expectations would vary across shipping segments, as it may be easier for society to understand to which degree a container company is utilizing its power appropriately, opposed to a tanker or dry cargo company, which is significantly further down the value chain. The emissions reporting index indicates that there is significant variations in emissions reporting efforts among shipping companies of similar size, segment, and location. This phenomenon may be explicated by differences in institutional logics, which could influence stakeholder expectations and guide organizational behavior (Greenwood et al., 2010). Following the understanding developed by Friedland & Alford (1991), institutional logics constitute the guiding principles of organizations, influencing the actions of individuals and companies. An understanding of the institutional logic of financial institutions and industry customers would arguably provide insights into the varying expectations of stakeholders in the shipping industry. The guiding principles of customers in the shipping industry are solely to align with regulatory requirements, where aiming to comply with the minimum expectations stipulated by the IMO serve as an example of the material practices employed by customers.

Customers of the shipping industry do not consider setting ambitious environmental goals as a method of adding value; instead, they view it as a high-risk activity due to the potential for under-delivery and an uncertainty for their accountability. As such, one could contend that the logics of industry customers influence their expectations towards the emissions reporting of shipping companies, establishing minimal requirements to the disclosure of emissions. Nevertheless, it is essential to acknowledge that customers' expectations vary across shipping segments, with container segment customers valuing emissions accountability to a higher degree. As such, institutional logic could provide a more nuanced understanding of the discrepancies in customer expectations.

The institutional logic guiding financial institutions differs from that of industry customers, as the perception of reducing their environmental footprint is considered a meaningful valueadding activity. It is imperative for financial institutions to channel capital towards more sustainable activities, as it has the potential to drive change throughout the shipping industry. While the institutional logics of financial institutions conflict with the guiding principles of industry customers, it is worth noting that the actions of Chinese leasing banks demonstrate that financial institutions' logics are not entirely consistent on a global scale. In conclusion, it could be argued that stakeholders' institutional logics may explain the discrepancies in their expectations of shipping companies' emissions reporting efforts.

6.2.2. Characteristics of Reporting Efforts

The isomorphic tendencies unveiled in institutional theory provide a theoretical approach to understanding the characteristics of the reporting efforts of shipping companies. Shipping companies' environment shapes a certain construction of values and norms. The behavior of firms converges, as they seek to align with the externally demanded values of their environments (Meyer & Rowan, 1977). Isomorphic tendencies occur, as shipping companies strive to conform with the expectations of industry stakeholders. It could be argued that three isomorphic tendencies are observable in the context of emissions reporting adoption in the shipping industry. Specifically, coercive, mimetic, and normative isomorphic tendencies provide insights into the potential adoption of emissions reporting in the future.

Within the shipping industry, there are several coercive mechanisms that influence the isomorphic tendencies to adopt emissions reporting. Industry initiatives like PPFI are one such mechanism that can drive the adoption of standards, as they compel shipping companies to comply with specific emissions reporting frameworks when disclosing emissions data. Nonetheless, while the initiative may influence the adoption of emissions reporting, its impact is arguably constrained in practice, as a considerable amount of global banks are not signatories of the PPFI.

Ship It Zero and other NGOs exert coercive pressure on shipping companies by imposing reporting requirements, with the goal of fostering the wider adoption of emissions reporting. Despite the proactive measures of NGOs, the tangible impact of these pressures remains uncertain, as the interviewees did not report any interactions with such organizations. Interviewees emphasized that regulatory bodies are the actual drivers of change in the shipping industry, as shipping companies are generally hesitant to disclose company information voluntarily. The enforcement of reporting obligations through regulations exemplifies a coercive measure that mandates shipping companies to disclose specific emissions data. However, the existing regulatory landscape of the shipping industry allows shipping companies to include a certain degree of discretion in their reporting, which was emphasized interviewee FI-A, stating that the requirements of the IMO are redundant (FI-A;2).

Drawing upon the theoretical contributions of Gilbert et al. (2011), the coercive influence aimed at promoting the adoption of emissions reporting is likely to strengthen over time. Soft law instruments, such as the reporting standards outlined in the PPFI, may gradually transition from

voluntary to mandatory as regulatory frameworks acknowledge the legitimacy of these reporting standards. This recognition could prompt the integration of perspectives outlined in voluntary reporting standards into regulatory requirements. Such transition is evident in the International Financial Reporting Standards' (IFRS') integration of SASB into the International Sustainability Standards Board (ISSB), wherein the voluntary components of SASB has been incorporated within the mandatory reporting framework of ISSB (IFRS, 2023).

A recurring theme among interviewees was the significance of having industry leaders setting the path for other companies to follow. Interviewees emphasized that these organizations constitute a crucial role in shaping industry-wide practices by promoting the adoption of reporting standards and providing guidance on effective measures. This idea underlines the occurrence of mimetic pressures, shipping companies mimic the behavior of industry peers or leaders to achieve legitimacy in the perspective of stakeholders (DiMaggio & Powell, 1983). The adoption of emissions reporting by smaller shipping companies could be explained by the mimetic trends outlined in institutional theory, whereby companies imitate the behavior of the most ambitious companies. Several interviewees pointed out that the actions of industry leaders, such as A.P. Moller – Maersk, serve as a model for smaller companies to follow in their adoption of emissions reporting (SC-E;7). It is argued that this behavior is attributed to the absence of a clear dominant reporting standard, which facilitates the occurrence of mimicking behavior. As such, shipping companies copy disclosure approaches, as they infer that industry leaders choose such standards due to their appropriateness. From a theoretical standpoint, the emergence of such behavior implies that over time, the emissions reporting efforts of shipping companies become increasingly similar and converge towards a single approach to disclosure.

Essentially, by mimicking the reporting efforts of leading companies, the mimicking shipping companies expect to achieve recognition by their stakeholders. Nevertheless, it is crucial to acknowledge that stakeholders' expectations differ across shipping segment, leading to potential divergences in the perceived legitimacy derived from emissions disclosure. Following this reasoning, a dry cargo shipping company in East Asia may not receive the same level of recognition from stakeholders as a container company located in Northern Europe. The recognition of such discrepancy in reporting efforts by shipping companies could arguably be traced back to the fluctuating importance that stakeholders place on emissions reporting. In practice, mimicking

the emissions reporting efforts of industry leaders may not result in the expected legitimacy improvements, as stakeholder expectations are contingent upon the specific context of each shipping company.

DiMaggio & Powell's (1983) theoretical work underscores the importance of normative pressures in engendering isomorphic tendencies, leading to a progressive convergence of companies' characteristics as they undergo professionalization. This phenomenon of isomorphism is manifested in the shipping industry's emissions reporting, where normative pressures exert influence on companies, compelling them to conform to particular reporting practices. Normative pressures are apparent in the emergence of industry-specific NFPOs, such as the Maersk Mc-Kinney Moller Center for Zero Carbon Shipping. These institutions aim at accelerating the decarbonization of the industry by incentivizing knowledge sharing across stakeholders, embodying the characteristics of a multistakeholder initiative. The initiatives foster discussions among multiple stakeholders to explore potential actions that could facilitate the decarbonization of the shipping industry. Furthermore, significant resources are dedicated to promoting transparency and comparability in the emissions of shipping companies, where reporting constitutes a substantial lever in achieving this. A valid point could be made that the adoption of similar emissions reporting standards by shipping companies could be attributed to normative pressures exerted by multistakeholder initiatives, resulting in isomorphic tendencies over time (Utting, 2002).

6.2.3. Future Developments in Emissions Reporting

This paper argues that companies that fail to report emissions data in accordance with stakeholder expectations would experience limited consequences in the short term but will gradually be subject to increasing pressure to adopt emissions reporting practices in the long term. The emissions reporting index demonstrates a growing inclination towards more standardized and comprehensive emissions reporting efforts throughout all the analyzed shipping segments and global regions. The ability to remain competitive in the shipping industry is contingent on shipping companies' awareness of how their stakeholders perceive the value of emissions reporting, wherein it is imperative for companies to be cognizant of the institutional logics and societal pressures that shape those perceptions. The notion of isomorphism will lead to a convergence of reporting

expectations among stakeholders in the shipping industry, driven by an increasing risk of losing the license to operate over time. Consequently, the isomorphic tendencies are anticipated to influence the reporting practices of the industry, causing the voluntary nature of soft law to harden over time, as it becomes an integral part of shipping companies' modus operandi.

Whilst the idea that emissions reporting is developing towards hard law is an essential discovery of this study, this does not undermine the importance of shipping companies understanding their unique stakeholder environment. Hard law merely guides a general foundation for how the industry should disclose its emissions; however, the significance hereof remains dependent on the strategy of the individual shipping company. The study has emphasized the importance of shipping companies having the ability to control their own narrative. Nevertheless, shipping companies' ability to benefit from controlling their narrative will arguably diminish, as emissions reporting becomes mandatory. The notion that emissions disclosure becomes a license to operate diminishes the unique properties of the individual company, making it difficult to distinguish between companies' reporting efforts. Oppositely, benchmarking of companies would become easier for stakeholders, enabling strong emissions performers to draw benefits.

Ultimately, this study corroborates the findings of Gilbert et al. (2011) and Abbott & Snidal (2000) and suggests that hard and soft law complement each other and are effective when used in conjunction. Soft law offers a framework for establishing common rules in a world where global rules are lacking, providing the ability to implement changes on a continuous basis. In contrast, hard law is challenged by the bureaucratic discourse and costs of implementation (Rasche & Waddock, 2017; Abbott & Snidal, 2000). Although the convergence towards hard law could lead to uniformity in emissions disclosure across the shipping industry, this paper argues that mandating all emissions reporting standards may not be beneficial since it would restrict the competitive abilities of shipping companies to differentiate themselves.

6.3. Discussion of Research Approach & Further Research

The novel and exploratory nature of this paper meant that its initial structure was inspired by the research approaches of the previous research studies demonstrated in the literature review. However, during the data collection and the consequent discussion of findings, it became apparent that a somewhat altered research approach could have benefitted the strength of this paper's results. Likewise, a broader data collection could have been advantageous in widening the applicability

and understanding of the study's findings. The two stakeholders analyzed in this paper were established as crucial stakeholders in previous research papers; however, such papers were developed in contexts outside the scope of this paper. This paper could conceivably have benefitted from a more nuanced understanding of the individual stakeholders of the shipping industry and their respective significance. By following this approach, the paper could have constructed an objective view of the respective stakeholders' importance in the shipping industry, which could have added an interesting perspective to the conception of stakeholder expectations. This notion does not diminish the results of this paper; however, a modified approach could have broadened the relevance of the study's findings to a wider range of stakeholders.

The paper's delimitations highlight that certain measures have been taken due to data restrictions, which may impact the widespread applicability of the study's findings. The emissions reporting index has been limited to include only publicly listed companies; however, a valid argument could be made that some of the most significant shipping companies are privately owned, and the exclusion of such companies restricts the ability to generalize the paper's conclusions across the entire industry. Nevertheless, access to appropriate sustainability information is challenging to obtain from privately held companies, particularly in an industry that is inherently reluctant to disclose information, such as the shipping industry.

Despite the global nature of the shipping industry, the study's qualitative analysis could arguably have benefitted from employing additional interviews with shipping companies and stakeholders with different characteristics. The qualitative data collection of this study is somewhat limited in terms of the country of origin of the companies interviewed. As such, it could have been advantageous to include shipping companies and stakeholders from various geographical locations in the primary data collection, as they would have provided additional perspectives to the perception of emissions reporting and stakeholder expectations. The inclusion of interviews with companies from Northeast Asia may have yielded valuable insights into their somewhat divergent viewpoints in comparison to the Northern European companies that have been included in this study. Similar arguments could be made for including views of privately held companies, financial institutions that are not signatories of the PPFI, regulatory bodies, and NGOs like Ship It Zero and coZEV. In retrospect, the inclusion of such organizations could have strengthened the conclusions of this paper and broadened the applicability of its results. Although it is uncertain whether the inclusion of additional data would alter the research's conclusions, it is not possible to ascertain unless the additional data sources are explored.

During the data collection, efforts were made to include a broader range of interviewees; however, it was not possible to facilitate interviews with the applicable companies within the study's time frame. Future research would conceivably benefit from reflecting on the proposed research approach considerations, and the exploration of these perspectives could lead to intriguing research topics in the field of emissions reporting in the shipping industry.

The exploratory nature of this paper and the complexity of the fast-changing topic demands more research from other contexts of the shipping industry. Researching emissions reporting in other contexts of the shipping industry could enlighten the current knowledge of the perceived benefits and disadvantages of disclosing emissions data. To scrutinize the results of this paper, future research could entail conducting case studies of individual shipping companies to develop a company-specific understanding of how they perceive and value emissions reporting. Such a study could scrutinize shipping companies' institutional logics and develop an understanding of how they value the opinions of their stakeholders to derive the perceived risk of non-compliance at a company level.

This paper's thematic analyses uncovered distinct characteristics which may influence the extent that shipping companies are engaged in emissions reporting. Interesting endeavors of future research could involve analyzing these characteristics in a comparative study, where the reporting efforts of, e.g., publicly listed companies are compared to privately owned companies. Such research could shed light on the sustainability efforts of such companies in the shipping industry and provide insights into how their risk of non-compliance varies from publicly owned companies. Privately held companies are less subject to mandatory emissions reporting and are arguably facing less stakeholder pressure to adopt such practices.

While employing the concepts of institutional theory to understand the theoretical implications of this study, it became apparent that the underpinning concepts of isomorphism provide an interesting perspective to comprehend the developments in sustainability reporting practices in the shipping industry. Although isomorphic tendencies have been used to explain various implications of this study, future research could advantageously analyze the developments in reporting practices from the perspective of the three analyzed types of isomorphism. In doing

so, research could e.g., delineate the value and role of industry initiatives, and determine to which degree specific types of isomorphism drive change in the shipping industry.

Lastly, future research could generate interesting results by employing a similar research approach as used in this paper to uncover other aspects of the ESG reporting landscape. Several interviewees emphasized the increasing importance of the shipping industry's impact on biodiversity and mentioned that this topic constituted an increasingly significant part of their sustainability disclosure. In addition, the interviewees added that the understanding of the materiality of biodiversity is not equal across the industry, and reporting on this topic would increase the understanding of this topic's importance. By employing the research approach of this paper to the context of biodiversity, it would be possible to delineate the reporting landscape on biodiversity in the shipping industry and understand to which degree stakeholders currently value the topic of biodiversity.

Chapter 7: Conclusion

This paper sought to explore the role of emissions reporting in the shipping industry, examining the prospective disadvantages and underpinning risks of not disclosing emissions. The thesis investigated the topic from the perspective of the following research question "how does emissions reporting represent a risk of non-compliance with stakeholder expectations in the shipping industry?". The study presents a noticeable disparity in the emissions reporting expectations among stakeholders, posing a challenge for shipping companies to comply with the diverse expectations of their respective stakeholders. Companies' reporting efforts are demonstrated to vary across segments and geographical locations, as they are encouraged to adhere to different reporting expectations. The analyzed stakeholders exhibit divergent reporting expectations, ranging from regulatory compliance to the adoption of voluntary emissions reporting standards. Nonetheless, the study emphasizes that imposing stricter reporting requirements is challenging due to the current stakeholder landscape's inadequate sanctions for non-complying companies. The study concludes that the risk of non-compliance with stakeholder expectations is limited in the immediate term; however, the materiality of this risk will increase significantly in the future. Although the immediate risk of non-compliance is limited, it is imperative that companies do not neglect emissions reporting in the short term, as the risk of being a late adopter could have significant consequences for the future competitiveness of shipping companies.

This paper has analyzed the role of emissions reporting in the shipping industry by applying a sequential mixed methods approach, utilizing a combination of quantitative and qualitative data to explore the context of the research question. An index was compiled to measure the emissions reporting efforts of the 50 largest publicly traded shipping companies globally. The emissions reporting index revealed that the extent of shipping companies' emissions reporting varies depending on specific company characteristics, such as company size, geographical location, and ownership type. Notably, the index identified the most diligent emissions reporters as publicly listed container companies located in Europe. However, the index demonstrated a growing inclination towards more standardized and comprehensive emissions reporting efforts across the analyzed companies.

Subsequently, 16 semi-structured interviews with different shipping companies and industry stakeholders were conducted. Utilizing thematic analysis to explore the qualitative data, the study

developed an understanding of how different stakeholders perceive the role of emissions reporting and whether they agree on its significance. The key findings of the analysis unveiled that stakeholders across the shipping industry have increased their emissions reporting expectations in recent years, as their own stakeholders and industry initiatives are demanding more transparent disclosure. Financial institutions are experiencing more pressure to provide granular sustainability reporting relative to industry customers, creating an apparent discrepancy in reporting expectations among stakeholders. The interviews uncovered that not complying with stakeholder expectations could expose shipping companies to different risks, including financial, reputational, and competitiveness risk, with the severity of these risks varying across shipping segments and geographical location. However, the interviewees emphasized that the immediate risks of noncompliance were immaterial by virtue of limited consequences, whereas future repercussions of non-compliance would severely increase. In addition, the analysis discovered that emissions reporting is gradually converging towards a license to operate, as more stakeholders are demanding transparent emissions disclosure and voluntary reporting standards are becoming mandatory.

The paper's conclusions give rise to practical implications which could provide valuable insights for shipping companies and other industry stakeholders. In light of the discrepant stakeholder expectations, two recommendations are presented to create a more equitable competitive landscape. In the existing landscape, shipping companies face limited incentives to fulfill the increasing expectations of stakeholders, as industry customers exhibit restrained willingness pay a premium for increased transparency, and financial institutions impose insignificant consequences for non-compliance. Emissions reporting expectations could be increased through a bottom-up approach in which regulatory requirements for reporting are increased, forcing all stakeholders to raise their expectations. Alternatively, a top-down approach could be taken where financial institutions collaborate to impose more significant sanctions on non-compliant shipping companies. Such approach would incentivize shipping companies to comply with the expectations of financial institutions through actual financial consequences, wherein their access to financing and cost of capital would be impacted. This approach requires significantly more collaboration among financial institutions than what the PPFI currently facilitates.

From a shipping company perspective, it may be challenging to navigate the current risk landscape due to the complex regulatory environment and fast-changing stakeholder expectations.

Although non-compliance with stakeholder expectations would not have immediate consequences, it is suggested that shipping companies do not disregard emissions reporting in the short term. In the current state of emissions reporting, data disclosure should not be regarded as a competition; however, it is rather a matter of initiating transparency across the industry. By disclosing emissions, companies have the ability to control their own narrative and develop relevant competencies and processes, which could improve their competitiveness in the long-term. The potential benefits of disclosing emissions must be weighed against the costs of establishing and maintaining reporting processes. To manage risks effectively, companies must disclose their emissions in alignment with their stakeholders' expectations, rather than following industry norms.

Utilizing a combination of institutional, stakeholder, and sustainability reporting theory, this thesis has examined the developments in emissions reporting in the shipping industry and explored the theoretical implications of the research. The paper argues that the conception of isomorphism will lead to a convergence of reporting expectations among stakeholders in the shipping industry. The notion of isomorphism is transforming emissions reporting into a license to operate for shipping companies, as companies are increasingly urged to adopt analogous disclosure practices to maintain legitimacy and competitiveness in the industry. Moreover, isomorphic forces are shaping the reporting practices of the industry, causing the voluntary nature of soft law to harden over time.

Although the convergence of emissions reporting towards a license to operate may reduce the distinctive properties of individual shipping companies' reporting efforts, it does not diminish the significance of shipping companies understanding their stakeholder environment. The ability to remain competitive in the industry remains contingent on companies' awareness of how their stakeholders perceive the value of emissions reporting, in which they must be cognizant of the institutional logics and societal pressures that shape those perceptions. Whilst hard law provides a general framework for emissions reporting in the shipping industry, the extent to which a company chooses to engage in reporting remains determined by the company's strategic objectives and institutional logic. Nevertheless, this paper contends that mandating uniform emissions reporting across the industry may impede shipping companies from differentiating themselves and restrict their competitive abilities. Consequently, a concurrent application of hard and soft law is deemed advantageous, as it could incentivize stakeholders to increase expectations without compromising companies' ability to differentiate themselves.

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Appendices

SASB Sustainability Disclosure Topics & Accounting Metrics					Shipping Companies			
Dimension	Topic	Topic Summary	Accounting Matric	Code	Company Name Company Nam			
		,	· · · · · · · · · · · · · · · · · · ·		2021	2020	2021	2020
Emissions	GHG Emissions	Marine transportation companies generate emissions mainly from the combustion of diesel in ship engines. The industry's reliance on bunker oil is of material concern due to rising fuel costs and intensifving GHG Air pollutants are externalities from the use of bunker oil	Gross global Scope 1 emissions	TR-MT-110a.1	1 or 0	1 or 0	1 or 0	1 or (
			Discussion of long-term and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets	TR-MT-110a.2	1 or 0	1 or 0	1 or 0	1 or
			 Total energy consumed, (2) percentage heavy fuel oil, percentage renewable 	TR-MT-110a.3	1 or 0	1 or 0	1 or 0	1 or
			Average energy efficiency design index (EEDI) for new ships	TR-MT-110a.4	1 or 0	1 or 0	1 or 0	1 or
	Air Quality		Air emissions of the following pollutants: (1) NOx (excluding N2O), (2) SOx, and (3) particulate matter (PM10)	TR-MT-120a.1	1 or 0	1 or 0	1 or 0	1 or
			GRI Standards		S	hipping	Compani	es
Topic Standards	Topic Standard	Topic Summary	Topic Disclosure	Material Topic Code	Compan	1y Name	Compar	iy Nam
					2021	2020	2021	2020
GRI Topic Standard 300	GRI 302: Energy 2016	An organization can consume energy in various forms, such as fuel, electricity, heating, cooling or steam. Energy can be self-generated or purchased from external sources and it can come from renewable sources or from non- renewable sources	Energy consumption within the organization	GRI 302-1	1 or 0	1 or 0	1 or 0	1 or (
			Energy consumption outside the organization	GRI 302-2	1 or 0	1 or 0	1 or 0	1 or
			Energy intensity	GRI 302-3	1 or 0	1 or 0	1 or 0	l or
			Reduction of energy consumption	GRI 302-4	1 or 0	1 or 0	1 or 0	1 or
			Reductions in energy requirements of products and services	GRI 302-5	1 or 0	1 or 0	1 or 0	l or
	GRI 305: Emissions 2016	This Standard adresses emissions into air, which are the discharge of substances from a source into the atmosphere. Types of emissions include: GHG, ODS, Nox, Sox, among other significant air emissions.	Direct (Scope 1) GHG emissions	GRI 305-1	1 or 0	1 or 0	1 or 0	l or
			Energy indirect (Scope 2) GHG emissions	GRI 305-2	1 or 0	1 or 0	1 or 0	1 or
			Other indirect (Scope 3) GHG emissions	GRI 305-3	1 or 0	1 or 0	1 or 0	1 or
			GHG emissions intensity	GRI 305-4	1 or 0	1 or 0	1 or 0	l or
			Reduction of GHG emissions	GRI 305-5	1 or 0	1 or 0	1 or 0	l or
			Emissions of ozone-depleting substances (ODS)	GRI 305-6	1 or 0	1 or 0	1 or 0	l or
			Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions	GRI 305-7	1 or 0	1 or 0	1 or 0	1 or
		International Mar	ritime Organization (IMO) Environmental Regulations		S	hipping	Compani	es
	Торіс	Topic Summary	GHG Reduction Target	Code	Compar	1y Name	Compar	ıy Nan
GHG Reduction Trajectory Targets	Alignment with IMO's GHG reduction strategy	The IMO adopted an initial strategy in 2018 to reduce GHG emissions from ships and phase them out as soon as possible The Paris			2021	2020	2021	2020
			Is expected to align with the IMO GHG reduction strategy in 2030	40% GHG Reduction in 2030	1 or 0	1 or 0	1 or 0	1 or
			Is expected to align with the IMO GHG reduction strategy in 2050	70% GHG Reduction in 2050	1 or 0	1 or 0	1 or 0	l or
	Paris Agreement	Agreement was developed to tackle climate change and its negative impact, setting long-term	Is expected to align with the Paris Agreement's goal of limiting global average temperature to well below 2.0 degrees above pre-industrial levels	2.0 Degrees (Net Zero 2050)	1 or 0	1 or 0	1 or 0	l or
			Is expected to align with the Paris Agreement's goal of limiting the global temperature increase to 1.5 degrees above pre-industrial levels	1.5 Degrees (Net Zero 2040)	1 or 0	1 or 0	1 or 0	1 or

Appendix A – Emissions Reporting Index Example

The enclosed excel-file, named Appendix B, contains a complete overview emissions reporting index scores along with the entirety of themes, codes, and data extracts of the thematic analysis.

The emissions reporting index scores are located in the blue tab of the attached excel-file.

The themes, codes, and data extracts of the thematic are located in the green tabs of the attached excel-file.

Introduction to the study

This interview is part of a master's thesis project written by Mikkel Holbæk Mørch (<u>mimo17ae@student.cbs.dk</u>) and Tobias Børglum (<u>tobo18ab@student.cbs.dk</u>) at Copenhagen Business School with the aim of understanding how emissions reporting represent a risk of non-compliance with stakeholder expectations in the shipping industry.

With emissions constituting an increasingly significant role in the shipping industry, it is interesting to understand how shipping companies and their stakeholders perceive the role emissions reporting and explore the potential disadvantages of not living up to stakeholder expectations. The researchers will interview stakeholders within the shipping industry to understand the origins and substance of stakeholder emissions reporting expectations. Furthermore, the researchers will interview shipping companies to understand their perception of emissions reporting and arguments as to why shipping companies adopt emissions reporting standards.

The questions in this interview will pertain to your work with sustainability and decarbonization in the shipping industry. This interview should take no more than 45 minutes. You may read the interview script before deciding to respond.

Your participation in this study is voluntary, and you may withdraw at any time. Refusal to participate or a decision to discontinue participation will not result in any penalty or loss of benefits to which you are entitled. With your permission, the interview will be recorded and transcribed. If you wish, you may receive a copy of the interview transcript. The thesis is confidential, and the interviewees will be anonymized if the thesis is distributed or distributed to other parties at a later stage.

If you have any questions concerning your participation, please feel free to contact our supervisor, Kristjan Jespersen, at <u>kj.mscl@cbs.dk</u>.
General Questions

- How would you describe the main tasks of your current job?
- Please elaborate on the activities of your company.
- What are the emissions targets of your company?
- What has influenced the emissions targets of your company?
- Can you see any specific industry initiatives driving the decarbonization of the shipping industry?
 - If yes, have these industry initiatives impacted your company? And how?
- In recent years, the role of emissions reporting requirements has increased across the shipping industry. How do you see the role of voluntary emissions reporting standards in the shipping industry?
- How do you see the role of your company in influencing the decarbonization of the shipping industry?

Ship Owners

- We can see that your company have chosen to align with certain emissions reduction targets, why have you done so?
 - And if not, why have you not aligned?
- Likewise, we can see that your company is reporting on GRI/SASB metrics, why have you chosen to do so?
- How would you describe the main strategic focus of your company?
- BCG found that the customers of container shipping companies were willing to pay a certain premium on shipping services to aid the shipping industry's transition towards net zero. Do you experience a similar willingness from your customers?

Financial Institutions

- In your opinion, do you believe there is an incentive to increase emission reporting in the shipping industry?
 - If not, do you see a financial disadvantage of not conducting emissions reporting?
- How do you see the role of Poseidon Principles for Financial Institutions in aiding the decarbonization of the shipping industry?

• What are the advantages and disadvantages of incorporating the Poseidon Principles for Financial Institutions framework into loan agreements?

Industry Customers

- We can see that your company is a signatory of the Sea Cargo Charter, why have you committed to this?
 - How do you see this initiative impacting the environmental performance across the shipping industry?
 - Large parts of the industry have not signed up for the Sea Cargo Charter. In your opinion, why is that, and are these companies at a potential disadvantage?
- How do you evaluate whether to charter one vessel versus another?
 - Is there a focus on vessel emissions?
- Are you willing to pay a premium for a less polluting ship?
- Would you be less likely to choose a ship owner based on their emission reporting standards?
- Do you assess a ship owners' alignment with IMO 2050 goals and the Paris Agreement before choosing them?

Third Parties

- How do you see pressure from stakeholders forming shipping companies' disclosure of emissions reporting?
 - Do you identify any disadvantages of not reporting on emissions reporting standards (e.g., GRI / SASB)
 - Similarly, do you identify any advantages?
- How do you see stakeholder pressure impacting the shipping companies' greenhouse gas emissions targets?
 - Do you identify any benefits from setting ambitious greenhouse gas reduction targets?
- Have you observed any differences in the adoption of emissions reporting standards and ambitiousness in greenhouse gas reduction targets across shipping segments and their geographical location?

• Have you identified other characteristics?

Concluding Question

• Is there anything that we have not addressed that you would like to add?

E-Mail Template for Financial Institutions, Industry Customers, and Third Parties Dear [Company],

We are two students from Copenhagen Business School in the process of writing our master's thesis. Our thesis concerns emissions reporting in the shipping industry and how it may represent a risk of non-compliance with stakeholder expectations. As such, we are contacting you, as we are seeking to learn more about how stakeholders of the shipping industry perceive and value the topic of emissions reporting. Similarly, we can derive from your website that [Company] is currently [*engaged in* or *signatory of certain initiatives*], which we are interested in learning more about.

We are hoping that you, or a relevant colleague, will be interested in participating in a short interview concerning your and [Company]'s perception on the role of emissions reporting in the shipping industry. The questions would concern your expectations of emissions reporting from ship owners, industry initiatives seeking to reduce emissions in the shipping industry, the decarbonization efforts of shipping companies, and the efforts your company takes to reduce emissions. The comprehensive list of questions is in the attached interview guide.

We expect that the interview will last approximately 45 minutes, and we are happy to meet you in your offices or online.

We are looking forward to hearing from you.

Best regards,

E-Mail Template for Shipping Companies Dear [Company], We are two students from Copenhagen Business School in the process of writing our master's thesis. Our thesis concerns emissions reporting in the shipping industry and how it may represent a risk of non-compliance with stakeholder expectations. As such, we are contacting you, as we are seeking to learn more about how stakeholders of the shipping industry perceive and value the topic of emissions reporting. Similarly, we can derive from your website that [Company] is currently [*engaged in* or *signatory of certain initiatives*], which we are interested in learning more about.

We are hoping that you, or a relevant colleague, will be interested in participating in a short interview concerning your and [Company]'s perception on the role of emissions reporting in the shipping industry. The questions would concern your decision to align with emission reduction trajectories, industry initiatives seeking to reduce emissions in the shipping industry, the willingness of your customers to pay a premium for a less polluting vessel, and the efforts your company takes to reduce emissions. The comprehensive list of questions is in the attached interview guide.

We expect that the interview will last approximately 45 minutes, and we are happy to meet you in your offices or online.

We are looking forward to hearing from you.

Best regards,

Interviewee	SC-A	Interview date	25-04-2023
Job position	Head of Decarbonization	Interview duration	22:15
	Standards		
Interview setting	Online	Transcript page no.	pp. 162 - 167
Summary	The interviewee initiates t	he interview by stating	the importance of their
	company in driving the de	carbonization of the indu	stry. The company has
	set emissions reduction ta	argets of 50% in 2030	, compared to a 2020
	baseline and attributes su	ich ambitious target to	stakeholder pressures
	originating from financiers	s and customers. The int	erviewee highlights the
	significant usage of emis	sions reporting standar	ds, as the interviewee
	believes they provide trans	sparency and standardiza	ation across companies.
	However, geographical differences are observed, where unwillingness to		
	further eleberate that it might be difficult for smaller companies to conduct		
	emissions reporting as there are significant administrative costs associated		
	with such an endeavor. The	interviewee observes th	at customers are willing
	to pay a premium for gree	n shipping services, how	vever, it is only a small
	part of the business as of now. Furthermore, they emphasize that as the		
	company is intricately links	ed to end consumers, greater	ater consumer pressures
	are asserted on the ship	pping company. The in	nterviewee sees many
	advantages of adopting en	nissions reporting, how	ever, improved internal
	business decisions are at	the forefront of incent	ives towards acquiring
	emissions data. Closing the	e interview, it is proclain	ned that when shipping
	companies continue to en	ngage in emissions rep	orting, customers will
	increase their demands, wh	ich will push the industr	y to adopt progressively
	ambitious emissions target	S.	

Interviewee	SC-B	Interview date	04-04-2023
Job position	Senior ESG Manager	Interview duration	1:11:05
Interview setting	Online	Transcript page no.	pp. 168 - 180
Summary	The interviewee starts the	interview by examining	the role regulation and
	they believe that EU reg	gulation is driving the	decarbonization of the
	industry. The interviewee r	nentions that the margin	adjustments in the PPFI
	do not drive investment de	ecisions, as they simply	are too low. Emissions
	reporting standards prov	ide shipping companie	es with a transparent,
	structured framework which	ch allows financial institu	utions and customers to
	evaluate the emissions per	formance of companies.	As such, the company
	heavily engages in reportir	ng on emissions. The act	of disclosing emissions
	is viewed as a hygiene fac	ctor, whereby financial i	nstitutions increasingly
	expect shipping compani-	es to undertake reporti	ng on emissions. The
	interviewee concludes the	e interview by underlin	ing that the company
	specifically examines the 1	reporting efforts of indus	stry leaders, as a source

of inspiration. The company find themselves greatly inspired by the
industry leaders and view their efforts as paving the way for smaller
companies to follow and pursue decarbonization.

Interviewee	SC-C	Interview date	11-04-2023
Job position	Investment Director	Interview duration	20:48
Interview setting	In person	Transcript page no.	pp. 181 - 187
Summary	The interviewee begins the	e interview by disclosing	that there is a financial
	incentive for shipping com	panies to conduct emissi	ions reporting. With the
	introduction of the PPFI, sh	nipping companies are no	w incentivized to report
	on emissions. The initiativ	ve affects the ability for	shipping companies to
	attract capital, as the discl	osure of emissions is pa	ramount to signatories.
	Furthermore, some signato	ories require shipping con	mpanies to demonstrate
	a continued improvement in emissions, in order to facilitate financing. The		
	interviewee stresses that th	e PPFI is influencing the	e decarbonization of the
	industry, however, the final	ancial penalties of not e	engage in the initiative,
	from the shipping company	y's point of view, is negli	gent. Customers are not
	willing to pay for gree	ner transport services,	and the interviewee
	exemplifies this relationsh	nip by disclosing an ex	ample of the company
	investing in energy savin	g devices, and not pro	jecting the cost to the
	customer. The interviewee	e observes a trend for I	Northwestern European
	banks to drive decarboniza	tion as a material topic f	for financial institutions
	and emphasizes that such e	expectations have not spi	read globally yet.

Interviewee	SC-D	Interview date	26-04-2023
Job position	Head of Communication	Interview duration	35:44
	and Sustainability		
Interview setting	Online	Transcript page no.	pp. 188 - 194
Summary	The interviewee starts the	interview by disclosing	the emissions targets of
	the company. Hereafter, th	e role of PPFI is examin	ed, and the interviewee
	recognizes that the initiati	ve constrains the finance	ing options of shipping
	companies; however, they	highlight that funding is	available outside these
	initiatives. In general, th	e financial institutions	want to see shipping
	companies improve on emissions and the interviewee explains that		
	emissions reporting ensures a positive dialogue with financiers. Customers		
	are increasingly examining	g the emissions of shipp	ing companies, and the
	transparency which emissions reporting standards provide are of skillful		
	use. The interviewee high	lights that the expectation	ons of customers differ
	geographically, where Eur	opean customers have 1	nuch greater emissions
	reporting demands than M	iddle Eastern customers.	These observations are
	likewise experienced segn	nentally, where the inter	viewee explains that as
	the company is present in	n multiple segments, ex	pectations towards the
	disclosure of emissions	differ. The interview	concludes with the
	interviewee highlighting di	ifferent actions the comp	any has taken to reduce
	their environmental footpri	nt, as well as emphasizir	ig that the company sets

emissions reduction targets that are more ambitious than the ones stipulated
by the IMO.

Interviewee	SC-E	Interview date	12-04-2023
Job position	ESG Manager	Interview duration	39:54
Interview setting	Online	Transcript page no.	pp. 195 - 201
Summary	The interview commenced	l with a discussion on ho	ow financial institutions
	view the reporting efforts of	of shipping companies. H	Banks increasingly deny
	loans on the prospects of en	missions data, so they va	lue the reporting efforts
	of shipping companies. Th	ne perspective of custom	ners is deemed as being
	simply demanding, they a	re not prepared to pay	a premium for greener
	transport, however, they e	xpect shipping companie	es to conduct emissions
	reporting and as such dis	closure of emissions is	becoming a license to
	operate. Long-term, customers will stop engaging with shipping companies		
	that do not report emission	is. Emissions reporting s	standards are important,
	as they allow shipping con	mpanies to benchmark t	hemselves against their
	peers, as well as facilita	ate investors in benchi	narking the emissions
	performance of companie	es. The strict framewor	k of such standards is
	highlighted positively, as	it does not allow for ma	inipulation of data. The
	company finds it imperative	e to examine the reporti	ng errorts of companies
	that they perceive to be in	and of them, in terms	torvious concluded with
	the interviewee evenue	such companies. The in	the second with
	highlighting the immediate	non of operations to decar	ioonize the company,
	diverting old vessels	nce of energy efficien	cy improvements and
	arvesting old vessels.		

Interviewee	FI-A	Interview date	13-04-2023
Job position	Head of Sustainability	Interview duration	49:02
Interview setting	Online	Transcript page no.	pp. 202 - 212
Summary	The interviewee explains t	hat the company is a for	unding signatory on the
	PPFI, where they are also	part of the steering com	mittee. The interviewee
	emphasizes that the goals o	of the IMO are insufficien	nt and highly redundant.
	The company aims to have	e a net-zero portfolio in	2050, and they want to
	align with the PPFI by 20	25. The interviewee sta	ites that the company's
	goal is to be aligned with t	he rest of the financing	community and thereby
	mitigate risks in the long	g run. The company a	cknowledges that their
	portfolio will not change s	ignificantly in the next	two years, but they will
	soon start to change their j	portfolio to achieve their	targets in 10-15 years.
	The company is increasing	ngly interested in emis	sions reporting and is
	dedicating significant resou	urces towards defining th	nresholds that determine
	when clients are actively e	engaged in their sustaina	bility strategies. In this
	respect, the interviewee	discusses the importan	ce of transparency in
	emissions reporting for sh	nipping companies. The	interviewee notes that
	while the company does no	ot use SASB or GRI stand	dards in their work, they
	acknowledge the value in	companies reporting aga	ainst these frameworks.

It gives the interviewee's company confidence that their counterpart is
doing other things right and it provides guidance on how to report. In
addition, the interviewee states that they prefer SASB over GRI as it is more
tailored towards the shipping industry. The interviewee believes that there
is a significant incentive for ship owners to increase their emissions
reporting, as stakeholders are increasingly becoming aware of potential
risks and are pushing for transparency. It is also noted that different
shipping companies have different dynamics and agendas pertaining to
emissions reporting, as it is depending on numerous factors, such as
whether the company is public or private, large or small, and what type of
cargo they transport.

Interviewee	FI-B	Interview date	18-04-2023
Job position	Relationship Manager	Interview duration	35:43
Interview setting	Online	Transcript page no.	pp. 213 - 220
Summary	The interviewee states that	at the company is increa	singly using emissions
	reporting internally to in	nprove decision-making	g. The company uses
	emissions reporting as a	tool to steer funding a	nd capital in the right
	direction, and they rely on	the PPFI as their baselin	ne for emissions targets.
	The interviewee emphasi	zes that the PPFI prov	ides a simple tool for
	financial institutions to al	ign themselves with tar	gets and maintain their
	loan portfolios within a cer	rtain trajectory. The inter	viewee stresses that the
	PPFI have disadvantages a	nd advantages, but the ea	se of using it outweighs
	the apparent disadvantages. In the beginning, ship owners were reluctant to		
	disclose emissions data, but they eventually started complying as more		
	financial institutions and or	ther stakeholders started	to demand the data. The
	interviewee observed that	t shipping companies'	willingness to disclose
	emissions data is very muc	ch dependent on how clo	ose they are to the client
	and the size of the company	y. The interviewee notes	that emissions reporting
	could become a license to c	operate for companies so	on and that the company
	has already started to inclu	de emissions data in its	credit applications. The
	interviewee states that cor	npanies without a robus	t sustainability strategy
	will increasingly have di	fficulties in getting ac	cess to financing. The
	interviewee acknowledges	that the role of sustainab	oility reporting will only
	increase in the future, as	more stakeholders will	start demanding more
	granular data from shippin	g companies.	

Interviewee	FI-C	Interview date	21-04-2023
Job position	Senior Vice President	Interview duration	43:59
Interview setting	Online	Transcript page no.	pp. 221 - 231
Summary	The interviewee states that the bank is committed to reducing its weighted		
	emissions intensity of its s	hipping portfolio by 1/3	from 2019 to 2030. As
	a baseline, the company is	guided by the requireme	ents of the IMO and is a
	founding signatory of the	PPFI. In general, the inte	erviewee expresses that
	the target of the IMO is h	ighly unambitious. The	interviewee argues that

the underlying metrics for calculating emissions are flawed, but they are
important for transparency and benchmarking purposes. In addition,
metrics are imperative to reduce emissions across shipping segments. The
interviewee elaborated that voluntary emissions reporting standards are
progressively becoming more important for banks in the shipping industry,
as they establish global reporting frameworks. The interviewee's company
is using emissions reporting to evaluate potential risks of its clients and
emissions data are incorporated in credit assessments of clients. However,
the interviewee argues that change would more likely be facilitated through
initiatives, such as PPFI, as it can collect all the largest banks to assert
pressure on shipping companies. Companies that are not reporting
according to relevant standards will constitute a larger risk for the bank,
and it will become more difficult for such companies to obtain financing.
However, it is noted that it will not become impossible to obtain financing,
as not all banks have the same requirements, such as Chinese ship leasing
banks. Lastly, the interviewee highlights that reporting should not be
considered a rating system but rather an incentive to promote transparency
that allows banks to understand their respective clients' situation.

Interviewee	IC-A	Interview date	20-04-2023	
Job position	Head of Energy	Interview duration	20:40	
	Transition - Shipping			
Interview setting	In person	Transcript page no.	pp. 232 - 238	
Summary	The interviewee discusse	ed the shipping industr	y's trajectory towards	
	decarbonization in which t	he role of regulation and	market-based measures	
	were emphasized. The co	mpany's goals are to li	ve up to regulations in	
	which the company targets	to meet IMO emissions	targets in 2024 through	
	a combination of disposir	ng the use of older ship	s, contracting new eco	
	vessels, and retrofitting	energy-saving technolo	gies of non-compliant	
	ships. Shipping activities a	ccount for a significant p	ortion of the company's	
	emissions, and it is imperat	tive that the shipping ind	ustry reduces emissions	
	to decrease their scope three footprint. The interviewee stated that few ship			
	owners are willing to engage in the transition unless there is a financial			
	incentive, arguing that a fin	nancial incentive could a	rise from market-based	
	measures. Currently, the in	ndustry is not at a point	where charterers select	
	vessels based on emissions	s, but in the longer term t	his will have an impact.	
	Nonetheless, the company is highly attracted to eco-friendly vessels due to			
	their economic benefits. Concerning emissions reporting, the interviewee			
	explains that they evaluate ship owners based on their fuel consumption			
	data which is evaluated	d using the company	's methodology. The	
	interviewee did not have	knowledge of emissions	reporting standards in	
	which SASB and GRI wer	e recognized as novel co	ncepts. The interviewee	
	discusses the role of inc	lustry initiatives, such	as PPFI and SCC, in	
	influencing the industry's	s transition towards su	stainability. While the	
	company praises the initia	itives, the interviewee si	ates that they have not	
	signed up to any initiativ	es due to concerns abo	ut the inconsistency of	

verification methods. The interviewee concludes the interview by stating
that the company has set its own targets in line with the SCC.

Interviewee	IC-B	Interview date	24-04-2023	
Job position	Global Head of Fuel	Interview duration	23:03	
	Decarbonization			
Interview setting	Online	Transcript page no.	pp. 239 - 245	
Summary	The interviewee initiates	the interview by talking	g about the emissions	
	targets of their company	and their commitments	to reducing emissions,	
	which is believed to come	e through heavy investn	nents in ammonia. The	
	interviewee explains that t	hey are sponsoring vario	ous projects in fuels and	
	energy saving devices.	The interviewee discu	isses their company's	
	involvement in the SCC, which the interviewee believes can facilitate			
	transparent emissions reporting for shipping companies and charterers.			
	However, they note that some industry players are reluctant to sign up for			
	the initiative due to concerns about it being a ranking system. The			
	interviewee believes that	the SCC has made a n	nistake by focusing on	
	charterers and not incorporating ship owners to a larger degree, which			
	should change in the future. It is noted that a global standardized system of			
	emissions reporting is needed, which the interviewee believes the SCC can			
	help influence. In addition	on, the interviewee stres	sses the importance of	
	understanding emissions d	lata for the industry and	believes that emissions	
	reporting is a strong signal to send as a shipping company and that their			
	company appreciate transparent reporting of emissions. Concludingly, the			
	interviewee emphasizes the	e need for a concerted ef	fort across the shipping	
	industry to reduce emission	ons and transition to mo	re sustainable practices	
	which starts by understand	ing emissions through tr	ansparent reporting.	

Interviewee	TP-A	Interview date	24-04-2023	
Job position	Associate Professor	Interview duration	24:05	
Interview setting	Online	Transcript page no.	pp. 246 - 251	
Summary	The interviewee initiates	the interview by depic	cting their research of	
	maritime and green shippin	ng topics. The interviewe	e explains the impact of	
	industry initiatives on tran	nsparency and the role	of emissions reporting	
	standards. The interviewee stresses that there is a distinction between the			
	mandatory reporting requirements of the IMO and the demands of the EU,			
	which is significantly more demanding. The interviewee discusses the			
	industry initiatives, such as the PPFI and SCC, and acknowledges that it is			
	too early to tell how effectively they will be in reducing emissions.			
	Concludingly the interviewee recognizes that transparency is a step in the			
	right direction and stakeho	olders will start demand	ing it increasingly over	
	the next 3-5 years, where r	egulations, customers, an	nd financiers will likely	
	drive the change.			

Interviewee	TP-B	Interview date	26-04-2023
Job position	PhD Researcher	Interview duration	46:00
Interview setting	Online	Transcript page no.	pp. 252 - 260
Interview setting Summary	OnlineTranscript page no.pp. 252 - 260The interviewee starts the interview by introducing themselves and the scope of their research. They stress that financial institutions are gradually asserting pressures on shipping companies to adopt emissions reporting standards. The pressures exemplify themselves through limited access to 		
	do not report on emissions. They find that European companies are more focused on the environmental impact of firms, and that standards are not developing on equal terms across continents. Emissions reporting standards are slowly converging towards becoming mandatory, as stakeholders increasingly expect shipping companies to conduct emissions reporting. The interviewee believes that the geographical differences pertaining to adoption of reporting standards will converge over time. The interview concludes with a discussion on the characteristics of shipping companies' reporting efforts. The interviewee emphasizes that smaller companies are more flexible and can engage in such reporting on their own terms, as they do not have the same volume of stakeholder pressure asserted towards them.		

Interviewee	TP-C	Interview date	19-04-2023
Job position	Associate – Climate &	Interview duration	30:57
	Sustainability		
Interview setting	Online	Transcript page no.	pp. 261 - 269
Summary	The interviewee starts by e	explaining what they beli	ieve to be the initiatives
	which drive the decarboniz	zation of the industry. Th	nese initiatives facilitate
	transparency in the industr	y and bring together stat	keholders to outline the
	future of the industry. H	Iowever, the interviewe	ee recognizes that the
	initiatives are critiqued as	s not being ambitious e	mough, as they simply
	follow IMO emissions reduction targets. Emissions reporting is identified		
	as becoming a license to operate going forward, where shipping companies		
	will experience a lessened ability to attract future business if they do not		
	conduct reporting. Furthermore, non-reporting companies risk getting a		
	negative image, whereby the perception of the deteriorates as they are not		
	viewed as being committed to the green agenda. Customers are increasingly		
	benchmarking the emissio	ons performance of ship	ping companies and if
	companies do not disclo	se data, they will mis	s substantial business.
	Customers based in the	EU assert the heaviest	pressures on shipping
	companies and have the h	ighest demands towards	s reporting efforts. The
	interviewee finds that conta	ainer companies conduct	t the most reporting and

set ambitious reduction targets, as their scope of business is close to the
end-consumer. Finally, the interviewee understands that some container
customers are willing to pay a premium for green services and that this
willingness is expanding rapidly.

Interviewee	TP-D	Interview date	17-04-2023
Job position	Manager	Interview duration	23:23
Interview setting	Online	Transcript page no.	pp. 270 - 274

meet the th Betting				
Summary	The interview starts with a discussion of the role of industry initiatives. The			
	interviewee finds that such initiatives gather stakeholders to drive change,			
	through the facilitation of data sharing. Such actions increase the			
	transparency of emissions data in the industry, allowing stakeholders to			
	take informed decisions. The effort to disclose emissions is moving towards			
	a license to operate, where stakeholders expect shipping companies to			
	conduct emissions reporting at an increasing rate. By conducting emissions			
	reporting, companies can attract financing at a higher rate than non-			
	reporting companies, whilst securing capital at a lower cost as well.			
	Furthermore, shipping companies that report on emissions can generate			
	topline growth at a higher rate. The interviewee exposes that the initiatives			
	are not as ambitious as they could be, due to the nature of nested interest of			
	signatories. The interviewee distinguishes that EU-based shipping			
	companies engage in emissions reporting at a higher level than other			
	continents, as the expectations of their stakeholders are more rigid.			
	Concluding the interview, remarks are made towards the listing nature of			
	companies, whereby public companies adopt emissions reporting at a high			
	rate, due to their need to satisfy an increasing number of stakeholders.			

Interviewee	ТР-Е	Interview date	20-04-2023	
Job position	Market Analyst	Interview duration	36:27	
Interview setting	Online	Transcript page no.	pp. 275 - 281	
Summary	The interviewee initiates th	e industry by discussing	the main drivers behind	
	the decarbonization of the	e shipping industry, ide	entifying the two main	
	drivers as demand and regu	ulation. From the deman	d side, capital providers	
	are asserting pressure on	shipping companies to	adopt more sustainable	
	practices, which starts wit	h how ESG reporting is	s conducted to promote	
	transparency. In general, the interviewee argues that it is an advantage to			
	be a first mover in developing new technologies to gain a competitive			
	advantage. On the regulatory side, the EU and the IMO are gradually			
	demanding more from the shipping companies, which makes decarbonization measures more financially viable due to penalties starting in the next few years. In addition, the interviewee discusses the role of voluntary emissions reporting in the industry. The recognition of reporting			
	standards is increasing, and	d the interviewee believe	s that the biggest driver	
	behind adopting emissions	reporting is access to ca	apital, as companies are	
	receiving requests from th	eir stakeholders for mo	re ESG information. In	

general, larger firms are more likely to have sustainability departments due
to the need for more capital and demands from shareholders. Meanwhile,
smaller ship owners have not faced much pressure in the past and may have
a more traditional approach to doing business. Concludingly, the
interviewee recognizes that there are some differences in emissions
reporting and decarbonization efforts across different shipping segments.
The container segment is seen as the front runner, as their customers, such
as big retailers, are putting more pressure on the ship owners to adopt mor
sustainable and transparent practices. Other segments, such as those
carrying commodities and with smaller margins, may not face as much
pressure from their customers.

Interviewee	TP-F	Interview date	25-04-2023	
Job position	Chief Financial Officer	Interview duration	40:51	
Interview setting	Online	Transcript page no.	pp. 282 - 290	
Summary	The interviewee explains	that the current regulate	ory environment of the	
-	shipping industry is insuffi	cient, but it is going in th	e right direction. A lack	
	of standardized reporting i	s creating issues for stal	keholders to understand	
	their risk exposure and sco	ope three footprint. The	interviewee stresses the	
	importance of voluntary en	missions reporting stand	ards, as they can create	
	standardized data which ca	an be used to compare an	nd benchmark. The role	
	of PPFI, SASB, and GRI	I is discussed, wherein	the interviewee points	
	towards their importance i	n understanding emissio	ns on a global scale. In	
	addition, the interviewee r	ecognizes that the volur	ntary reporting schemes	
	are impacting the regulatory environment of the U.S. and the EU. Likewise,			
	the interviewee argues th	at emissions reporting	data supports shipping	
	companies' business decis	sions. However, it is ac	knowledged that many	
	companies are still relucta	ant to adopt reporting s	tandards due to fear of	
	losing their competitive advantage. The interviewee states that companies			
	need to see the benefits of disclosing data, which could be done in terms of			
	better access to capital, insurance terms, or more engagement from			
	customers. Followingly, 1	the interviewee address	ses the importance for	
	financial institutions and industry customers to subscribe to the various			
	industry initiatives, as it pressures shipping companies to adopt reporting			
	standards. Lastly, the inter-	rviewee touched upon the	he topic of regulations,	
	stating that regulation n	needs to be more am	bitious and undertake	
	requirements that levels the	e playing field for all con	mpanies worldwide.	

Appendix $F = Overview of Ouotations from Interviews$	۸ 1 [.]	Г (\sim ·	60	· · ·	C	т
	Appendix	F - 0	Jverview	OI U	uotations	Irom	Interviews

No.	Interviewee Quote
	Shipping Companies (SC)
	SC-A
SC-A;1	You can actually add a lot more transparency internally, in order to make the right
	business decisions
SC-A;2	We can then see that a lot of customers are requiring us to report on emissions
SC-A;3	German companies don't want to disclose anything, and they say this is a business secret, which is likely rooted in their culture
SC-A:4	I think the more we disclose the more our customers will come and say this company
,	is doing this, why are you not doing this? And then there will be a push.
	SC-B
SC-B;1	I do see emissions reporting as something which allow stakeholders to compare
	companies.
SC-B;2	We've had customers that were very reluctant to paying a premium for greener
	shipping services
SC-B;3	If we didn't commit to a high level of emissions reporting, we would have a hard
	time securing financing
SC-B;4	If we can show that our vessels have a better performance than the vessels next to
	ours, they are also willing to pay more to get that vessel
SC-B;5	When Maersk went out and said that they would reach net zero in 2040, we were
	very surprised and thought, that was really a front runner
SC-B;6	The more shipping companies which sets targets of net zero in 2050 or 2040, the
	more you are pressured to do the same
00.01	SC-C
SC-C;I	What you actually report is important. Whether you are below environmental
SC C.2	While L den't think the DDEL is going to change the needle, it is gort of the banks
SC-C,2	framework and we have to comply with that. The banks are controlling the capital
	and they can influence companies in that way
SC-C:3	We see that the push is coming more from the ship owners than it is from the
200,0	charterers. With that said, there is definitely more push from the stakeholders of the
	container liners than some of the other segments. I imagine that they have more
	focus on it than commodity traders or a tanker company
SC-C;4	I think what is evident is that what we call Western European banks, which is sort
	of, you know, Northwest Europe. They are on the forefront and they are also
	predominantly the ones being in Poseidon Principles, but they're dragging along
	some of the other lenders because you know, shipping is very global right. So I think
	you're seeing it all over.
SC-C;5	Our margin will increase or decrease depending on whether we are above or below
	the PPFI trajectory
SC-C;6	The margin adjustment is very limited. So, in terms of financial impact, it is
	definitely limited, and it is not going to drive investments decisions per se

SC-D		
SC-D;1	The benefit of using such a standard is that we cannot manipulate data to fit our own	
	agenda	
SC-D;2	The financial institutions want to see us gradually improving our environmental	
	performance	
SC-D;3	Being present in multiple segments, we have experienced great differences in the	
	expectations of our customers	
SC-D;4	The container industry is facing a lot of pressure from its customers. However, it is	
	easier for container liners to add a premium on the price for the consumers, which	
	is more difficult in other segments	
SC-D;5	Customers based in Europe have a higher expectation of transparency when it comes	
	to potential emissions, than for example Middle Eastern customers	
SC-D;6	If we are not being transparent with the potential emissions of choosing our vessel	
	for a voyage, customers are reluctant to engage with us	
SC-D;7	Certainly the expectations of the PPFI constraints our financing options; however,	
	It is important to understand that shipping companies can secure funding from banks	
	who are not members of that initiative	
SC-D;8	What we have experienced from some of our industry peers, is a reluctance to report	
	simply due to them not being able to understand the value of emissions reporting	
SC-D;9	We have, for example, invested in the creation of a digital tool which allow	
	customers to see emissions on a voyage-by-voyage basis	
SС-Е;1	The amount of work that we are doing with standards are going up every year and	
	standarda haquida yay naad ta hanahmark yayr huginass against other huginassa	
	So it's important that we have common standards to create comparability between	
	our report and other reports. And it is important for especially investors, then this	
	way they can rate your business against other businesses so they can make their	
	choice.	
SC-E:2	It is important that we have a structure because companies don't know what material	
~ ~ _,_	is for them	
SC-E;3	So it's important for stakeholders because they need to rate companies and it's easier	
	if you have a structure and the end of the sustainability report	
SC-E;4	We received a tender from a customer, and they were saying that if you want to	
	continue to work with us, you need to have in place a strategy to reduce your	
	emissions	
SC-E;5	As of today, we just measure scope one and two emissions. We are still not	
	measuring scope three as it is complex to understand the methodology that we and	
	others should base it on	
SC-E;6	Then we also have another step in our decarbonization strategy, which is to replace	
	all vessels with new ones	
SC-E;7	We are looking a lot at what Mærsk is doing because we are looking at who is in	
	front of us.	
	Financial Institutions (FI)	
FI-A		

FI-A;1	Our owners and especially our bond investors have a huge interest in this agenda
	and it's super important for them to see that we are making some type of progress
	and beginning to set these targets and being able to say them out loud [] If we
	cannot keep the confidence of bond investors if we cannot sell our bonds, then we
	cannot lend to ship owners. So that's also a huge a huge motivation.
FI-A;2	It is a good thing that they can provide data, but do they have a strategy for their
	own emissions reduction? Do they have any long-term targets that are beyond the
	current IMO targets, which are completely redundant
FI-A;3	Voluntary standards are always difficult in an industry that's so global. Because there
	will always be someone that's not catching on
FI-A;4	The emissions reporting of shipping companies allow us to benchmark the
	environmental performance of firms
FI-A;5	The initiatives supports one in saying, what is the threshold that must be reported
	for the transition and when are you actively engaged in that transition
FI-A;6	It gives me confidence that you can't just decide on your own terms what information
	you provide. There is a bit of guidance in terms of how to do it and what to put
	forward
FI-A;7	I also think it's on a geographical dimension. For example if you're south of
	Germany, and you maybe have bulkers or tanker vessels and you're privately held
	then we definitely see more challenges
FI-A;8	It is much easier to see a commercial value for a container company than for a bulk
	company that transports iron ore, because you're so much further away from the end
	customer
FI-A;9	It is only a negative not to report
FI-A;10	It's something that some shipping companies misunderstand as they have a problem
	with that the fact that it's a private initiative and that it's not like regulatory driven.
	They see it as like an NGO thing. So there's still bits of misunderstanding out there.
FI-A;11	There is less leniency in terms of not showing progress and I think that the
	commitment to continuously report data in the future is daunting for some
FI + 10	companies
FI-A;12	And I think everybody also understand that this is not going away. It's only going to
	be more comprehensive. So there's no point in trying to push us away because we're
FLA 12	just next year going to ask 10 more questions if they don't give it to us today.
FI-A;13	If that's missing, it's definitely something that we are increasingly critical about. For
	us it's also not just that if you're a client, you will automatically also be a client in
EL A.14	20 years
F1-A;14	when looking at new linancings, we always ask for the emission data and we are
EL A.15	To be 2025 not be making new loops to align to that such and in the
FI-A;15	To by 2025 not be making new loans to clients that are not actively engaged in the
EL A.16	Guidanly avanthedy understand that the timeline in terms of when you need to start
ГІ-А;10	suddenly everybody understood that the timeline in terms of when you need to start changing your normal behavior is much closer than I think need to start
EL A.17	The dialogue with clients in terms of setting them to understord with this
гі-А;1/	information is important to us or why we want it. It's as much assist
EL A.10	Information is important to us or why we want it. It's so much easier
FI-A;18	It's our target to have a net zero portiono in 2000 [] We also have a target to by
	2023 be aligned with the Poseidon Principles

	FI-B	
FI-B;1	Emissions reporting is becoming more important, and I would say that it is especially	
	important for a young company. It is also very important for new clients because	
	you haven't seen what they have done in the past	
FI-B;2	Our portfolio of assets will definitely look different in the years to come than what	
	it has in the past	
FI-B;3	It is very much dependent on how close you are to the end consumer definitely	
FI-B;4	So at some point it will become more and more expensive for the companies not	
	disclosing their strategy and data	
FI-B;5	When looking at new financings, we always ask for the emission data and we are	
	assessing that as part of our credit application. So that's definitely and important for	
	us	
FI-B;6	And PPFI is quite a simple tool with its advantages and disadvantages of course. But	
	that is what we use and especially for financial institutions that is participating in	
	several syndicated loans. I think it's quite important that the banks or financial	
	institutions are aligned in that if not, then it will become a massive administrational	
	work for the for the ship owners.	
FI-B;/	But because mostly we are participating in syndicated loans with the banks similar	
	to ourselves and I think it's fair to say I think it's 30 banks or so, that is signed up for	
	Poseidon principles now and so the banks that we regularly speak to we are quite	
ELD.0	aligned on this	
FI-B;8	Because we use the initiatives as the measuring tool to see actually now our portiono	
	our funding and our capital in the right direction	
	FL-C	
FI-C·1	2019 is the first year of IMO DCS and the first year where Poseidon principles also	
11 0,1	collected data. So that is our baseline.	
FI-C:2	If you do not tell us the story, then we are less informed about the potentially material	
,	risks to the company	
FI-C;3	If you do not have transparent reporting, you might end up in a high risk evaluation,	
	which will influence them and make it more difficult to get access to capital as credit	
	decisions might be harder	
FI-C;4	You will always find finance or funding available at a certain price. There will	
	always be players that are willing to look beyond things	
Industry Customers (IC)		
	IC-A	
IC-A;1	Because the energy saving technologies go hand in hand with economic benefits,	
	then we do find ourselves heavily attracted to eco vessels and actively seek out ships	
	on the basis of efficiency	
IC-A;2	Change will ensure that modern tonnage fleets will have the competitive advantage	
	and they will become preferred partners	
IC-A;3	We are guided very much by the mandatory regulation and the IMO targets	
IC-A;4	We are the world's biggest spot charterer on tankers, which means we do have a big	
	scope three footprint, and that is something we need to work through with the owners	
IC-A;5	We felt that there was too much opportunity for companies to not give completely	
	accurate true data.	

	IC-B
IC-B;1	We have the demand that we need to understand the exact emissions that have been
	happening on our voyages
IC-B;2	What I think charterers are missing is standardized emissions reporting, as it enables
	us to evaluate the performance of potential clients
IC-B;3	As a charterer, it is very helpful if shipping companies use standardized emissions
	reporting frameworks, as it saves us time
IC-B;4	You don't have to be number one. It's not a ranking system. It's about understanding
	emissions for the industry
IC-B;5	I think very soon if ship owners don't report emissions, that's going to influence the
IG D (charterers choice, as they cannot compare vessels
IC-B;6	It's too early for cargo owners to pay a premium for low emission transportation
IC-B;7	That's obviously much more difficult in the tramp world where the client is sitting
IC D 0	tar down the value chain
IC-B;8	We believe that voluntary emissions reporting is a strong signal to send, to start the
	decarbonization conversation
IC-B;9	A lot of customers are scared to set ambitious goals because they are afraid of
IC D.10	potential consequences arising if they underdeliver compared to their peers
IC-B;10	As a company can we be held accountable because suddenly we get a metric that we
IC D.11	When one we a member of the See Cause Charter? To facilitate transmoment amission
IС-В;11	why are we a member of the Sea Cargo Charter? To facilitate transparent emission
IC D.12	That's why the SCC has value because you can gain a lot of value from participating
ю-б,12	without having to pay an employee to compile such data
IC-B·13	The use for us is also that we get challenged. Because there's a lot of knowledge
IC D,15	within the SCC.
IC-B;14	I think they're afraid of it being a ranking system.
IC-B;15	I think that the SCC has made a mistake in terms of leaning out towards charterers.
	Third Parties (TP)
	TP-A
TP-A;1	There's a distinction between the mandatory requirements from IMO and the EU.
	The EU data collection or MRV system is more demanding in terms of data
	collection and also more transparent and actually making them publicly available.
	The IMO system is less fine grained.
TP-A;2	In a study that we did some time ago, we clearly found that it didn't have a big impact
	TP-B
TP-B;1	The pushback has been that there's no incentives. I mean, there's no economic
	incentives and they cannot see the benefits of doing this
TP-B;2	All companies that are on the global financing markets, they will need to meet
	reporting expectations as a license to operate
TP-B;3	In the case of the EU, these standards are converging to something companies should
	report on, and we are seeing that in the CSRD and in the new taxonomy
TP-B;4	These voluntary frameworks are super important, especially with the SASB's
	integration into the IFRS

· · · · · · · · · · · · · · · · · · ·	I mean, companies not engaging in the transition will be hit by the costs of some
	transition risks, environmental transition risks, in particular in relation to carbon
	emissions, etc. [] Companies who are well positioned in terms of their transition
	plans and addressing environmental risk will be better valued from a pure financial
	perspective [] You see in the financial sector that investors are willing to pay a
	premium for sustainable assets, which you see in green bonds etc. So companies that
	are not engaged are missing out here
	TP-C
TP-C;1	The shipping industry is a very conservative industry and has not developed as much
	as other industries within the emissions reporting space
TP-C;2	Emissions reporting is extremely important for the ease of doing business.
TP-C;3	The voluntary emission reporting is only for some and it has a very limited
	commercial impact.
TP-C;4	I believe that the financial institutions are starting to put pressure on it to push the
	companies to report on their emissions
TP-C;5	What we see is that the customers that are willing to pay are willing to pay a higher
	price than they did two years ago
TP-C;6	What we see in the container industry is that liners are offering carbon neutral
	transportation, and that some customers are willing to pay a premium. The trend is
	not completely there yet in other segments, but I don't think it is that far away
TP-C;7	If you are not reporting then people don't want to do business with you going forward
TP-C;8	Chinese leasing companies do not have the similar requirements in terms of
	emissions reporting.
	TP-D
TP-D;1	Reporting frameworks and alliances are underpinning the pressures for change and
	adoption of reporting
TP-D;2	What the projects do is they gather a lot of stakeholders from different parts of the
TP-D;2	What the projects do is they gather a lot of stakeholders from different parts of the industry together to try to solve some of these
TP-D;2 TP-D;3	What the projects do is they gather a lot of stakeholders from different parts of the industry together to try to solve some of theseThat bar for ambitiousness for stakeholders in shipping is increasingly becoming
TP-D;2 TP-D;3	What the projects do is they gather a lot of stakeholders from different parts of the industry together to try to solve some of these That bar for ambitiousness for stakeholders in shipping is increasingly becoming higher
TP-D;2 TP-D;3 TP-D;4	 What the projects do is they gather a lot of stakeholders from different parts of the industry together to try to solve some of these That bar for ambitiousness for stakeholders in shipping is increasingly becoming higher They function as a signal to stakeholders that we're not trying to hide anything
TP-D;2 TP-D;3 TP-D;4	What the projects do is they gather a lot of stakeholders from different parts of the industry together to try to solve some of these That bar for ambitiousness for stakeholders in shipping is increasingly becoming higher They function as a signal to stakeholders that we're not trying to hide anything TP-E
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TP-F;5	Shipping companies haven't felt the needs to report until now
TP-F;6	The reporting frameworks in the EU wouldn't be able to come together if GRI or
	SASB didn't exist
TP-F ;7	You need big companies to kind of show what is possible and set a precedence on
	how you adopt this. And then the small companies will follow
TP-F;8	You have some geographical differences as it stands now. However, I believe we
	will have some convergence over time to see others also starting to report more
TP-F;9	Shipping companies are starting to feel it not just from the customers but from the
	financial institutes
TP-F;10	If you come late to the party and everyone else has applied by the standards and you
	are the only one that hasn't made sure that you are ready, then you will lose out on
	the markets

Transcribed Interview with SC-A

Date of Interview: 25-04-2023 Interviewers: Tobias Børglum & Mikkel Holbæk Mørch

Interviewee

I'm heading up the decarbonization standards team. So my key job is to make sure that we can report according to all the relevant standards in emissions accounting, and we are having of course standards both for when it comes to the regulatory framework when it comes to what we are reporting to our customers and what we are reporting to our investors. And none of these are aligned so it's always about using the right data for the right purpose and making sure that we always work on enhancing our data foundation. I have a team of eight specialists working for me in this field. My background is mainly from performance optimization. So it was more about optimizing the fuel consumption how we can do that. But that turned into KPIs that turned into governance turned into regulations turned into co2 emissions turned into co2 accounting. For some reason.

Mikkel Holbæk Mørch

Can you elaborate on what has influenced the emissions targets of your company?

Interviewee

It's not a simple answer, because we're having a push from investors who wants the green agenda. We have a push from customer who wants a green agenda. We have also a recognition in the company that we are one of the most polluting companies in the world in the transport sector. So we also have a greater responsibility than the average company. So how we can acknowledge this responsibility and then be an active partner in driving the whole decarbonization of the maritime sector is something that we see is very, very important. We have a much larger responsibility than other companies.

Mikkel Holbæk Mørch

And in that regard, can you see any specific industries initiatives that is driving decarbonization of the shipping industry as of today?

Interviewee

SASB and GRI, don't see them really driving it any of them. No, I can say the zero carbon center that we are working closely with and they are on target with how can we show that it's possible to decarbonize by 2050 and drive the 2050 target, but they're looking at the long term. And I think the problem is here that if you want to do something here and now you cannot use the long term perspectives too much. You need to have some actions here and now what are their needs what are the actions what is going on right now that you can utilize? And I'm missing the more action oriented

Mikkel Holbæk Mørch

So in recent years, the role of the missions reporting requirements have increased in the shipping industry. How do you see the role of voluntary mission reporting standards in the industry?

Interviewee

I think SASB is interesting because the problem with emission accounting is that it's open for interpretation and also customization per company. So it's not very easy to compare across companies. So you have a voluntary scheme like SASB where you can standardize things that have a very high value as I see it. When you're doing greenhouse gas accounting, you can choose between what accounting principles you want to do. Do you want financial control operational control, or do you want equity share? And depending on what you choose, you can actually move a lot of information around from scope to scope, and then suddenly you can't compare anything anymore. You can also set your boundaries yourself to a certain degree, and which again, make us less and less transparent. So if you don't have an firm scheme like SASB, where there are firm standards where you can compare companies with across then you don't have any tools.

Tobias Børglum

Do you see any difference in the adoption of these standards across geographical locations?

Interviewee

I do see some companies some geographical locations definitely lacking a bit in stepping into these standards. I will say there's a tendency in the EU to push it. But traditionally, we do see Greece etc. in EU not really wanting to step up and be competitive in this field. Especially in many other countries. We also see for some reason Germany they are also very reluctant to report and German companies don't want to disclose anything, and they say this is a business secret, which is likely rooted in their culture.

Mikkel Holbæk Mørch

Do you see any company characteristics in terms of adopting emissions standards?

Interviewee

For me, if you're looking at the small companies, you have a very short staff, right and then the same person has a lot of responsibilities where it's only a portion of it is to do the reporting. But the danger is actually to do something else. When you're getting to a bigger company like ours, then you can have some dedicated resources to the reporting. And one thing is then when you can create transparency for the outside, You can actually add a lot more transparency internally, in order to make the right business decisions. So I think it's more that we actually have the luxury to get these insights internally and then we can drive it. But that's actually a huge business value to get these insights ourselves. If we drive it in the right way. Of course, We can then see that a lot of customers are requiring us to report on emissions and if you're talking about volunteering schemes, then you're having Ecovadis, we are having CDP. We have Standards and Poor's CSA index etc. And a lot of our big customers, want us to perform well in these voluntary schemes in order to pick us as their suppliers in the future because they need our data in order to drive their own decarbonization agenda for that value chain.

Mikkel Holbæk Mørch

And how are the customers pressuring you to adopt these standards?

Interviewee

Some are saying basically, if you are a key supplier for us, we are having x percentage of our value chain with you therefore we require you to report in this one if we have to keep this contract. We're having 35 customers in CDP that requires direct emissions reporting through CDP for instance.

Mikkel Holbæk Mørch

And do you experience a pressure from financial institutions?

Interviewee

Definitely there's a transparency requirement and you will get much cheaper capital if you report correctly. We actually issued green bonds when we made investments into methanol, and that's actually made it much cheaper for us to get access to the finances if you can do it as green bonds. Between bonds you can do it in different ways. You can tie it to company performance and emission targets but you can also do it directly to the assets. In that this space, we actually took it towards the assets which requires less reporting but also put much higher requirements to how green the assets are we investing in and allocating this financing for.

Mikkel Holbæk Mørch

What do you see the future of this reporting standards being?

Interviewee

I think it's very clear that we are in a transition phase. So the technology is advancing very fast. And then we can see the customer standards they're following very swiftly to the technology. We can also see that investors are following pretty closely as well. But the whole regulatory framework, it just takes time to adapt and adjust. So it will always be delayed. Unfortunately right now I think we have a 20 years delay with reality. So it really has some enhancement they need to do to pick up here. And I hope they like will happen over the coming years. But I have my doubts.

Tobias Børglum

Have you felt any advantages of being an industry leader in this perspective?

Interviewee

Definitely. I think the more we integrate emissions into our daily work here, the faster we can also make sure that when we are taking business decisions, we understand what is the impact, then we can model the emissions we can do roadmaps. It's much easier for us to know if we are doing the right stuff or not where others they are maybe more guessing. We actually have a chance to have some science behind this to say to understand what impact it is if we do this, what impact will then have on our missions in the future and one model is much better.

Tobias Børglum

Do you believe that you're influencing the rest of the industry to adopt similar standards? Or at least more ambitious standards?

Interviewee

Yes, I think the more we disclose the more our customers will come and say this company is doing this, why are you not doing this? And then there will be a push. Because you can see the expectations are increasing. And I can also see that we are constantly learning about what we are reporting, we are also learning from our own value chain what data we need from them. So we are pushing there. We are engaging with industry initiatives such as the clean cargo project, all these forums here where we are doing reporting for and making sure that the data requirements are being advanced all the time.

Tobias Børglum

Do you see any willingness for your customers to pay for greener services?

Interviewee

Yes, we do and we are having two green services we deliver. One is what we call an emission dashboard. We are turning it into a studio, where you can do scenario analysis and then you can see if you're moving containers from here to here on this line, or do we want to change modality etc. So how can you optimize your whole value chain and minimize your emissions? Another one

is where we're having ECO delivery, where we are using biofuel instead of using regular fuel. And then you can also buy that transport. About 2% of all the containers moving they are on ECO delivery. So, more and more customers are buying this reduced emission transport and we are talking about an 84% emission reduction. And it's not necessarily cheap for the customers but you're getting it

Tobias Børglum

Is this also something you see from your peers in the in the container segment?

Interviewee

Yes, we are seeing a lot following us here. I think especially the CMA, we see picking up quite nicely. And then we can see Hapag Lloyd's a bit behind.

Transcribed Interview with SC-B

Date of Interview: 04-04-2023 Interviewers: Tobias Børglum & Mikkel Holbæk Mørch

Tobias Børglum

How would you describe the main tasks of your current job.

Interviewee

Yeah, so the main task of my current job is firstly sustainability reporting of all kinds. Both acting upon investors demands and development of sustainability reports. Secondly, it is to encourage, facilitate, and support the implementation of sustainability in the company. So, drive the path towards a more sustainable shipping.

Tobias Børglum

So, could you also elaborate a bit on the activities of [the company]. What kinds of activities are [the company] engaged in?

Interviewee

So [the company] overall is a fund management company with two funds under management that are focusing on the maritime sector, meaning that the two funds have invested in vessels that is chartered out on both bareboat and time charter to various counterparts around the world. So we have a broad range of different segments and we can exit and enter new segments when it is supported by a business case.

Tobias Børglum

You mentioned that you are basically trying to integrate some ambitions for the company for their emissions reporting targets. So in that regard, could you elaborate a bit more on what emissions targets the company has set?

Interviewee

So [the company] has set the target of net zero for 2050. So we are just sort of phased in and support the Paris Agreement. That was made with a maximum of 1.5 to 2 degrees above industrial levels. So we also have short term targets of 35% reduction in carbon intensity in 2025 and 50% reduction in carbon intensity in 2030 compared to a 2008 baseline. So that is at least the emissions target. So that is the main target right now. And then we'll of course also be facilitating other targets and you know, whatever you can do of small things to make us more sustainable as well.

Tobias Børglum

Okay, how come with that [the company] have reached these specific targets.

Interviewee

Yeah, so we did a lot of analysis based on the vessel composition back in 2020. And then a study with a third party specialist on what energy saving devices were feasible for the vessels in the portfolio, and what reductions could be achieved by these energy saving devices? On top of that, expectations to new energy saving devices and new fuel types, new vessels. Yeah, based on that we set the targets

Tobias Børglum

Apart from what you just mentioned, do you see any specific industry initiatives such as the Poseidon principles or Sea Cargo Charter driving the decarbonization of the shipping industry or having any influence?

Interviewee

I think from an overall perspective it is mainly the IMO that can drive the decarbonization of the shipping industry. It is not really doing it, but I would say that is needed. I think the CII creates awareness about the carbon intensity, but I am not really sure that it's going to drive decarbonization. Because what it looks like right now is that vessels seems to be rated better than what I had expected. So I'm a little bit concerned that it won't really drive that much change. Otherwise, I think the other initiative that could drive something is the EU ETS. Because companies will be penalized quite significantly if they have inefficient vessels. So I think with that coming, I think that could drive something because either that or changing patterns are going to

change. Because at least if you as a trader, if there is a slight possibility that you're going into the EU, you're going to look at the energy efficiency, and scrutinize it much more than what you've done before. Because rather than the bunker costs, it's going to be much more.

Mikkel Holbæk Mørch

Yeah. So you feel like it's more the regulatory initiatives in that has a big impact, at least in the foreseeable future

Interviewee

I think for the banks for the Poseidon principles. I think it's a good initiative and I think it creates some awareness but as long as the margins you get are insignificant then it doesn't change anything. We are even considering on whether we should even do sustainability linked loans because I think the hassle from doing it compared to the gain is too high. And we don't get enough credit in the market for having those. Our investors don't appreciate it significantly.

Tobias Børglum

So essentially, what you're saying is that the IMO and EU is essentially what's driving change in the shipping industry. However, what we are also looking at is the role of soft law, such as the SASB and the GRI. Looking at how they are influencing the goals that companies set along with how companies choose to report. Has the development of the SASB and GRI influenced the way that you look at emissions reporting at [the company]?

Interviewee

I think definitely. And I think it creates at least that everything is more structured and that it's comparable. So I think from that perspective, definitely, but I don't know if they really drive reduction. I think what you can say is that industry pressure does drive change. For instance in [the company] when Maersk went out and said that they will reach net zero in 2040, we were very surprised and thought, that was really the front runner right. So I think definitely the more shipping companies which sets targets of net zero in 2050 or 2040, the more you are pressured to do the same. Especially as a fund but I think as a family owned shipping company or as a stock listed

company. I don't know if that really matters that much. It's not like the shareholders has disappeared because they haven't set the targets.

Tobias Børglum

We were actually also going to ask about this. What we found in some of our research is that soft law can also act as sort of a hygiene factor. So you have to report on some of these standards otherwise, say investors and financiers, they will not consider your company as highly regarded as other companies.

Interviewee

No, yeah, I also see that the hygiene but I just I don't see it as a facilitator for driving decarbonization, but I do see emissions reporting as something which allow stakeholders to compare companies. And as soon as you can start comparing across companies, then you can start choosing whatever is the best but I don't really see it as a facilitator for decarbonization.

Mikkel Holbæk Mørch

So do you expect more shipping companies, as you say, this is becoming some kind of benchmarking figure that potential investors and so on could use to benchmark different companies, how do you see the development in these what would you expect the do you expect more shipping companies to increasingly, you know, report on these standards or, and why do you believe that? Of course, it's difficult to speak on behalf of other shipping companies.

Interviewee

I was just reflecting on how many companies are going to be impacted by the CSRD So I think that's sort of where we are, I think they are likely going to be affected by the CSRD. And that's a whole different ballpark. I think that the SASB is quite simple. So I would assume that it should be implemented more widely. I think also, just from someone who's done the reporting. It's really nice to get a framework, to get some kind of standard that you can use and that you can lean against. And I think that's what the SASB in particular is really good at. GRI is also a standard but it's, it's a little bit more cumbersome, if you're not a lot of people. So I would assume that more and more people, you they will start implementing the SASB. If they don't have to do the CSRD

then they will do the SASB. I think GRI is perhaps a little bit is more difficult. I can't really with the CSRD coming figuring out what the GRI is going to do. If it's because I think either you start, or at least that's my own opinion. I think as soon as we can, we will start aligning to the CSRD as much as possible and then it could be that it's in small steps. We will take in some we will leave out some but you know, we'll at least that framing everything more to the CSRD and then for those that don't have the resources or the ambition to do that. I think says SASB is more likely I think GRI will still be too cumbersome. So perhaps GRI is caught a little bit in the middle. At least for European companies.

Mikkel Holbæk Mørch

Yeah exactly. There might be a difference there in nationality of companies, right.

Interviewee

Yeah, exactly. But the CSRD is actually also if companies have subsidiaries in EU above a certain size, they also need to report so the CSRD is really, really capturing broadly. I have a presentation if you can just hold on. I have a presentation. So they expect that that for EU shipowners the NFRD which is the non-financial reporting directive that sort of covers 75 companies. And when the CSRD is fully implemented, it will be 650 shipowners in the EU. So they expect that the CSRD will directly impact 15% of EU shipowners, which is equal to roughly 85% of EU shipping capacity.

Mikkel Holbæk Mørch

Okay, and who did you say made this study?

Interviewee

That's actually the Maersk McKinney Møller Center for Zero Carbon Shipping in combination with the Boston Consulting Group. So it's just more when you capture so much it was a capacity then I don't think the rest will do anything on the GRI. I think at the maximum they will do the SASB.

Tobias Børglum

Do you believe that the GRI is hindered by not having a shipping industry specific framework.

Interviewee

I don't think so necessarily. But of course it makes it a little bit more cumbersome to implement. The SASB is really simple way. Okay. Compared to the GRI. So I think it depends a little bit. I think it's more the totality of the GRI. It's significantly more complicated. So I don't think it's because they don't have a shipping specific framework, I think it's because it's significantly more complicated.

Tobias Børglum

I think the next question that we have is a bit broader. But essentially, we want to know, how do you see the role of [the company] in influencing the decarbonization of the shipping industry? Do you see [the company] as having some sort of role in the decarbonization of the industry?

Interviewee

I think all companies play a small part and I think to some extent, probably, we are probably playing a small part and I think this is mainly because we are a little bit ahead of the curve. So for instance, one example that I think is quite good is on the [ship name] where we went to [charterer] and suggested that we should invest in these energy saving devices where they will save this much fuel and we wanted them to give us half of their savings in in additional time charter. And they sort of accepted this and has been really pleased with the proposal. And I think since then they have also tried to get others of their cargo or vessel owners to do something similar. So I think from that perspective, we actually did push in the right direction which could facilitate that other ship owners actually install these energy saving devices from the recommendation of a charterer like [charterer] so I think that's been quite positive. I think everyone has an impact. I know I said that before but I think we also try. We have this ESG questionnaire vetting of charterers. And even though we might not be changing that much now, I think if we are one and if we are not only one but in one month, they will be 10 and then there'll be 100, and then there'll be 1000 all asking these questions from the charterers. I think it will give a pressure for them to have a better answer. So I think from that perspective, we're also supporting that shipping moves in the right direction.

Mikkel Holbæk Mørch

And that actually plays a bit more to the next question that we have because we've read a lot of articles recently and one of them was from the Boston Consulting Group stating that they are experiencing that more and more customers are essentially willing to pay for some of the transition towards net zero. So sort of supporting your example with [charterer], we wanted to ask if you ever experienced any willingness from the customers of [the company] or the stakeholders of [the company] to support the transition. Essentially, do you experience that a willingness to pay or take a pay cut, let's say.

Interviewee

Yeah, so we did have that from [charterer] And I think that went quite well. And I think it was very positive and we got a very positive impression. But we've also had companies that completely said no. So you don't experience that willingness that Boston Consulting Group was mentioning? So that's, yeah, that's really unfortunate. Also, because I think it's not like we asked them to pay. We asked them to split the additional savings. And I think that should be a no brainer. If you can save \$600 a day why not give up \$300? Yeah, I would do that from a personal perspective. I think that's quite odd. But yeah, we did have some that said no.

Mikkel Holbæk Mørch

Yeah. What's also interesting is that, as you said, with [the company] having ships in different segments as well. As you are exposed to charterers with a potential different mindset. Have you experienced that some of you counterparties from different segments or different regions have different approaches to these topics?

Interviewee

We didn't have any talk with any of the counterparts on the dry cargo vessels. So from that perspective, I don't really know. I think it has more to do. One thing I think it has something to do with is not necessarily the segment, but I think it also has something to do with what region you're in. So I think probably if your charterer in Northern Europe region, your willingness to pay is higher than if you are a charterer in the South American region. And then if you look at the sector specific then I think there is also a different difference. So I think probably dry cargo charters in

Europe is probably more likely to pay than a container charters in South America. So I think the region sort of tops a little bit on the segment. But from a segment perspective, I would also say I think we spoke to Hapag-Lloyd and they already had a team investigating energy saving devices when we spoke to them. So they were also ahead but I think they've also had quite a lot of pressure from their investors. Also because Maersk was so much ahead of Hapag-Lloyd. When we spoke to Hapag-Lloyd the first time they were like, far, far behind. And Trafigura was, at least the guy we spoke to, ahead of Hapag-Lloyd. So I think Hapag-Lloyd has also ramped up their focus on sustainability, due to pressure from future customers. Like IKEA, Walmart, and whoever that wants to have net zero shipping.

Tobias Børglum

That's actually the also supported by our findings of Hapag-Lloyd because we've looked at a lot of companies and quite surprisingly, they do not score as I as we would have thought.

Interviewee

Yeah, and I think also we spoke to them in 2021. And they were just getting started. Yes. And then we spoke to them on the ESDs in the summer. And there it sounded like they were also looking into this. And they were sort of used to it being them proposing something to their vessel owners, and not the other way around where it was owners coming to charterers but they were used to asking. And then this was also with hypothec This December, I think they have to report under the EU taxonomy, so on. Was it on the 23rd of December? We received a question now that taxonomy that they wanted us to finalize before the 29th of December.

Mikkel Holbæk Mørch

A hypotheses could also be that, you know, as you said, the closer you are to the end consumer, and would assume that you would have to be more transparent in your emissions reporting, right.

Interviewee

Yeah. I think one of the problems would have Hapag-Lloyd is that the main shareholder is the municipality of Hamburg. So they don't have any shareholder pressure they there is no one to report to. And then I don't know how that customer base look, but with the efforts that they're

doing now, that definitely got not getting IKEA. I would even say that we in Denmark are behind of what where we should be from an environmental perspective wasn't in reality perspective. But we are like miles ahead of everyone else. You know, also what we're getting from potential charterers on the ESG questionnaire and things like that. It's yeah, there's a long way. And also, I think that's why we always come back to the regulation and I think that's the only thing that can prevail in this industry. Because everyone focuses mainly on the IMO. And money just talks. Yeah, so the EU ETS and the EU doesn't really, I think they know that the IMO is not ambitious. So they're not really influenced by what is coming from the IMO. They just do their own thing.

Mikkel Holbæk Mørch

Yeah, I mean, it is also one of the issues with CII that there isn't really tied any penalty to receiving an inferior ratings in this. And in that regard, you could argue that why would you even look at this as a shipowner? And based on the ETS, people will definitely optimize their trade based on that.

Interviewee

I think that about the EU ETS, I spoke to our Technical Director and he mentioned one of our vessels it will be ranked A. And I was like, how can it be ranked A? And that's because we have a lot of reefer containers and I think that is the problem with the CII. They overcomplicated it. They shouldn't have overcomplicated it. Now it seems like you have to have an old vessel and put reefers on it so that you can deduct enough.

Tobias Børglum

Now that you were talking about stakeholder pressures of the industry, essentially, our paper tries to explore what stakeholder pressure does and how it forms a company's willingness to, to report basically. So how do you see the stakeholder pressures of [the company] I mean, the different stakeholders such as investors, financiers, influencing how [the company] has chosen to report and the goals that [the company] has set?

Interviewee
Yeah, so I think the pressure has definitely made a difference for [the company] I think not from the financiers but from the investors' perspective. I think, if we hadn't set the targets and if we hadn't reported as we're doing, I know, we wouldn't have gotten the investors that we did. But I think it's much easier for us to be pressured by the investors because investors play such an important role. It has such a big impact. So I think we definitely impacted by it. Whereas if you look at D/S Norden where the majority of their investors are just shareholders it's people like you and me, you know. Are we really going to divest just because they don't do this, you know, and how many needs to divest before we actually make it difference. I think from the biggest ship owner or charterers perspective, I think the pressure is coming from if big customers start saying we will only deal with you if you XYZ then it's going to change. But definitely investors, the investors, in our case, our key stakeholders, so that builds the pressure.

Tobias Børglum

I think the last question that I have is essentially that, now [the company] is doing some initial reporting, sustainability reporting emissions reporting, what would you see what happened to [the company] if they did not commit to this level of emissions reporting? So would you, say, have to pay a higher margin on your loans? Or something like that? What would you say would happen if you did not?

Interviewee

We wouldn't get any investors. We were I think if we didn't have sustainability linked loan, we might also have to pay a little bit of a higher margin but I think that sort of depends on if the Poseidon Principle is updating their trajectory now to being net zero in 2050, then I think we're actually paying a premium. Okay. That we are sort of borderline where we are right now, I think. I think if they change it, it's not a favorable thing for us to have. It might be the same as if we didn't have sustainability linked loans. But it's definitely not favorable if they change their trajectory to two meeting at zero in 2050. I don't think we would have to make I think the investors would be happy even if the sustainability report was less comprehensive. I don't think that I still think we would get investors if our sustainability report was less comprehensive. And I think we would also get the investors even if we're just looking at SASB and not GRI because I don't think

they care so much. But I think if we didn't commit to a high level of emissions reporting, we would have a hard time securing financing and if we weren't a member of the principles for responsible investing, PRI, I would get investors actually think that was the last question that I had in mind.

Mikkel Holbæk Mørch

Yes, for me as well.

Interviewee

Actually, just one more thing. Has [the company] ever received some pressure or some willingness from a customer to say we would like to have one of your vessels be more green or we would like to pay a premium for vessel that is more green than another for example. We've had customers that were very reluctant to paying a premium for greener shipping services. I think it's really difficult that thing because I think fuel efficiency has been a topic since I will say we ramped up in 2012. That really started to be sort of a topic. And I think fuel efficiency and green shipping. It's sort of connects a little bit how much what is your speed and your fuel consumption and that's also improved with the energy saving devices. So indirectly, if we can show that our vessels have a better performance than the vessels next to ours, they are also willing to pay more to get that vessel. It's an odd question, because now we're suddenly calling it sustainability or greener shipping or reducing emissions. But whereas before, it was just called reducing fuel consumption. But it's essentially the same thing, right? Yeah exactly. So I think it's so and I everyone is willing to pay for a vessel, you of course, make your calculations. So everything has to make sense. But overall, everyone is willing to pay for a bit of assistance because they're saving fuel. So I think it's sort of the question about willingness to pay for a better vessel. Yeah, everyone is willing to pay but no one is coming and asking us to do an improvement once they've signed the contract. They're not spending more time on anything. I think there's also something, now I know your thesis is like emissions, but things like how do you handle garbage? What do you do with your ballast water? Things like that. I think that's a that's definitely where you can see if people are willing to pay because that's not something where they can benefit. That's just a pure cost. And yeah, no one is willing to pay.

Mikkel Holbæk Mørch

You would also imagine that some of the calculations that that these companies are making are quite difficult, right? Because it's not always simple to put a dollar figure on some of these environmental improvements right, not everything is very easily attributable to whatever energy saving device you installed.

Interviewee

I think with the carbon tax earlier, most of the energy saving devices will make sense to install and I think, with that carbon tax coming if it was sort of worldwide everyone would try at least to install something. Because it just takes one journey and then you are there. I also think the carbon tax is going to be the best way. Also for the end consumer to be hit, right, because at the very end, it has to be you and I as a consumer that has to change our way of life to be more sustainable. Yeah, exactly. Well, actually, you think that was it? Unless there's anything else that you want to address that we didn't get by? No, I'm cool. So next year, expect to get a lot of interviews from others on biodiversity. This year it was emissions but next year is going to be biodiversity.

Tobias Børglum

Essentially, what we looked at was, what was the most material topic in the shipping industry and emissions was essentially what was most reported and that's why we thought it would be interesting to look into.

Interviewee

And I think it also is, and I think the biodiversity assessment that we did, it also showed that our primary impact on biodiversity was through our greenhouse gas emissions. So main targets on biodiversity is also reducing our greenhouse gas emissions. But on biodiversity, there is just a lot of other small things underneath that you can do. Whereas where you don't enter into the discussion, will they, you know, will they gain money, or they save fuel, so they will also gain money. Here it will more be, are you willing to pay for the plastic not to end up in the ocean? So in my world it's much more black and white on people. What is people's willingness to pay?

Mikkel Holbæk Mørch

Yeah, that's it for me. We really appreciate you talking to us.

Interviewee

Yes, thank you very much for participating You are welcome. Reach out if there is anything.

Transcribed Interview with SC-C

Date of Interview: 11-04-2023 Interviewers: Tobias Børglum & Mikkel Holbæk Mørch

Mikkel Holbæk Mørch

All right. Thank you very much for attending for this interview. As we already discussed, we have already talked about your tasks and also the company as well. So I think we'll just dive straight into it. From a financing point of view, is there an incentive to increase emissions reporting for your company?

Interviewee

I think it's actually twofold. I think one, there's a question whether you report on emissions or not. And secondly, what is your sort of your level of emission reporting? Is it good or bad? And I think on point one, it is important whether you report on emissions to banks and banks have the Poseidon Principles initiative, which is their framework, and we support it. Whether that is important or not, I think it's difficult to say but I think if you don't report on it then it's definitely an issue with some lenders. There will always be different lenders for different financing transactions, but we rely very much on what we call, I'd say, Western European banks. And if you don't have an emissions reporting or ESG report in general, then you're coming to a point where it's, I''s actually sort of a no go whether you can obtain financing.

Mikkel Holbæk Mørch

Yeah, so do you feel it's some sort of a criteria at least in some regards to obtain some of these goals

Interviewee

I think, to be precise, but we have heard from some banks, and that's probably dating, or dating back two years when we didn't have ESG reporting altogether. The communication was that if you don't start to report on ESG, including emissions reporting, then you will not be able to get financing in one or two years' time. So there's definitely sort of an if you don't do it, then there are certain banks that are not going to finance you and then there's I think there's a trend towards

that will probably spread and for now it's probably mostly Western European banks with a tilt towards Nordic banks. But it is definitely spreading. And then it's the Poseidon Principles. We are supporting it and reporting on it for all the banks that we have that are part of the Poseidon Principles. So I think that's an element of it. Would we not be able to get finance if we didn't do it? That's a good question. But it would be weird signal for us not to support the initiative.

Mikkel Holbæk Mørch

So I guess it also drives the strategy of investments as well. I know you already mentioned some of the disadvantages or some of the premiums that you might have experienced if you don't report right. So as you say, maybe not necessarily access to capital, but there might be some underlying premium or disadvantage?

Interviewee

I think reporting, or not reporting. That's a question of access to capital in some banks. What you actually report is important. Whether you are below environmental benchmarks or above is not important at the moment. But it's not a criteria. And if we come with an older vessel, I haven't heard at least so far that we have a vessel that has a certain efficiency number that we will get a different margin. We are not at that stage yet. I think the worry is more that if you have older vessels. They would be reluctant to have too long repayment profiles. But I think that's more a value issue than it's sort of an emission issue. If that makes sense.

Mikkel Holbæk Mørch

Alright. So, as you said, [the company] has incorporated the Poseidon Principles for Financial Institution into loan agreements. Could you elaborate a little bit more on how it has impacted some of your investments maybe directly or indirectly. Or potentially the scope of your investments?

Interviewee

I can do that. I think as mentioned, almost all of our banks are Poseidon Principles signatories, so it's initiative for them. So we supported by reporting and then we have a couple of our loan facilities where we have made sustainability linked performance elements. So our margin will increase or decrease depending on whether we are above or below the Poseidon Principles trajectory. But we only started to do that recently. And our first measurement series is 2022. So we'll report data in one or two months' time. And to be fair, The margin adjustment is very limited. So, in terms of financial impact, it is definitely limited, and it is not going to drive investments decisions per se The fact that we have done a sort of adjustment related to emissions on our loan margins. It's sort of more a qualitative commitment that you say okay, we have you know, as a company, we have set targets in 2030 and 2050. And we need to show gradual improvement and it's part of the communication towards the banks. We agree that there's going to be an adjustment but at the end of the day, the financial impact of that adjustment is so small that it's not going to drive the investment decisions at the moment. That's for sure.

Mikkel Holbæk Mørch

So, you will say that the role of the Poseidon Principle, in driving this decarbonization as of now from a financial point of view, is limited in a way?

Interviewee

Yeah, I would say it's limited in the fact that our you know, the impact both plus and minuses is so small that's if it makes sense to you know, commercially who's still on the vessel. While I don't think the PPFI is going to change the needle, it is sort of the banks framework and we have to comply with that. The banks are controlling the capital and they can influence companies in that way. Then that's not going to be a thing that's going to change the needle. I think on sort of reporting on Poseidon Principles in general. I think the first reporting was that 2020 and then there was 2021. So I mean, it feels like a long time ago, but in reality, it's a relatively short period. And there's also quite a lot of volatility on reported numbers. So I also think lenders and banks need to, they need to decide on what are we going to use this data for? Are we going to be going to put pressure on companies that do not perform? Are we going to offer low margins to the companies that do perform and I think that's probably still a bit too early to see any impact. But at the end of the day, if there's companies that are consistently sort of not improving, or you know, performing worse on emissions, I think at the end of the day, that lenders will choose other clients to support I'm quite sure of that.

Mikkel Holbæk Mørch

So you do see some sort of urgency in the Poseidon Principles. Do you imagine also that it will, you know, the application of this will change in the future, as you say a lot of companies adapt to these you know, requirements, but the initial changes is maybe limited. So do you foresee maybe the banks or investors or financers in general putting some urgency in this?

Interviewee

I think banks are commercial operations like anyone else, and they have client relationship that are important for them. Historically it's been a lot about credit quality and what return can you make. But now they're putting Poseidon Principles and an ESG layer on top of it, and I think for the banks, it becomes probably more a holistic view. So if you're performing mediocre on credit quality and all other matters, you know, the ESG part can be sort of the factor that pushes you out in the end. Simply because it's sort of it's the holistic view. So if you're really poor credit quality and really good on ESG performance you're not going to get a very good loan either right? So I think you need to perform on all elements in order to get good financing deals on the long term at least.

Mikkel Holbæk Mørch

Maybe we can talk a little bit about the chartering aspects as well. Yeah, so basically, just if you have seen any urgency or any demand from your customers or cargo owner side on this aspect, not necessarily only for these metrics, but also just in general.

Interviewee

The feeling is that it's more driven by the ship owner side. So, the ship owner has an incentive to protect their asset in the long term to ensure commercial viability. So what we do for example is we try to install certain energy saving devices on the vessel to make it more efficient and thereby also more commercially attractive. That cost money. Some of it is more expensive than others, or the other things but at the end of the day, we will actually sort of get a compensation for that. And we've started to build that into time charter contracts. And you know, with our commercial relationships. So if we install all these things that make the vessel 10% more efficient. You pay a higher charter rate and then there's you know, you we also need to deliver on the efficiency, right. We see that the push is coming more from the ship owners than it is from the charterers. With that

said, there is definitely more push from the stakeholders of the container liners than some of the other segments. So I imagined that they do the same internally, right that they try to improve their vessels to protect the asset value of their ships and the vessels they have charted in, they're probably not as interested in necessarily I mean, if we come and offer a vessel that is 10% more efficient, they will pay a premium for it, of course. It's about efficiency, but it's also about protecting the value of the asset both commercially but also in the long term. So at least from what I see, it's coming more from the ship owner than from the charterer. With that said, container liners have more focus on it than dry bulk ship owners.

Mikkel Holbæk Mørch

I'm not sure if you have experienced any differences between segments. I know that [the company] owns ships in different segments. Have you experienced different expectations from different segments? I know that you don't operate all of them yourselves.

Interviewee

I think for most it's been more case by case basis, to be honest. To my understanding, we have made it on a couple of tanker vessels, you know, with commodity traders. We have also done it with some container vessels, where we also saw support from the charterers. But we have not seen much push from other segments, such as dry cargo. Not so far at least. But in general, the push is coming from us and not from them. But that's it you know that you're the big commodity traders or oil companies they also have emissions ambitions, and stuff like that. So I think at the end of the day, it's going to be you know, a broad pool, but with that said, when we've come and offered it, there's been an interest in looking at it at least. On certain vessels we have made amendment to existing time charter contracts, where we have, you know, we have shared the bill, if we can deliver. So there's also an upside for the charterers in terms of commercial value if the vessel is more efficient.

Tobias Børglum

And I think you mentioned that Western European banks use these emissions reporting for a sort of a hygiene check of the company. An [the company] has used banks or spoken to banks in different parts of the world. Have you seen any difference in the emissions reporting required or the emissions data required to get loans? For example, have you seen a difference from Northern American banks to European and so on.

Interviewee

I think what is evident is that what we call Western European banks, which is sort of, you know, Northwest Europe. They are on the forefront and they are also predominantly the ones being in Poseidon Principles, but they're dragging along some of the other lenders because you know, shipping is very global right. So I think you're seeing it all over. And you know, we have one Japanese bank and they have adopted Poseidon Principles and we are also seeing an ESG push from them. We don't have any Chinese banks, for example, but my experience is that it's not the same agenda from them. At least not so far. So there are regional differences. Again, the US, we don't have any US banks, but we talked to a couple. Citigroup is part of Poseidon principles, but I mean, they have global bank so that's maybe a little bit different. So I think it's difficult to pinpoint, but what I want to say is, European banks are pushing it and we've seen that spread sort of globally. That's for sure.

Tobias Børglum

Yeah, I think maybe the last question is something that we're going to ask all of the ship owning companies. Essentially, how do you see the role of your company in the whole scheme of things when considering the decarbonization of the shipping industry?

Interviewee

That's a good question. We're a small player. I think everyone has a responsibility to contribute, and that is what we're trying to do with, you know, the limited fleet that we have in the global perspective. I think it also comes a little bit back to if you don't do it, then you limit yourself towards to a lot of things. It's more sort of a license to operate in certain respects with you know, with the setup that we have and the stakeholders that we have. If we don't have ESG reporting and if we don't do all these things, then five years down the line, then I think we will struggle to be competitive. I think it would both be difficult to find investors to buy vessels, but it would also be difficult to find banks willing to finance the vessels. I think we could still get financing now, but five years down the line, we will probably struggle to get financing with some banks. And then

you have the charters there's no requirements on emissions, or you're not going to be disqualified, but I think commercially, if you have a less efficient vessel, it will also be less commercially attractive. And then then it's more an investment decision. Do you to invest in more modern vessels or to you invest in upgrades to have something that is commercially attractive, and then you're also protect the value of your own assets. So, I think that if you put that all together, I think we will not be able to operate the business we do without doing emissions reporting and ESG reporting five years down the line. I don't think so. So does that mean that we are contributing to the decarbonization of the shipping industry? I would say yes and no. I think the most important element of driving, you know, global emission reductions is capital allocation. So you know, the ones allocating the capital, then then need to allocate it to places where you're driving change. And I think global institutions are aware of that, the banks are aware of that. So that's where the trend is going. Does that mean that it's happening all the time now? No. Because banks have relationships and if banks have a good deal to lend to, you know, a shipowner that runs old vessels will do they will do that. But maybe they won't do it in 5-10 years' time. Not to the same extent. I think that's the general high-level view.

Tobias Børglum

We do not have anything else planned. So unless you have anything else you'd like to add I think we'd like to say thank you for participating.

Transcribed Interview with SC-D

Date of Interview: 26-04-2023 Interviewers: Tobias Børglum & Mikkel Holbæk Mørch

Tobias Børglum

Alright. So thank you for taking your time to talk with us. To begin with, could you please introduce yourself and your role within the company?

Interviewee

Good morning, I'm happy to talk with you today. My name is [interviewee's name], and I'm head of communications and sustainability at our company. My role is of course pretty widespread, as you often see with sustainability, but I work largely with financial models, financial consulting services, KPI reporting, and communication with various stakeholders.

Mikkel Holbæk Mørch

And again, thank you for participating. Could you tell us about [the company's] emissions targets and its overall commitment to sustainability?

Interviewee

Of course. Some time ago we presented that we are committed to achieving net zero emissions by 2050, and we think this is a very important milestone for us and the industry as well. We recognize the urgent need to address climate change and are actively working towards reducing our environmental impact.

Tobias Børglum

Through our research we understand that various initiatives is getting traction throughout the industry and potentially impacting companies' goals, have you experienced any initiatives impact the goals of your company?

Interviewee

I think these industry initiatives are becoming more popular in the industry, and I see a lot of our peers and competitors use these initiatives as a selling point and of course as a way to report their sustainability numbers. If you look at the Science Based Targets initiative, or the SBTi, it is becoming more prominent in the industry, but it is difficult to see companies actually reaching these goals. At least with the technologies that we have available now. Therefore, I would also like to acknowledge that our company is not aligned with the SBTi, also because we see that there is a lack of alignment between shipping companies and customers' decarbonization paths in the tramp segment. You don't see miners or oil producers putting forward these ambitious goals like net zero in 2050. Also, I mean, there is also a difference between tramp segments and container segments. You see, the container segment's customers are very different and they have maybe already made these goals, but we do not see it with that many of our customers

Mikkel Holbæk Mørch

It is interesting that you mention a difference in the expectations across segments. As you operate in multiple segments at [the company], have you noticed any differences in the expectations of your customers regarding emissions reporting and sustainability in general?

Interviewee

I mean, I think there is definitely differences in the expectations because different segments have different cargo and they therefore are exposed to other things or pressures. Being present in multiple segments, we have experienced great differences in the expectations of our customers. You know, as we are present in both the dry bulk and oil segment, or tanker segment, we are experiencing these things first hands. There is also differences between customers in the same segments because we see some of these oil majors, they are really trying to get on this train and attempt to push some standards and expectations on us as a shipping company because their customers have expectations for what product that we need to provide them, so there is and may always be some difficulties for us there, but I think we are heading in the right direction so to say. I also think that maybe you could say that Europe is more on the front in this setting. We have many charterers and business partners all over the world, but the customers based in Europe have a higher expectation of transparency when it comes to potential emissions, than for example

Middle Eastern customers. So as a ship owner and a ship operator it is important for us to understand these expectations because otherwise, we cannot deliver the product that our customers expect from us, you know. And this variation in expectations really requires us to tailor our approach and communication accordingly, which is some of the things that I am really engaged in during this transitional phase.

Tobias Børglum

You talked a bit about this increased requirement for transparency with some customers. Is this a general trend that you see across all your business areas, and how does this transparency in emissions reporting impact your relationships with your customers?

Interviewee

I think, yes. I mean, the requirement for us to be transparent definite is not going anywhere and it will probably keep on growing. At least in the near future, I could imagine. I would maybe say that the dry cargo segments are a bit less demanding, but I don't think it is a huge difference. I think the real difference is in the container segment versus the tramp segments if you ask me. If we just look at how it has impacted our business as a whole, then I would say that transparency in emissions reporting plays a crucial role in our customer engagements. Of course our customers have expectations that are far beyond just the reporting of emissions, but I would say that emissions is really where it starts for a shipping company, at least on the environmental side of reporting so to say. If we are not being transparent with the potential emissions of choosing our vessel for a voyage, customers are reluctant to engage with us. But you have to remember that this is the shipping industry, and when the market is really going up, I would say that all vessels will be employed no matter their state. But this could of course change in the future with a carbon tax and so on, you know. In general, I would say that our customers are expecting us to provide them with accurate and comprehensive information to make informed decisions. And to do that they need a framework where they can understand the impact of our business in a right way. Therefore, I think that being transparent is actually pretty vital to maintaining a strong relationship with our business partners and our customers.

Tobias Børglum

I think it is interesting to hear that the container segment is so different. How do you see the concerns of the container segment being different.

Interviewee

I think it could be looked at from different perspectives. The container industry is facing a lot of pressure from its customers. However, it is easier for container liners to add a premium on the price for the consumers, which is more difficult in other segments. There is a lot of different layers on where the container companies can add the prices. I think this is due to some different factors because container companies are more sort of standardized and they can pass on the prices in the shipping rates through additional costs more directly. In other segments, it can be more challenging to add premiums, but we are exploring various strategies to incentivize and facilitate decarbonization cross the industry.

Tobias Børglum

We all know that the shipping industry is inherently capital heavy and the requirements of capital to make investments are rather significant If we look a bit more on the financing side of things, have you experienced the Poseidon Principles impact your financing options as a company, and have you seen it impact the overall landscape in shipping?

Interviewee

I would say that the Principles, or the PPFI, has changed the landscape a bit in some ways. It has changed the expectations to companies and it has forced us to provide data in a way that we have not done to banks before, I think. Certainly the expectations of the PPFI constraints our financing options; however, it is important to understand that shipping companies can secure funding from banks who are not members of that initiative. So, maybe banks that is part of the PPFI will not be super interested in providing funding for a ship that is old and without an eco-engine because it does not look good in their portfolio. But I also think we have to remember that banks cannot change the landscape from one day to another. We need to remember that we need to whole industry to change, and the worst performing ships will not just disappear overnight. And the thing is that the financial institutions want to see us gradually improving our environmental performance, they do not just expect us to take a significant leap suddenly, which is an important

distinction, I think. Companies that cannot get their lending from the banks, I would say that they might just get financing from elsewhere, which could be the Chinese leasing houses and so one. They are playing a role in this as well.

Mikkel Holbæk Mørch

You mention that you have increased your reporting and your transparency, as it is an increasing requirement that you experience from your investors. So my question is, have you noticed any reluctance among your industry peers to report emissions. If so, what do you think could be the reason behind this reluctance, potentially?

Interviewee

I would say that not all are looking at this with the same sense of urgence. And in some ways, what we have experienced from some of our industry peers, is a reluctance to report simply due to them not being able to understand the value of emissions reporting. If there is no value proposition then there is no reason for them to engage and dedicate their money towards this cause. If you are a small company, then you cannot cover all of your fronts all the time. You have to do what makes sense for the company in terms of the money that you have available, we get that. But also, I would say that some companies might not understand the benefits of transparently disclosing their emissions data and the positive impact that it can have on their reputation potentially. I think that it is a good sign to send to your stakeholders, but also just in general as it also supports the long-term sustainability of the industry, which needs to change in the future.

Mikkel Holbæk Mørch

I think it is interesting to hear about your efforts and the shipping industry's increasing engagement in emissions and transparent disclosure. Could you maybe share any specific initiatives or tools that your company has invested in to enhance transparency? Or just how you assess and look at transparency in [the company]?

Interviewee

I think we have looked at a lot of different ways of doing this. You know, we are quite a big company, and we need a tool and a measure that can handle all of our activities. I would say that,

as part of our commitment to transparency, we have invested in many different concepts. We have, for example, invested in the creation of a digital tool which allow customers to see emissions on a voyage-by-voyage basis. This tool is actually pretty important to us now because it provides our customers and charterers with valuable information to make more sustainable decisions and align their decarbonization efforts in an efficient way. I think that is one example of how we leverage technology to enhance transparency and really give our customers the ability to decarbonize their value chain basically.

Tobias Børglum

We understand from your annual report that you have been using the SASB to communicate your emissions data to your stakeholders. Could you elaborate a bit on this choice?

Interviewee

Yeah, of course. I mean, I think there is several reasons for why the SASB might have been the best choice for us. But in total, I would say that the SASB standards are important because it allows us to enhance our transparency and enables our customers and other stakeholders to compare us with other industry peers. In the middle of 2022, we conducted an internal GAP-analysis, which is actually the reason that we chose to use SASB. We identified that we have areas where we needed to improve and align with some of the leading reporters in the industry. But I think that the most important point to make is that by being transparent we are enabling our customers to decarbonize their value chains. While reporting on the ESRS will become mandatory from 2024, but until then it is enforced by external stakeholders like banks and customers that will need to report on their scope 3 emissions. So by engaging in reporting standards at an early stage it really helps us drive transparency and make our stakeholders understand our environmental performance. Another one of the benefits that I would say is that the benefit of using such a standard is that we cannot manipulate data to fit our own agenda. This is both the advantage of the SASB and other frameworks, but we also see that in the PPFI and the Sea Cargo Charter and so on because there the banks will decide how the data is used in some way, right?

Mikkel Holbæk Mørch

Alright, I think we have gone through all of the questions that we have prepared for now. So, unless there is anything else that you would like to add, then we would like to say thank you very much for participating in this interview for our master's thesis, it has been really insightful to get some of your perspectives on the developments in the industry and what it means for your company in particular.

Interviewee

I'm glad that I could help you, and I hope that some of my views can be useful for your report. If possible, I would like to receive a copy of the report, when you have finished it.

Tobias Børglum

Yes, of course. We will make sure to provide you with a copy of our results when we have handed it in in the middle of May. Thanks again for participating.

Transcribed Interview with SC-E

Date of Interview: 12-04-2023 Interviewers: Tobias Børglum & Mikkel Holbæk Mørch

Mikkel Holbæk Mørch

Thank you for taking the time today to participate in an interview for our master's thesis. I think we should jump right into it. In your opinion, what is the importance of emissions reporting standards?

Interviewee

Okay, so I think it's important that there are general standards because the amount of work that we are doing with standards are going up every year and we need more people. But I also think that it's important that there are general standards because you need to benchmark your business against other businesses. So, it's important that we have common standards to create comparability between our report and other reports. And it is important, for especially investors, then this way they can rate your business against other businesses so they can make their choice. And it is important that we have a structure because companies don't know what material is for them And what they have to report on. So you have this framework of standards, you can choose. There are several standards, but the way we are going to go is that all these standards are trying to condense their disclosures together and create a universal standard. This is not easy, because there are, of course, business reasons and economic reasons behind and the European Union is pushing to adopt a single standard so that we avoid confusion between different standards and companies that don't know where to start reporting from. So it's important for stakeholders because they need to rate companies and it's easier if you have a structure at the end of the sustainability report and index, where you have the disclosures and you can clearly state what is the result. So if you take a look at our annual report at the end, I mean, we did disclose in the text, but we put the page related to the disclosure. So beside the disclosure, there is the page or please refer to this page for this disclosure. And this makes the work of the rating agencies, easy to find where the information is.

Mikkel Holbæk Mørch

Could you talk a little bit about the emission targets of your company?

Interviewee

So we're setting targets of course, because you know, there's these trajectories towards decarbonization by 2050. So reaching net zero, and in order to do so you need to set targets. We've been a little bit cautious in setting targets still, because in order to set targets you need to have a clear overview of your emissions. And I don't know how familiar you are with emissions, but emissions can be categorized into three scopes, which are called the scope one, scope two, and scope three. As of today, we just measure scope one and two emissions. We are still not measuring scope three as it is complex to understand the methodology that we and others should base it on. So in order to set clear targets, you need also to have an overview on what is your scope three. So all the measures related to your suppliers and the cost downstream your business and upstream your business. So what is not in your, let's say, business responsibilities, but you also need to account for those emissions. So it's not really easy for us to set targets, but this year, we did explore a little bit better, how to estimate our emissions. We decided to go with is called an operational approach. So we will take the responsibility for every ship there is under our operation. Either if it's owned by [The Company] or is just operated by [The Company]. So we are in the phase of drawing the line and setting targets and deciding what we will consider under our responsibility as of now. And then I think in order to set clear targets to achieve net zero, we need also to account for what is not under our direct responsibility, but still it will fall under our business. So for now, the most important steps under our decarbonization strategy are on the ships, so reducing the emissions coming from the ship and to achieve this we're installing a lot of technical, new devices. So, you can find the list on our website, we have the list of devices that we need to set in order to reduce our emission. Then we also have another step in our decarbonization strategy is replace all vessels with new ones. So instead of deciding to operate with an old fleet, we prefer to operate with a new fleet and we are selling the old vessels. So that new ones are new technologies in place that are not easy to install on old vessels. So these are the two main two main objectives of our strategy.

Mikkel Holbæk Mørch

The different measures that you're talking about and these initiatives that [The Company] has taken to reach the emission targets, who would you say has influenced [The Company] to undertake these different targets?

Interviewee

So in the first place, it's coming from IMO. I don't know how familiar you are with IMO but they set the trajectory that is not just based on the single company, but it's based on the whole industry. So you need to stay under this trajectory. And in our annual report, you can see that we publish the trajectory, and how much we want to reduce in terms of emissions. And that's very important. Also, another thing that is very important, and it came out last year to be in practice this year. It's EU ETS. So EU emission trading system, which is very important because you need to pay for your emissions of carbon. And of course this cost will pass on to customers but at the same time it's also influencing your business. Because we are operating a lot of pools, and loads of pools don't have any idea on what's this EU ETS and so we will pass the cost on to them but at the same time there's some speculation and risk because when you move a ship from a port to another port, you need to pay for those allowances in terms of carbon. Because that's just under your responsibility. Nobody else will pay for that. So it's also a cost that will likely at the end fall into the company. And still it will be more difficult for our old ships to be sold to customers. Because customers if you can choose between two ships they will choose, of course since they have to pay for the carbon, from the one ship that consume the least so these are two of the most important things. There's a lot of pressure from EU to reduce emissions. So this is just one of the legislation that EU is coming with. But there will come more. EU Taxonomy is another one just to mention another one. It's a very important one. And if you don't reduce emissions, basically the EU taxonomy what it is saying is that if you don't reduce your emissions and if you don't categorize your business in the list of sustainable activities it will be always more difficult for your company to receive investments and loans from banks. Because banks, they will have like a maximum of emission that they can finance. And so this way having to state your capex of X and their revenues associated with the sustainable practices. Banks will have your data and at some point they will just say okay, we cannot finance you 100% because we don't have any more space left for investments that are not sustainable.

Tobias Børglum

So would you say that any industry initiatives have impacted your company?

Interviewee

Yes of course. The EU taxonomy is applying to [The Company] this year. So at the end of this year in the next Annual Report, we need to state our CAPEX, OPEX, and the revenues associated with the sustainable investments. So yeah, it's going to affect us as well as EU ETS.

Mikkel Holbæk Mørch

How do you see the role of voluntary mission reporting standards in the shipping industry?

Interviewee

I mean, it's voluntary, as of now, but is not going to be in some years and data collections takes a lot of year to put in place. I mean, it takes a lot of years to put in place a good strategy for collecting data and to collect the data that can be claimed as good data. At the end in June, a new set of regulation will come out, which is called the CSRD. It's a new set of regulation that increase the amount of companies that will need to do financial disclosure. And inside the CSRD there's also a new reporting framework, which is going to be mandatory for everyone. It's called the ESRS. And in the CSRD, it's clearly stated that your sustainability report should be integrated with the annual report of the company and should undergo an audit. This audit will be just a partial one for the first years. So we're going to go from limited assurance for the first year, but it will become a reasonable assurance in the next years. So as of today, it is still voluntary to provide the good data on the scopes, or the emissions but it's not going to be in the future. The first thing that financiers will examine when undertaking credit evaluations is how good your data is? Where do you store the data? And sustainability reports, as they are today are full of stories, but when you're going to go for an assurance, they're just going to look at the data. So you can still call it voluntarily reporting, but it's not. It's mandatory.

Tobias Børglum

How would you say that the GRI and the SASB have impacted [The Company] or have they even impacted [The Company]?

Interviewee

I mean, GRI and SASB, they are voluntary disclosure frameworks, and GRI especially is the most important one as it is the most recognized one. So if you need to benchmark two companies, you will use GRI. It's the one that the most important companies are using to report now. I think [The Company] is going to apply the CSRD as it's a law which has been drafted by the EU and inside this law they created this framework, which is the ESRS. So I think the direction where we're going to go is this common framework that is certified by EU, and it's built upon GRI and SASB. So I think SASB and GRI have been good because they have anticipated the trend but still I think the direction where we're going to go is this unique framework recognized by the EU. SASB and the GRI of course they were very important because they especially SASB, what they did is that they created special disclosures for every industry. So we as a shipping company, we had clear disclosures that were tailored to our business. So by reporting under SASB you know what you have to disclose and there was also a study on what is the business, what is IMO, what are the technical metrics that we are looking at so EEXI AER, which are technical voices for our industry.

Mikkel Holbæk Mørch

Have you experienced anything from your side of the table in terms of charterers incentivizing [The Company] to adopt these standards? Do you see a trend in more reporting happening or do you think that everything will go to this ESRS?

Interviewee

I think we're going to go towards this direction because it's going to be mandatory now to report and it's important for investors and clients to look at common standards. So I think GRI and SASB, they set the basis, but at the end now that it's becoming mandatory for the EU taxonomy for rating agencies, for investors to look also at the climate side of the company. It's really important to create comparability and transparency for the business. And transparency has been created with GRI and SASB. So their aim is to create transparency so you need to report on specific measures, you cannot create the stories you want to create. These are the guidelines you need to stick to and I think now we are going in the direction of comparability. So for two companies to be compared 100%, they need to report on the same exact framework, which is going to be ESRS.

Tobias Børglum

Have you experienced any willingness from your clients to pay for the decarbonization of the industry?

Interviewee

I feel like what the clients expect is that you have in mind this attention for environment. So in order for customers to buy from you need to have in place this so it's not the customer that is going to pay for it. But you as a company need to put in place a strategy and create the condition for customers to buy, because their needs are changing. The customers needs are also to look at environment and people and knowing that the company I'm buying from is investing in reducing its emissions and pay attention to the environment. As an example, We received a tender from a customer, and they were saying that if you want to continue to work with us, you need to have in place a strategy to reduce your emissions. And the bunker team freaked out and came to me and my boss saying we need to do something here because in the short term we can tell these people that we are working on it, but in the long term if we cannot state proof that we are doing these things, they will stop working with us. And we are receiving a lot of questionnaires from other companies saying that they won't work with us as suppliers or as clients, if we don't have in place a certain package of measures to reduce our emissions. To answer your question, I think customers are demanding a lot I don't feel like they will pay for it. I think they're just demanding it. It is becoming a sort of license to operate. Because I feel like the scope one from my business, so the direct emissions of my business is the scope three of other businesses. So if I reduce my scope one, I reduce your scope three. So at the end, I also reduce your emissions. So it's also your business I operate.

Mikkel Holbæk Mørch

Do you feel any pressure from third parties of the industry?

Interviewee

To be honest, no, I have never been approached by an NGO and I to be honest, I don't really know how we can work together. There are these partnerships, they're called PPP. It's private public partnerships. But I don't know how we can come work together with an NGO. There are a lot of what they call business partnerships. There's the Mærsk Mc-Kinney Møller Center for Zero Carbon Shipping, where all the industry players are sitting together and try to contribute positively to reduce emissions and discuss what could be the next move to reduce emissions. I don't know how we can partner with NGOs. We are looking a lot at what Maersk is doing because we are looking at who is in front of us. And I saw that they don't partner with any NGOs and similar partners, so I don't really know if there is the possibility to work together How do you see the payoff between allocating funds to reduce the emissions of [The Company] and focusing on improving earnings? We are trying to do whatever is possible, but the ambition of our businesses is to grow. So we're investing in green solutions, as much as they don't affect in a negative way our business.

Transcribed Interview with FI-A

Date of Interview: 13-04-2023 Interviewers: Tobias Børglum & Mikkel Holbæk Mørch

Mikkel Holbæk Mørch

And then to start the interview off, we'd like to ask you to describe the main task of your current job, as well as the activities of your company?

Interviewee

Well, I'm the head of sustainability in [the company]. And so my, the main tasks of my job is everything that's related to sustainability in [the company], we're a small company, so there's a lot of my plate so it's basically everything that relates to talking to customers, or to clients. The work we do with the sustainability ratings, and sustainability linked loans, negotiating sustainability linked loans, like defining the structures of those types of deals. Also, I also have the investor dialogue that's related to sustainability. I'm also part of that and then our own issues ESG or sustainability reporting. I'm also responsible for that. So, I'm not an expert on any like particular little, tiny topic because I sort of have a lot of different topics on my plate, but they are they're all related to the shipping industry and banking and mostly emissions reporting is basically at the top of the agenda there. And you could say, in terms of our activities on the sustainability agenda, I think what's relevant for you to know is that. But we still do, we do sustainability ratings of all our clients. Its first perspective is a desktop analysis and then depending on the holes in the information, we have dialogues with our clients based on that to sort of fill in the blanks or to get a better understanding of where they are part of these sustainability ratings. One of the parameters is emissions reporting. And then another important aspect is our engagement in the Poseidon Principles where we were founding signatory I think they call it and we're on the steering committee. And we've delivered now three annual reports in the Poseidon Principles and that's obviously also what drives our insight in emissions reporting in the industry and also our interest and our knowledge about it, and also the dialogues that we had with customers. So I think that's what's relevant for you in terms of our activities. And we also have a lot of activities that's related

to ourselves, because we also are starting to look a little bit more that we also need to be we're preaching to our clients, but we also need to do something else to do whatever we can ourselves even though that our direct impact from our activities that's not stemming from our clients is in reality minuscule compared to compared to our clients. So our main focus is on our clients and it's on how their strategic outlook is in terms of the sustainability agenda. That's our main focus. And that's also you could say, sort of the targets that we have on the sustainability agenda. They're sort of twofold there. Half of them is focused on our portfolio, and the rest is focused on us as a company but it's not to say that, that what's was done to us as a company is not important, but it's the targets that relate to the composition to do eventually the composition of the portfolio. That's important. It's our target to have a net zero portfolio. We also have a target to by 2025 be aligned with the Poseidon Principles. In 2025 I think the wording is to not make new loans to clients that are not actively engaged in the transition and their transition to a sustainable shipping industry. And then we still have some work to do to define what exactly is that threshold? When are you actively engaged in that transition? The initiatives supports one in saying, what is the threshold that must be reported for the transition and when are you actively engaged in that transition. And obviously here I think our sustainability rating is going to be our main tool and the emissions reporting of shipping companies allow us to benchmark the environmental performance of firms.

Mikkel Holbæk Mørch

Can you elaborate a little bit on what has influenced your decision to undertake these targets?

Interviewee

I mean, for us, the interest is I think that there's many different motivations behind it, but one is that we need to be in sync with the rest of the financing community. If we want to continue to be a respected lender to the shipping industry. We cannot be the lender of last resort for owners that still have no commitments. So we need to have the same commitments as the bigger banks. And for us, it's it. I mean, as for everybody else, it's also a matter of risk mitigation in the long run, we can like everybody else we can see where the world is turning and we need to have our eyes set on that target. And I mean, for us, it's also I think we're all painfully aware that our portfolio is not going to look completely different in two years. But if we want our portfolio to look partly different in or a lot different in 10-15 years, we need to already be making decisions differently. Very soon.

So it's sort of those. Yeah, the initial steps in that process that we are that we have embarked on. So we're a bit like we've set our target and then we're trying to figure out how to get there. So it's not like we have a full roadmap on how to get to that target out on the horizon. I don't think anybody does. So that's, yeah, our motivation is to be in sync with the industry and also, when we have rising expectations from the stakeholders that's not clients. Our owners and especially our bond investors have a huge interest in this agenda and it's super important for them to see that we are making some type of progress and beginning to set these targets and being able to say them out loud. That's a huge sign for them that we're actually committing to something and then of course, they want to see continuous progress. But I mean, that's a cornerstone that we need to maintain in our business model. If we cannot keep the confidence of bond investors If we cannot keep the confidence of bond investors if we cannot sell our bonds, then we cannot lend to ship owners. So that's also a huge motivation.

Mikkel Holbæk Mørch

So you mentioned you were a signatory of the Poseidon Principles. How do you see this initiative driving the decarbonization of the shipping industry?

Interviewee

Yeah, I think we've seen changes on a lot of different levels, but I mean, the biggest changes has definitely come in terms of how easy that the dialogue with our clients is. I mean, in the first year of Poseidon Principles where there was only, I don't know, around 10-11 banks that were reporting we were only 10-11 banks that were asking our clients these questions, and even though we have, like, a lot of the banks have the same clients. So for many of them. We had they had multiple banks asking the same questions and for those who was probably easier to understand even in the first round, but I think the main experience for now is that it's just the dialogue with clients in terms of getting them to understand why this information is important to us or why we want it. It's so much easier. And of course it's easier because we've asked before but it's also easier because of everything else that's happened in the last three years. So I think if you're a ship owner, and you don't know why, or if you're a ship owner and you have a hard time understanding why we're interested in these data you have probably been living under a rock for the past three years. And we only have very, very, very few clients that are still resistant. We have one client that is still

super resistant and they shouldn't be because they're doing it. They don't want to give us the data that we need. But it shouldn't be a problem for them. For them. It's something that some shipping companies misunderstand as they have a problem with that the fact that it's a private initiative and that it's not like regulatory driven. They see it as like an NGO thing. So there's still bits of misunderstanding out there. But otherwise the dialogues with clients is a lot easier and it's a lot easier to obtain this information. And of course, it's also because now it's not 10 banks anymore it's 30 banks. And I think everybody also understand that this is not going away. It's only going to be more comprehensive. So there's no point in trying to push us away because we're just next year going to ask 10 more questions if they don't give it to us today. So I think there's been just in the past three years we started. The first reporting was in 2020. And yeah, it's been a huge development and that's just in general. It's not just emissions reporting. It's with our whole work with sustainability ratings. That that also includes other perspectives like beyond fuel consumption, like health and safety, anti-corruption, ship recycling all these things. In the beginning, clients didn't know they were like they didn't understand why we were asking these questions. Or they were, they were critical that we as banks were asking these questions. And I think now we're not the only bank asking these questions anymore at all, so it's much easier all the way around, and especially with emissions reporting.

Mikkel Holbæk Mørch

How do you see the role of voluntary emissions reporting standards in the shipping industry? Do you foresee them having a bigger impact now than it used to be?

Interviewee

Voluntary standards are always difficult in an industry that's so global. Because there will always be someone that's not catching on or but obviously all of these reporting frameworks that's out there that kind of provide a frame that you can report within obviously, for example, SASB. There's so many positives in the broader perspective, and now we start to see a bit more uniform reporting, because I think that's the main issue that a lot of ship owners are increasingly good at providing some information but there's still a lot that don't really, it either they don't understand fully what information that we would like to see or they are still holding back because I think there's still a bit of the old paradigm of like privacy and we can't provide this information for competitive reasons or there's still a bit of that thinking out there with the clients. I think for some they understand that it will be more negative if you don't provide this information, and it can't hurt you to do so. I think that's the movement. But I think everybody is still hoping that we see standards moving from being voluntary to being mandatory, and hopefully this summer that the IMO can decide on something that should provide a frame for, for some actual global mandatory emissions reporting that all stakeholders can use, where we can get some information that's uniform that when I see the same data from two different companies or 10 different companies, I know that it's basically based on the same thing, because that's the problem. Now I think that's the gift from Poseidon Principles is that it's basically the raw data that we're looking at. So that gives me some leeway in terms of I don't have to look at the final product of people's data in their own reporting, I see the raw data and then I can do with it what I need. So, in terms of that Poseidon Principles has been helpful, but that's not really something that the clients do themselves. That's something that I asked them to do for me.

Mikkel Holbæk Mørch

So, would you say that you as a bank, use the SASB or the GRI standards in your work?

Interviewee

Not particularly because not all clients use it. But I use it in the sense that for me, it's positive if I see that, that somebody is reporting against a framework but because not everybody is reporting against the same framework. It's not like I don't have a framework on a pedestal. I prefer SASB over GRI because SASB is more tailored to shipping but there's still things that are not tailored and there's little things there that like if it would be super useful for me I would hope that things were designed in another way but for me, it's more when I see that you're reporting against the framework as a ship owner, it gives me confidence that you can't just decide on your own terms what information you provide. There is a bit of guidance in terms of how to do it and what to put forward because otherwise it's yeah, basically, it's not to say that we can't trust our clients, but basically, they can pick and choose whatever information you provide as long as everything is voluntary and once you start seeing that I report against this and this standard then the room to maneuver that you have become smaller for optionality and that's positive. And I think hopefully that should also increase further or decrease further the room for optionality when EU standards

start to kick in. They will also bring a different challenge because of the complexity. So, it's like I mean, we will also have a challenge, trying to understand the information that comes from it, but it's only positive the more uniform that information can become the better because I mean, that's the main challenge today. Four years ago, the main challenge was to get people reporting but I have where I have very few clients today that are not reporting or that have a hard time. If they are not already reporting it's because they're a very small ship owner or have a small organization, and maybe they don't have the resources or capacity to get started. It's not that they don't understand why it's important. The problem today is to get everybody to report in the same way.

Mikkel Holbæk Mørch

Okay. Do you believe that there's any sort of incentive for the ship owners to increase their emissions reporting?

Interviewee

Definitely. I think that it's the same as the less transparent I am, the more questions I get from my bond investors. And it's the same with ship owners, the less transparent they are the more questions banks or other stakeholders ask and depending on what type of ship owner you are, what kind of cargo that you carry the risks is a bit different. But I think for everybody the risks of not being transparent are increasing because all stakeholders are becoming extremely aware of potential risks, or everybody wants to measure and if you can, like, you can measure what you can get data on and all this so I think for everybody, there's a huge push to be transparent and if you can't be transparent, I think stakeholders will sit back and ask questions and wonder why. What are you hiding, I mean, we're also seeing a movement from how you report going from it being mostly words to being to being more data, and then that's a good movement, and now we need the data to be more uniform, but if I have clients that still just report in words, then I sit back and have questions. It is only a negative not to report. It's not a negative to report. I think of course, everybody is worried that once you start being transparent then you have to show progress. And of course that's also part of it because I think on this more broad sustainability agenda, we've also moved from a place where a few years ago it was okay to just have a target and then to be transparent but still not maybe showing progress or maybe still not having an actual roadmap. Ourselves as an organization we're still also in that phase where were our targets was said last year,

so we are trying to provide that roadmap, but if we set our targets, it targets three years ago, and we still didn't provide a roadmap that will also I think, come with some criticism from our investors. There is less leniency in terms of not showing progress and I think that the commitment to continuously report data in the future is daunting for some companies. That once you put data out there, you can't go back.

Tobias Børglum

Okay, you mentioned before that, that shipping companies might want to engage in different degrees of emissions reporting, depending on the cargo that you're carrying. Have you seen any, any differences in the reporting or willingness to report across the different shipping segments?

Interviewee

Of course. I am aware that companies have different stakeholders if you're a container company, the stakeholders that you have are likely large companies that are much closer to the consumers. It is much easier to see a commercial value for a container company than for a bulk company that transports iron ore, because you're so much further away from the end customer. So if you're a bulk company, the charterers is pressuring this agenda. So I think there's different dynamics in different segments, but it's mainly in terms of whether you're a public or private company and whether you're a big company or small company. Because if you're a large public company, you also have more resources and capacity to provide this information, but your interests are also much easier to see. And if you're a smaller company, it's much easier to probably go on the radar and you still have stakeholders but they're not as many and you don't risk the same like media spotlight and all these things. I also think it's on a geographical dimension. For example if you're south of Germany, and you maybe have bulkers or tanker vessels and you're privately held then we definitely see more challenges

Tobias Børglum

I don't know how wide your financing portfolio spans in terms of geography, but to do you also have clients North America or Asia.

Interviewee

Our portfolio is mainly in Europe, but we have clients in Hong Kong, Singapore, and North America. But we have most of our clients. I don't remember the exact split. I don't have an update I think it's like 60 probably 70% of clients are European, and then a lot of Nordic and then we also we also have quite a lot of Greek clients and then some North American clients. And I think in terms of North American clients, a few years ago, I think they were a little bit behind the curve on this but I think we don't really see that discrepancy anymore. They're as far ahead as everybody else. But most of those companies that are on our radar over there are also public so that's also a difference

Tobias Børglum

I know we talked about the incentives to adopt emissions reporting can you elaborate a little bit that if you don't engage in emissions reporting or you don't focus on it, one of the major you know, disadvantages would be that you yourself or financiers in general would ask for more information the following year, so you would continue to put this strain on that company. Do you see any other potential disadvantages in that regard?

Interviewee

Yeah, but I mean the disadvantages are definitely becoming much more than we will just be asking questions for example, our target To by 2025 not be making new loans to clients that are not actively engaged in the transition. If I have a client that cannot provide me emissions reporting data, that may be like a box that I cannot tick for that client and maybe I cannot then say that. For us, it's not only emissions reporting that we look at, it's a broader picture, but it's definitely a very large piece of that picture. If that's missing, it's definitely something that we are increasingly critical about. For us it's also not just that if you're a client, you will automatically also be a client in 20 years. If you don't do anything on this agenda, we're not good. I think there's a huge, huge risk for those clients that don't have their game in this transparency emissions reporting space. Because we need to report, we need to be transparent to our investors. We are not fully there, but

we're not very far away from it becoming an actual risk of client retention and all this. But it's still not only emissions reporting, it's broader, it will probably be one of the biggest red flags that I look at if they can't provide me the data, but I think we're also moving a bit beyond just data for me. When I look at clients, of course I look at whether they provide me data but I also look at what is their own strategy? It is a good thing that they can provide data, but do they have a strategy for their own emissions reduction? Do they have any long-term targets that are beyond the current IMO targets, which are completely redundant. Like if I have a client that in the reporting writes that my targets are the IMO targets, and I'm like, that's the same as having no targets because it doesn't matter in my opinion. So of course, we look at the actual numbers, can you provide the data, but we look just as much at what are the targets? What commitments do you have? Do you have your own net zero commitment, because that tells me something about the investments that you're actually going to make or, tells me how I can expect the data to develop in the future. And that's, like, I mean, that's what we're really interested in. Of course, in the first place I'm interested in seeing the data but then I'm interested in seeing the data becoming better and get an understanding of why it's becoming better. Is it just better because you have divested a lot of ships or is it like what's the reason?

Mikkel Holbæk Mørch

You're talking about that you're setting some expectations for your clients, and so on. So I'd like you to maybe elaborate a bit upon how you see the role of your company in influencing the decarbonization of the shipping industry?

Interviewee

I think we have a role to play but I also don't want to overestimate our impact, because, in most cases, we will not be the only bank a shipowner has. I think initiatives like Poseidon Principles, that's where you can have the most impact because it's not just one bank that's asking questions. But I believe that we will have an impact because the way that we are a bank, we are a traditional relationship driven bank so the relationships that we have with most of our clients gives us the opportunity to actually have dialogues with them. And I think what also could help us a bit in the impact that we want to have is that in most respects, when it comes to shipping, clients maybe also listen a bit more to us and to some of the other banks because in some respects, they view us as

being more experts than, it's not to say that other banks are not experts in shipping, but when they talk to us they know that the only thing that we do we shipping, so there are also some things where I think if they talk to other banks, they may have to do a bit more explaining. Where to us we can maybe go right, right to the core of the problem when we discuss things. So I think for us there's maybe a shorter way for us to impact clients and to move the industry in that way. And then in the end, the impact that we have is what we put into our portfolio and how the portfolio will be constructed. I think our strategy is not to only finance like super green vessels because we also know that ship owners require we need to finance older vessels to be able to give ship owners the capital they need to invest in more efficient vessels or technology development that's needed. So that's also a part of our engagement strategy that we are well aware off that it's not just an exclusion strategy, but obviously I think in terms of we have these discussions in other forums, but in terms of net zero commitments, if we are to fulfill our 2050 net zero commitment. Credibly, we have to already be making new decisions or different decisions today. And all banks have that problem. So right now. Yeah, I know this because we're on the steering committee in Poseidon Principles. But last year the banks and Poseidon Principles agreed that you wanted that they wanted to raise the ambition of the initiative. Because right now the reporting or the target trajectory is designed against the current IMO targets. Which are super redundant, everybody knows that. And then a lot of the bigger banks they have on the side made net zero commitments of their own and other alliances. For example, something that's called a net zero banking alliance, and there's different requirements for how they set targets to those other commitments and that impacts the Poseidon Principles. So that we have a discussion about how do we raise the ambition but to keep the initiative relevant, but also, I think it's kind of beginning to dawn on everybody that 2050 is quite far away. But the decisions that if you need to be able to if you actually mean that you want to reach that 2050 target, then you can just continue business as usual for the next 10 years and then maybe start to do something new. You have to do it today., and I think everybody thought that it was a slam dunk decision or discussion in the Poseidon Principles, then, yeah, we'll just do this and we'll add a science based target trajectory and everybody will be happy but then, I mean, yeah, it did. It became a bit complicated because Suddenly everybody understood that the timeline in terms of when you need to start changing your normal behavior is much closer than I think people have thought. So in that sense I think that impact will start to show sooner rather than later.

Mikkel Holbæk Mørch

So you also foresee that you will have to make more of these assessment based on ESG or emissions in the future?

Interviewee

Yeah, and I think, for us, it's been a work in progress in terms of making this ESG or sustainability information that we collect from our clients the same importance as the financial information, obviously, it is not on par in terms of importance, but it's, it's creeping closer and it will only creep closer in coming years. When looking at new financings, we always ask for the emission data and we are assessing that as part of our credit application. So that's definitely important for us. So if you have a client that's perfect on credit score, and we know that this client will 100% certainly be able to pay back and service their debt, no worry about that. But if their sustainability rating is awful, then that's already a huge red flag and that's maybe not a client that depending on the type of relationship and whatever, then it could already be like a full stop. We will not go any further. So it's already there. And if you're a client that's perfect on the financial side, and horrible on sustainability, then we have an actual discussion with them and really try to understand why and impact them. It may not yet be a trigger. But if it's a client that's sort of on the fence on their financials, and you're also a poor performer on the sustainability side then the importance of the of the sustainability input is becoming easier to see and it may be the deciding factor. If it is a new client, we might not be willing to take the chance. So we're already at that stage. But we don't have like a clear framework of when we say yes or no, we're not exactly there yet, but we're moving much, much closer than we were just a few years ago.

Mikkel Holbæk Mørch

Yeah, all right. I don't think we have any more. So just wanted to ask if you have anything that you would like to add, otherwise, we can conclude.
Transcribed Interview with FI-B

Date of Interview: 18-04-2023 Interviewers: Tobias Børglum & Mikkel Holbæk Mørch

Tobias Børglum

To start off the interview, maybe if you could just briefly describe the main tasks of your job and also the company that you're working at. How is it involved with shipping industry?

Interviewee

Yeah, sure. Yes, you know, I work in [the company], and my role is work as a relationship manager. So on the relationship side and my main task is to cooperate with our clients, with the ship owners, and to help them out with all kinds of tasks. But mainly we work with loans and then we also have experts. You can discuss it with me of course, but then we have specialists working on the different products. So, we have the knowledge, one point of contact or entry in and speak with our clients on all sorts of matters, basically, but are mostly involved when it comes to products with loans.

Tobias Børglum

Could you maybe talk a bit about your expectations to the companies that you are providing loans to in terms of emissions targets, what are you expecting them to, have as targets and also what are you expecting them to report?

Interviewee

Yeah, and that's why, for us, being in financial institutions, you know, we are not the shipping experts and we are not the experts on emissions and how to improve that on vessels and are not in a position where we can actually make decisions or, or have like a great impact on how the ship owners develop. So, on the on the reporting side, that is actually kind of important for us. Because we use the initiatives as the measuring tool to see actually how our portfolio of loans is actually developing over time, and so we basically use reporting to steer our funding and our capital in the right direction and I think it's fair to say that maybe in the beginning, I think it was at least, or at least as important for the shipowners as it is or was for us as a financial institution. But now that

we are progressing and this is like very high on the agenda for every stakeholder. I think it's getting maybe a bit less important for the shipowners in their view. But, and more important for us, because that is our tool. The shipowners they are they are measuring this on a daily basis and when they are doing different technical upgrades or doing something with the speeds or something like that you can see it right away the effect but we cannot see that. So for us it's a really important tool to make our decisions based on.

Tobias Børglum

Is there any specific reporting standards or something that you're relying on?

Interviewee

Yeah, we are using the Poseidon principles. And we're I think we were signing up for the Poseidon Principles quite from the beginning. And PPFI is quite a simple tool with its advantages and disadvantages of course. But that is what we use and especially for financial institutions that is participating in several syndicated loans. I think it's quite important that the banks or financial institutions are aligned in that if not, then it will become a massive administrational work for the for the ship owners. So, as of now at least that is what we rely on.

Mikkel Holbæk Mørch

Okay, and have you seen or felt any impact of being a member of Poseidon Principles in you in both with your conversations with ship owners but also when maybe you talk to peers and other banks as well?

Interviewee

I'm not quite sure how to answer that. But because mostly we are participating in syndicated loans with the banks similar to ourselves and I think it's fair to say I think it's 30 banks or so, that is signed up for Poseidon Principles now and so the banks that we regularly speak to we are quite aligned on this. And it has never been a question to whether or not we would sign up for that and it's definitely an important steering wheel for us and that is also what we experienced from our competitors. I think we are quite aligned on that. Then of course, we also we are aware of the

disadvantages with that kind of tool and we can definitely see that there are improvements and so on, but, but it's at least for now.

Tobias Børglum

Are you experiencing any pushback from any of your clients on arson, not unwillingness to disclose these Poseidon Principles data

Interviewee

Yeah, we have also experienced that. And especially in the beginning, like the first time, the clients or the ship owners were supposed to provide us with the data, then we expect them we didn't have it in the loan agreement, right. Because now when we when we enter into new laws, we have it in the loan agreement. So then, then if we have it there, then I don't guess we will have a lot of hesitation but in the beginning, we didn't and then we experienced a couple of times that certain shipowners were showed unwillingness to disclose. However they did in the end because I think at least in the beginning, it was it was not a good sign if they didn't do it. So I think that they saw it as more of a hassle than that they did not want to show the figures. But there and now that we normally have it in the loan agreement and then you know, we also could set up like sustainability, linked loans based on targets that maybe the clients already have. And but then now, in the beginning, that was really every ship owner wanted to do that. And I think if you did, so you I think they hope to kind of look good and it was a positive reputational side of that. But now we see that things has progressed and it is more mature now and the shipowners are also it's much higher on the agenda than it was just a few years ago. And then you have the sustainability reports and you're talking to investors and you are informing of everything you do and the effect and then we experience that certain ship owners don't want to include it in the loan agreement anymore, like the sustainability link. Because they say okay, we do everything already and if we don't deliver on what we say we will deliver then we have a bigger problem than just not receiving the margin benefit. So that's definitely a development that we have seen over the past years. But on your initial question on providing us with a data, Poseidon Principles data. It's been a long time since I've experienced the hesitation on that part.

Tobias Børglum

Do you see any disadvantage for, let's say one of your clients, they do not or cannot make emissions reporting? Do you see in a disadvantage for them not doing it? So would there be any sort of consequences from your side towards that?

Interviewee

First of all, I am I do not quite understand why ship owners would not be able to provide us with data because they are already providing the data to IMO. So the data is already there. So if they would tell me that they are not able to then I would ask why. And I believe you should have a really good reason not to do that. Because as I said, it's data that you of course, you have them and you are already sending them to IMO so it should not be a problem.

Mikkel Holbæk Mørch

So, being a member of Poseidon Principles, of course you have these trajectories and we have to make these green portfolios as well, with your investments. How would you say the strategy for [the company] is in the future constructing these green portfolios? Does it affect your portfolio composition?

Interviewee

Yes, definitely. But, but it's also important to state that we are using this to steer our portfolio in the right direction. And that's not done overnight. So, we will and we are our relationship bank. So that means that we are supporting our clients and in their steering in the right direction in a transition or an in and so that means that we are not saying no to certain vessels or they have to be this and that but we are using the Poseidon principles date or their mission data when we are evaluating and assessing for new loan for instance. And it's important for us to see that our clients are doing the right thing. If that means selling off eventually older vessels making upgrades on existing vessels Yeah, yeah, every action that they can do to improve their business and doing the right thing that is important to us. But we are doing this together with our clients. But our portfolio of assets will definitely look different in the years to come than what it has in the past

Tobias Børglum

And with [the company] being a very much global company. Do you see any difference in the geographical location of your clients in their willingness or their ability to disclose on emissions and maybe to a higher degree of granularity or quality?

Interviewee

I think the answer is yes. That's definitely my personal experience and observation that that it doesn't all only come down to like geographical location and of course, and certain places in the world they are not able to do the transition as of now. For instance. But it also comes down to the to the strategy and also for like for financial institutions, you will always find finance or funding available for instance, at a certain price and there will always be players that are willing to look beyond things that the rest of the world is looking at but geographical differences I also think definitely yeah, and as far as here in the Nordics, I think we are quite aligned. Also it is definitely down to the size of the company as well, also, if you are a public entity registered in one of either in Oslo and Copenhagen or then you have to be aware of these things. Then it becomes more of a license to operate, I think.

Tobias Børglum

We've also similar to this, we've also looked at the at some of the different shipping segments and the different willingness or engagement in reporting from them. Do you also experience some difference from depending on the segment that a client is engaged in?

Interviewee

Yes. I think it is very much dependent on how close you are to the end consumer definitely. That plays a part because also then it's a lot easier to what to do with the increased cost. It's very easy to put it on us the Nike shoes that you are buying so definitely there are differences depending on segment.

Mikkel Holbæk Mørch

Yeah, and then diving deeper into the Poseidon principles as we already talked about. Something we found as well is one of the rules of emissions reporting such as Poseidon Principles is allowing stakeholders, investors and financial institutions as well to benchmark firms or investment

decisions as well. Is this also a role of the reporting tools that you've seen allowing you more maybe transparency in, in the in the strategies of companies to engage in the green transition?

Interviewee

Yes. I would say that it's, you know, to quantify what you're doing makes it a lot easier for yourself and also for your various stakeholders to make decisions and it makes it a lot easier to actually see improvement. And we are not like benchmarking our clients and are not like comparing them. You can say that we are kind of benchmarking companies and we are comparing because you know the Poseidon Principles, they have a trajectory and that there is different from segment to segment. But then of course normally you can also see that okay, if you look at product for one year you would see kind of okay, if you're that kind of coming if you're Maersk tankers or if you're term, you would kind of have the same result, more or less. But if you don't see that if they if it is very different than of course if one player is doing really, really poorly and another entity within the same segment is doing it perfectly well. Then of course you need to look at okay, why? Because it can be a been a bad year with a lot of storage, for instance, and then, but then all the players within the same segment would have performed poorly. That's a different story than if everyone is performing really well and your worst in class. So kind of we are using it to benchmark that way. And yeah, if we if we see situations like that.

Tobias Børglum

Previously you briefly mentioned that, that you're seeing this emissions reporting maybe developing towards a license to operate for some large and public companies. Would you also consider it as a license to operate for a new client to come to Danske Bank and obtain financing for example, if they cannot show you sufficient data on their emissions or other sustainability factors would you have a more difficult time granting them a loan for example?

Interviewee

Emissions reporting is becoming more important, and I would say that it is especially important for a young company. It is also very important for new clients because you haven't seen what they have done in the past. So then there are more uncertainty on what they are doing and the willingness to actually do what it takes to go in the in the right direction. And but it's a question that we now we didn't do it two years ago, but we do it now. When looking at new financings, we always ask for the emission data and we are assessing that as part of our credit application. So that's definitely and important for us and yeah, if they if they, in my view, it's the ship owners should have a really good reason for why they would not submit that to us. But of course, if you are, I don't know looking at buying some vessels and you didn't own them for the last reporting year or so and you haven't received them from the existing ship owner then, of course, it's difficult to obtain them to us, but I also think, or believe that it should be in the interest of the ship owners as well. So if you are to acquire some vessels, then it should be on top of your head as well to see how these vessels are performing. So but then again, of course, when you're buying the vessels, you could operate them a lot better than the previous owner. So yes, of course.

Mikkel Holbæk Mørch

We've talked with some other financial institutions as well. And they talked about, as we've also talked today about the importance of ESG data. As you also mentioned, just now it's becoming increasingly important. Maybe you could elaborate a little bit on you know, the discussions they are where, for example, if you have a company which is perfect on credit score, and they are really good client that are really able to pay back the loans on time, but they are providing very bad ESG data or they have a strategy that is not really engaging in this transition. How would you look at such an instance for example?

Interviewee

I think it's fair to say that going forward, one thing is that we will be looking more at the performance of vessels that we are financing. That is one thing. And we can accept that if the client has a robust strategy on how to improve the emissions on those vessels or on the on the overall fleet. But if the client, does not have a robust strategy, and it's not that high on the agenda and they don't really care on that. Then we would definitely have a discussion internally and to see is this something that we can support? Because this is kind of not in line with our strategy. So it's, I think that it's actually more important to have a plan and to and to act on what you're saying and to have a clear vision and a strategy on taking you in the right direction, because we all have different starting points. So it's more important to do what's right from that from now on. But if you don't have a clear strategy then it's difficult for us to participate in anything.

Mikkel Holbæk Mørch

And then I would also assume that the inverse relationship where the credit score is very bad, but the ESG reporting and the strategy is excellent. Of course that's also something that you would probably not engage in I could imagine.

Tobias Børglum

I just have one last question that we have asked all of our interviewees. It's a pretty broad question and maybe a bit difficult to answer. But let's see how you say. How do you see the role of your company in aiding the decarbonization of the shipping industry?

Interviewee

The credit assessment is still the most important. It has to be acceptable for everything we do. Know we are also as I mentioned, a relationship bank. So when we take on a client, we want to be there for many years throughout the cycle, so And for many years, so then definitely you need to have a robust credit profile in order for us to be able to do that. And I think it's fair to say that our role is to try to steer the capital or the funding in the right direction. So towards those clients that are, are doing the right thing and is really making an effort and to reduce emissions. And that is what we are using the reporting data for. And as also I said, it doesn't mean that we cannot finance those vessels because they are performing poorly or a very old or something like that doesn't mean that. But we want to support our clients that are doing the right thing more. And I believe when every financial institutions or not everyone is doing that but more and more financial institutions are doing that and more and more investors for instance, also in the bond market, and then you're raising awareness and then and the capital available for those who are not doing anything about this or doesn't care will be less. So at some point it will become more and more expensive for the companies not disclosing their strategy and data. And especially if you are interested in having a relationship type of banking, then I definitely think it will become more and more difficult to have that.

Transcribed Interview with FI-C

Date of Interview: 21-04-2023 Interviewers: Tobias Børglum & Mikkel Holbæk Mørch

Tobias Børglum

If you could just describe your current job and the activities of your company in relation to the shipping industry?

Interviewee

I have some different roles. I am a senior analyst in our ocean industries division, I cover a range of areas but I spend most of my time on shipping and sustainability. Both on the emission side and other ESG topics, which means I'm both engaged in external activities, external initiatives, with the shipping industry as well as with other banks relating to various sustainability issues. I'm also for instance, responsible for our own internal processes around Poseidon Principles. I am also responsible for tailoring that internal ESG assessment we do for all corporate clients, you know, as a specific, tailor made tool for the shipping industry, which is based on my input and also engaged in client dialogues around green and sustainability related loans or sustainable finance, so to speak, which is certainly interesting area in itself, as at least deep sea shipping as we know it, falls outside the definition of green, or at least as defined by the EU taxonomy. But you know, there's a lot to be done still working quite actively on that. So, cover a wide range participant know that ESG sustainability person in the end on the maritime industries. I would say that we are extremely active on many places, relating to the sustainability agenda in shaping both. I mentioned two bank initiatives where we were very early on in both among the founders of Poseidon Principles and the responsible ship recycling initiative. We are also engaging heavily in the shipping value chain so to speak on various platforms. You are in Copenhagen and we have something in Norway called the green shipping program which is an ongoing program now for the fifth or sixth year whereby projects pilots are tested on new fuel and transmission whatever the industry needs to do with heavy participation from all types of stakeholders in the in the shipping industry, including a lot of the owners. So that covers projects in how to create sustainable and financing schemes that can help the transition as well as testing ammonia or methanol or you know, in various types of, of shipping segments. So that's very interesting and involved in a white paper on carbon pricing and shipping we've been involved in SASB who writes reporting standards for companies on their improving their shipping and reporting standards, something similar with on with an original ship owners' association, etc. So we are trying to engage as active as possible and not only be a bank. Banks are kind of standing on a distance and shouting out requirements to the industry but we also want to be involved quite heavily to it and, you know, learn to contribute, and also then understand what the options and alternatives for the industry actually is, you know, understand the opportunities, the barriers, the dilemmas and all that.

Tobias Børglum

Could you elaborate a bit upon your company's emissions targets?

Interviewee

We are basing our targets on the most common metric, which is used in IMO, the CII regulations and used in Poseidon, the AER. At the same time, you also have to understand the weak spots of an AER metric and also have to understand how you know, all the external exogenous factors influencing this metric short term, which is, can be totally unrelated to how green the ship is at the outset, you know, and that's a problem with a lot of these things. Or, maybe not problem but it's a challenge and you need the knowledge to interpret the data and in the right fashion, because short term, it's so much more vulnerable to market disruption market forces than it is to know that ongoing efforts to improve the efficiency. A year and a half ago we set ourselves a target to that we will reduce the weighted emission intensity or the portfolio shipping portfolio by 1/3 from 2019 to 2030. 2019 is the first year of IMO DCS and the first year where Poseidon Principles also collected data so that is our baseline. Have you looked into the methodology of Poseidon you know, with all the different size classes, big you know, because the actual AER within you know, a large tanker or huge bulker might have a kind of average of two gram CO2 per ton mile where a small coastal bulker, maybe or medium size might be 15 or 20 grams, you know, it's because it's economies of scale here as in everywhere else in the world. So you have to kind of treat each segment independently you cannot compare across time and I need to spend a lot of time explaining that to outsiders and to me is just so this, all trades and shapes sizes had to justify justification doing different jobs, and you have to kind of look at segment by segment, which means of course, we cannot just have one average AER for the whole portfolio that wouldn't work. You could just take in some older higher emitting big bulkers throw out some of the modern small ships and you get an improvement in the score while in reality you would actually be worse. So anyway, so we've done a weighting of the AER for every sub segment based on the 57 categories in Poseidon and measuring that year over year 1/3 reduction from 2019 to 2030. I think we were the first I didn't see any other shipping banks doing that in the summer of 2021. At that time, I hadn't seen anyone else doing it. So we went public with that, which was then ahead of the Poseidon Trajectory and still is. There is an ongoing process in Poseidon, to update the target and make it more ambitious but at the time we were ahead of that Poseidon curve, i.e., we would need to do more than just following Poseidon. So that's how we set our target. Now that Poseidon is revising their target, we are likely to do so as well. But you know, we are still just awaiting this process in people's eyes to say we are on course.

Tobias Børglum

And as you mentioned, Poseidon principles is of course influencing the decarbonization of the shipping industry. Do you also see some other initiatives in the industry influencing the decarbonization of the industry?

Interviewee

See Cargo Charter is kind of trying to replicate a lot of the same in Poseidon, just from the core cargo owner side which is enormously positive because we don't get the real traction before you have data visibility through the value chain and you have them cargo holders. Ultimately, consumers want the lowest emissions possible in their purchased products in a total lifecycle. So, that has definitely a big influence. I think the challenge is, that Poseidon Principles now covers 30 banks, except the Chinese lenders, it covers almost every major shipping bank out there. So it's really taken the full market since Poseidon was launched in 2019. And since then, you know, this has been kind of a signal thing in forming the agenda on every shipping conference etc., and also inspiring all this Sea Cargo Charter and also the Poseidon Principles for Marine Insurance. It has also inspired you know, similar initiatives in other industries like the steel industry you know, the steel is you know, steel industry is much worse if you could use such a simple word than shaping, you know, so huge shareholder or the global emissions. While sea cargo charter, unfortunately, so far only have a much more smaller fraction of the market. But I believe it will grow from you

know, popular public demand, consumer demands etc. But it seemed to a large extent that the participants in Sea Cargo Charter are very much on the commodity raw material side, you know, where the distance is much longer to the consumer elements, right. So what we see I can't remember whether you know it's primarily, you know, the biggest push now we see is in container shipping and in car carrier business, because those are shipping segments are much closer to the consumer, but that demands for a cleaner footprint through the value chain is much more evident and stronger. In the container space you have the Clean Cargo Alliance, which has been quite active for a number of years. So there is already some influence but it is a very clear pattern that it it's the surface. Firstly, it comes first in those parts of the shipping industry where we are, to a large extent carrying finished goods, consumer goods etc. delivering to the market goods for the normal consumer and they demand visibility and you know, they want to see the footprint. There has been some comments from those on the shipping side operating in the more commodity type shipping markets, mainly bulk whether it's wet or dry. You know, it is far from these commodities to the finished products and the other end that sometimes they hear the large trading houses or you know, the large cargo owners talk about ESG and sustainability but they don't see that turned into practice when it comes to the day to day chartering or ships you know, it's always the cheapest but that is about to change. And that will also change, I believe, dependent on the business model and contract structures on CII but even more so on the EU ETS will get us this carbon pricing whether you know it's the owner or the charterer who will have to pay up, whichever. Then again it will influence the choice of ships, but I think you're both the CII as well as because in the charter party agreements on CII they now start to include in the party agreements that they will need to agree on to maintain a certain CII so that will impact them. You know, you immediately bring in the performance on the emission of the emission performance of the vessel into the discussion on the chartering side. That is quite complex. I guess it's been discussed. This is the big issue in it being called. There's been some back and forth on the clauses or how to regulate this but you know, regulatory changes. You know, voluntary initiatives are great, but the minute the regulations really start to move and turns into, requirements that will have a monetary effect, then things start rolling much faster.

Tobias Børglum

Do you also see some differences across like geographical location of the company?

Interviewee

Yes. Northern Europe has been in the forefront on transparency on this issue that we have seen a real change, real positive change over the last five years when it comes to transparency and reporting. Going back five or six or seven years, you know, good sustainability reports and the transparency was kind of far, far between a few and far between. Now it's a kind of, you know, as I said earlier, we'll so be involved in kind of raising the bar and developing the standards. For instance, in relationship to the owners' association, we get input they came out with this guidelines for ESG reporting and in shipping and offshore back to three years back and then they revised it a year or two back. So you know, this helps and we put this forward, this is what we expect from you. So which was very much in Northern European thing, maybe in the beginning, it's spreading out. It's still obviously there are some geographical differences, but it's spreading out. It's improving in other geographies, as well. And for instance, if you're depending on, for instance, Poseidon banks to fund your business, which many companies are. Yeah, transparency, good reporting is increasingly a requirement to get access to capital. Okay, and many doing the ESG risk assessment in slightly different ways you have external tools out there that many subscribe to they also have their own models often a combination of these things, external tools like risk sustainability, MSCI, etc. There are others as well, and they have an internal tools and measuring ESG risk assessing ESG risk you know, ideally, we will you know, one thing you would like to see the outputs that are actually performance, but you know, it's also about the input kind of policies, transparency reporting, do they have policies or XYZ? Do they have certifications do they have ISO certifications are they signatories to various types of initiatives and treaties? That will be deemed positive you know, all this. So all this creates increasing expectation or transparency that you share and publicize both things you are engaged in, as well as your own performance being emissions or whether it comes to other things as well. If you do not have transparent reporting, you might end up in a high risk evaluation, which will influence them and make it more difficult to get access to capital as credit decisions might be harder. Others about access will or will not get the money or you will get the capital but at a higher price, you know, high risk requires higher risk premium obviously. So we think but it's this is slowly you know, it's works in small increments and gradual changes but you know, I think just going back two or three years, this is much, much more important now than it was on audit to three years ago. However,

You will always find finance or funding available at a certain price. There will always be players that are willing to look beyond things.

Tobias Børglum

How do you see the role of these voluntary dimensions reporting standards in the shipping industry?

Interviewee

Yeah, I think when it comes to voluntary emissions standards, they are important because they're global standards. But you know, I think that maybe they were lagging a little bit you know, Poseidon banks are looking at actual greenhouse gas emissions, doing the math on emissions intensity and comparing it against trajectories in Poseidon based on IMO. We're doing that over several years, then we were ahead of the recommendations and the kind of the standard set in SASB right you know, it's kind of lagging when it comes to what to report and especially when it comes to not only total emissions, but emissions intensity, then also that and your transparency on other trend. I think that's partly a result of Poseidon influencing some of these standards. Then again, of course. They also cover some of the elements, which is not yet are part of what we're doing. But plus I don't know, I think they have something on NOx there for instance. Having said that, the direction it's going in EU, eventually also in IMO and Poseidon. You know, it's starting to look at the full scope of greenhouse gases, including methane and NOx. But of course when it comes to more written, you know, standard pollutants, it's good to be able to lean back to the other or the other standards because that's not yet covered by Poseidon Principles only so far strictly about climate gases.

Tobias Børglum

Okay, so do you have any expectations towards your clients of disclosing on SASB or GRI?

Interviewee

Not specific requirements but we convey recommendations we point to this and we point to the also the previously mentioned standard by Norwegian Ship Owners Association, which is not theirs alone, you know, this company and governance group now renamed Position Green, I think

they were involved in that development and they have also been working for many shipping companies that are come out come out as the kind of best practice so far. So this is something we know we can point to some companies being representing more or less with best practice and we can point to the to the recommendations, which again builds on the CII and suspect but we don't have a specific requirement for now, but this is this is evolving.

Tobias Børglum

Okay, but do you see any disadvantage of not conducting this emissions reporting for your clients?

Interviewee

You know, if you do not tell us the story, then we are less informed about the potentially material risks to the company, because that's the change right from just going back two years. It's kind of this is nice to know yes, we know the whole world is talking about 1.5 degree and net zero then we have the IMO goals, with intermediary goals in 2030 of a 40% relative reduction and all that is still not enough to reach 1.5 degrees. But still you know, but then you can try to relate but the minute we got first EEXI and CII and then next we got the EU ETS this is you know your emissions performance, which can have potentially direct consequences of the earnings potential not your profits and the values of your ship. If you have a ship that will struggle it could be very costly under the ETS or it falls into the worst E category in CII. That means you have to make some tough decisions, you know, or they have to slow down the vessel. So it, you know, maybe that's okay, maybe we can solve it. I think slowly, you know, slow steaming will still be the number one measure to solve. Both, I think at least in the short and medium term, then we know there are limits to how much you can slow steam because you can see most the amount that the curve kind of flattens out because it's not possible to do much more I suppose then that you know, if they really have just lost him, which puts you in a completely different place than your competitors, what is the average normal commercial speed then you have a problem, you know, then you basically have less capacity and less speed and less earnings potential. So that comes at a cost. Another alternative, of course, would be to upgrade the vessel and put a lot of money into it. Maybe it's worth putting more some money into it, but if it's 20 years old, what should you do is the more logic solution than to retire the vessel earlier than previously expected. That comes at a cost of course, you have to renew your fleet earlier. So you know, it's about you know, for banks, this

goes both on the top line and the bottom line, you know, that's what denote your total earnings as well as the bottom line after CAPEX and OPEX. As well as the value of the collateral, you know, if the expected economic life is not 25 years, they have to be retired at 18 years or something, that goes on the balance sheet for the company and it goes directly towards how we assess it as collateral. So that goes straight into the credit metrics in the bank.

Tobias Børglum

So do you also have these emissions requirements incorporated into the credit assessment of investment?

Interviewee

All banks have a kind of internal rating system and changing those rating systems and amending those is a very long process. So we do ESG assessment as so now. It's not yet integrated into that into our rating system, but it's a kind of add on. So, together with the financial rating, so to speak, we have the ESG assessment and also including the emission performance and everything. So it will definitely impact the creditors in to the extent we have firm knowledge that you know, this company needs to do XY and Z and invest these amounts to get them comply to this and then we can put it into the financial assessment and we've definitely you know, can see this a value iteration of different depreciation curves of the other vessel, then we can apply it directly into that the score rating in itself is so far it's not directly linked, but it will be in in the future. Having said that, you know, we do an ESG risk assessment and have three risk categories. So number of questions covering a lot of different aspects of shipping, not only the E but also quite thorough one on S and G, which comes out with a score in the part. Target setting as well as actual performance on emissions is a part of that. But in addition, we have a kind of that's a quantitative tool, you have to do some qualitative assessment. Sometimes to give the right score in that tool, but it ends up with a kind of quantitative, you know, and the number as a score, which puts it in one of three categories. But then in addition, we have a fully qualitative assessment on the side on transition risk, which is basically threefold. We've found that was necessary to give flavor and get the nuances in the short term, what's the status of the company with respect to the Poseidon numbers, the reported AERs and whether they're in line or not. That alone is not enough to judge whether this a high transaction rate risk or not, because you know, that all depends on where the company is in the cycle of renewing the fleet and it can be external factors, as I said initially, that will impact the score which is maybe not related to the underlying status of the vessel. For instance, the cruise industry scored extremely badly in Poseidon in 2020 or 2021. But that was not because of the vessels necessarily, were bad, actually the total emissions dropped 50%. So the cruise industry emitted less than it used to be but the relative emissions because they were stuck in port with the engine zone. Otherwise, you know, there's only in Scandinavia you have shore power right. So do you have to keep the auxiliary engines on in order for to maintain the ship otherwise it will deteriorate very quickly. So the relative scores went haywire and looks really bad. That's why you know, we need to understand that you know, there can be many reasons for why the Poseidon score is what it is, but it's a good starting point because it allows us to understand the overall position of the company and underneath, and it's also something we can use in dialogue with the company. So that's the short term snapshot of emissions, then they have the kind of medium term aspect and that is, we talk about what we just talked about now, they're, you know, how are they positioned in terms of CII regulations and potentially also ETS? What are they doing when positioning themselves to this regulation? And do they have a problem? Or will it be fine? And then there's a third long term, maybe even more interesting, but harder to get that full grip on. That is, do they have a specific strategy? Have they set targets in terms of emissions? What are they thinking long term, which is difficult, and especially when it gets to the medium sized and smaller companies, they will not have the full answers, but at least to see that there is some strategic thinking in the company around how we shall think longer term in terms of fleet development and fleet renewal? That's quite interesting to see. And also whether they engage on the industry initiatives, because it's a lot of good collaboration in shaping across the value chain and also between companies and there's always competition, but it also, you know, collaboration is needed to solve this big a climate issue. In general I would say that voluntary emissions is of course not a requirement, but if they're active, it's a plus, you know, that means that they are spending time resources and you know, this goes into the strategic thinking and competences which will give kind of extra credit. So that's a qualitative assessment in addition to the more quantitative ones that are more and model based.

Tobias Børglum

Do you also engage with clients who are maybe not that engaged in the ESG sphere, would you engage with the clients and push them in the so called right direction?

Interviewee

Of course, that's what we've been doing quite systematically over this last years. It started very much with the recycling because yes, climate is the largest challenge for the industry. But ugliest part of the industry is of course, you know, if you look at the lifecycle, which by the way, it's a much more nuanced thing. It's a lot of shades of gray hair, it's not as black and white as it's portrayed in the media many times but it's something that needs to be addressed. So we started engaging very early, nudging clients. In a few cases, it ended with an exit and the clients were no longer with us but that's never the plan. The plan is to move them in the right direction. So the same also goes down on the climate side we will discuss our main goal is to be a transitional bank and to help you know we already I think that goes for a lot of letters, you know, typical western more than when Western European shipping banks we have a very careful client selection. You know, it's not like you want to mortgage on their house or you want to finance a car, you can shop around different banks and you can just pick the best offer it doesn't work like that because the onboarding process for clients in an era like shipping is a long and tedious product project. So it's quite slow and careful client selection. So we already screen the client wanting to deal with the best ones. So we already have good clients, but then again, some needs to be nudged even further. We will see that although they have many good qualities, they might not be the client or the future unless they speed up their efforts to meet the requirements. We haven't exited any clients because of emissions alone yet, but that will happen. You know, I think that will happen but, you know, we shouldn't be too triggered, you know, the main goal should be to help move the industry, not just to fix our own portfolio, that's always that balance right. You know, we really want to assist the industry. You can always exit yourself to the perfect portfolio but then we restart that portfolio is very small and you lose all the instance.

Mikkel Holbæk Mørch

And yeah, I just have a question. You mentioned that, for example, the Chinese banks are not members of the Poseidon Principles, how have you seen the impact of the Chinese banks coming into this space? In terms of the reporting expectations and their impact on this whole area?

Interviewee

Yeah, I think that it is sometimes hard to read the Chinese. I think there's a growing focus on this issue in China as well, but there still is a difference. I think it's hard to get a full grip on what is happening there. Shipping has of course had an enormous boom like the rest of the world in the early 2000s. Overcapacity in many sectors including shipping and a lot of money being poured in a lot of big, big losses. Too large order books, you know, which created a quite sad you know, the effect was a 10 year quite dismal shipping market with some good spikes but quite dismal to attend. So long tail and all that, resolving the aftermath of the financial credit crisis and the shipping process whereby many western shipping banks quit shipping, exited or they shrunk their portfolio. Then the Chinese came in, they became incredibly important funders of the shipping industry, both the banks as well as their leasing houses, they still play a key role, but it seems like they are not as important as they were like five years ago, if you see what I mean. But of course China, it's huge. You know, it's the biggest shipping building nation in the world. They have huge shipping fleets; they have enormous impact. It would be great to see them also come out in line with the rest of us. Will they join Poseidon? Well, there's been a lot of lobbying and promoting, I don't know, maybe they will do their own version of Poseidon. It often happens that the Chinese will do it, but they will do their own way just like with the 2050 target and said no, we will have our targets but that will be 2060, right? That's what they always choose. They quite often choose their own path when it comes to transparency requirements. I think it's a bit hard to read. I think it is a historic or cultural issue there. Looking back in history, not being as transparent so I think this just is lagging in time compared to the rest of the shipping bank market.

Interview Transcripts – Industry Customers

Transcribed Interview with IC-A

Date of Interview: 20-04-2023

Interviewers: Tobias Børglum & Mikkel Holbæk Mørch

Tobias Børglum

So maybe you could start off just very shortly elaborate on some of the activities of your company and your role within the company?

Interviewee

[The Company] is the world's biggest trader of oil. We charter four and a half thousand vessels per year on spot, and including our bunkering business, we do about 6000 movements each year. We own 40 ships, and we have a time charter fleet of anywhere between 80 and 150 ships depending on market conditions. Our main business is trading commodities. We have a small upstream business, and we have a significant downstream business in Africa and Australia. We have refineries across the world, Fujairah, Julong in Australia. We have a splitter in Potsdam refineries in Germany and in Switzerland, and we have power production in the United Kingdom. So, you know, we've been a very big part of the energy complex for many years. Our recent efforts have been very much where we can add value in the renewable space. So we have solar farms in California, wind farms in America, we've just done a big purchase of a wind farm in Poland. So renewables very important we're looking at hydrogen we have a hydrogen bus business, we have an electric bus businesses in South America. So you know, we've got a big focus on renewables. You know, we have to work with our own stakeholders. The profit that we've made this year in the energy complex which all energy companies have done, we need to make sure that we are, you know, forward thinking enough to make sure we reinvest in the right areas. And then, you know, drilling down on to the shipping side. We're putting a lot of work into understanding which direction the future fuels will be. Myself has been with [The Company] for 18 years, I've been working always on the chartering side within the shipping team. So I've done clean in Singapore in the east and dirty crude trading in the West. Then I went into this new role, which is a new role the company's created to be looking at the energy transition for the shipping group and the company as a whole across the spectrum. So I kind of have an overseeing role with what we're

doing on our own and ships on the energy saving technologies. How we can operate within an increasing regulatory environment, the EU the day before yesterday confirmed the EU ETS is coming in. And that's going to be a quite a big impetus for us to improve our reporting, because it's going to be a financial impact to the business that we're doing. So I'm focusing on that and plus, where we're going to go and future fuels for the company within their own fleet.

Tobias Børglum

Okay, and since you have this very much increased focus on, I would say decarbonization, how would you describe the emissions targets of [The Company]?

Interviewee

When we work through the energy transition, we are guided very much by the mandatory regulation and the IMO targets and on our own ships, we're pleased to say that not only are we on target, we think we'll hit those targets by 2024 on our own tonnage, and that's a combination of disposals of the older ships. The new vessels that we've contracted which are coming within to the fleet, and on the ships that would not comply with putting on some energy saving technologies. We are looking at commercial optimization to keep charterparty speeds on the older ships within line of regulations. So you know, as a company what guides us within the third party business, what we call the scope three emissions, shipping as a part of our overall emissions is over 40% So it's the single biggest part of our entire business, is from the shipping, purely because we're such an midstream company, and that massive amount of spot charging we do, we are the world's biggest spot charterer on tankers, which means we do have a big scope three footprint, and that is something we need to work through with the owners and with regulation coming in, there will be a general drive through the energy transition to lower emissions.

Tobias Børglum

Do you find a general willingness from the owners to cooperate with you?

Interviewee

So the owners that we have on time charter and if we ask them to put on energy saving technologies, some are willing to engage in us, others would like us to contribute with them

financially. Shipping is always an industry where you know the bottom line is heavily focused on and this is why regulation and market-based measures, which is the only way that the industry is going to be truly successful in reaching the climate goals.

Tobias Børglum

I know the company that I'm working at, we've engaged with a lot of different charters to put on these energy saving devices to lower our own emissions. Have you experienced any ship owners engaging with you to lower your emissions with energy saving devices or are you the front runner there?

Interviewee

So as a user of tonnage, there are some owners that we work with who are very ahead of this transition, and there are other owners who will be very behind because the market based measures haven't really been brought in the industry as a whole isn't at the point now, where they are selecting a ship on a spot voyage. Because the energy saving technologies go hand in hand with economic benefits, then we do find ourselves heavily attracted to eco vessels and actively seek out ships on the basis of efficiency. So all of the ships that we will contract for long term time charter are eco vessels, but then that's also a financial benefit from the day to day running of the vessel.

Tobias Børglum

Okay, so when you engage with different ship owners, do you evaluate them based on emissions reporting from these standards?

Interviewee

So when engage with the ship owner on a long term charter, then we they will tell us their consumptions and we'll review it and we have our own database of ships that we understand. So we have a good understanding of which ships have which and which have not. We would like ships to have sensors on board. But the industry has not yet got there and that's a very important change that needs to happen. I'm sure you're aware that a noon report is a fairly inaccurate pinpoint of what goes on onboard as it's still manually put in by the master. But to retrofit sensors is not a simple thing on board ships. And also it's not just one sensor that's required because there's multiple

parts of the movement of that fuel within the vessel before actually it comes out of the stack. Whether that's the main engine, the auxiliaries, the IGG generator, the settling tanks, there's all kinds of movement of fuel before it actually comes out of the tank. So from a desktop point of view, sticking sensors on board and having your little beeping thing, sounds ideal, but the practicality with that information plus connectivity issues because not every vessel at the moment has 24 hour internet. I don't know if you saw in the press about that Japanese bulker near Mauritius that the guys were trying to get an internet signal for someone's birthday, and they went aground. We do fully expect oil majors and hopefully the IMO to make it mandatory full connectivity for vessels from a safety point of view, going forward.

Tobias Børglum

How do you see the role of these shipping industry initiatives, such as let's say the sea cargo charter or the Poseidon principles for banks in influencing this?

Interviewee

So both of those are global maritime forum initiatives. And I think it's very laudable that they are getting the visibility to the market about them. We haven't signed up to the Poseidon principles because our financing is in house. And the sea cargo charter we didn't sign up to because our concerns were that the metrics that were being used to rate or compare owners were not consistent, because there's not one consistent verification method. So we felt that there was too much opportunity for companies to not give completely accurate true data. We set our own targets internally with our own ESG report. And we have fulfilled those requirements for the sea cargo charter. So whilst we realize it is a good metric for the industry, we will use it for our own uses, but we decided not to sign up to it. You've got too many companies trying to do verification. And as you know, if I say that I'm burning 30 tons a day on my ship. How do you know that's correct? Right, unless you've got a company that has modeled every single ship, you don't right? And so you get to this point that companies are given verification without any accurate and true model. And there are industries out there, companies now which are realizing this and starting to model vessels, and the global database of consumption is starting to improve. And there will be two or three industry leaders where the business will accept that they are a statement of truth. But we're in a process now at a very early stage with industry for that to happen.

Tobias Børglum

What are your expectations towards the emissions reporting of shipping companies?

Interviewee

If you look at where we are from a carbon regulation point of view, the first one is the EEXI. So we have got real time experience now where ships that were able to sail at 50 knots can only sail at 13, at maximum speed. And you know, we think that somewhere between 20 and 22% of the fleet of the overall tanker fleet will not be able to do maximum speeds during poor weather. So you know, that by itself will make those ships less attractive going forward, which is what the intention of the EEXI regulation was. The CII regulation. That means there's more of a opportunity for owners and charters to cooperate on what is the most optimal thing to do for the vessel and again on older ships which are most susceptible to slipping into the lower CII ratings. We are finding that on certain voyages they're requesting us to go at lower speeds which we will accommodate should they fit our program. So you know what will happen with all of this is you know, the older ships will become more troublesome to deal with. The shipping industry as a whole is a problem. Because the orderbook isn't there, on the tanker side, in order to replace these less efficient ships. So it means that the less efficient ships will have to continue to exist within the industry until such time as the future fuels come in. From our scope one point of view, which is our own tonnage, we are disposing of the older vessels and the ones that we're not putting on the energy saving technology so our emissions will be going down. On the scope three emissions, because we are selecting for the market. When the EU ETS comes in, then we'll be economically incentivized to continue to pursue the more attractive tonnage from an emissions point of view. But from an industry point of view, there is not a stakeholder incentive to go for lower carbon industry wide for both cars and tankers. What we see on the container industry is because consumers have a strong voice. We're not seeing that strong voice in the bulk commodities.

Tobias Børglum

When you assess ship owners performance, do you also look at how their greenhouse gas reduction alignment is with the IMO and also with the Paris Agreement?

Interviewee

So, that is a corporate responsibility for companies to report and you know, we have close relationships with many of the companies which are within their targets, we are very close to some of the world's most efficient and quality ship owners and they all tend to be going in line with these target principles anyway, by the very nature of the business. So the question is, do we seek out the cheaper, less efficient vessels? No. Do we have close relationships with some of the world's biggest ship owners? Very much so. And you know, for the 10 biggest ship owners in the world, you know, on the product side, we generally are the number one customer for all of them. So we are privileged to be in that position.

Mikkel Holbæk Mørch

And do you see these expectations from some of your peers as well?

Interviewee

Yeah throughout the industry, from the stakeholders, everybody is pushing for a more efficient solutions as we go through the energy transition. So it is an industry wide event. We know we're not unique, no more than our competitors, would be in what's going to be happening. And you know, as I said in the beginning of the interview, it is market based measures and regulation, which is the only real way that the industry is going to do it. We have a question that we usually like to ask all the interviewees at the end, which is basically how do you see the role of your company in the decarbonization of the industry? So I mean, decarbonization is a word which gets moved around at will. Decarbonization implies that you're actively choosing a lower carbon option, over higher carbon options and then translating that into your end product. So you know, that wording is used hugely by many people. The energy transition is what we want to be part of because we see all parts of the value chain and with that, our company recognizes a great opportunity as a commodity trader. We are already the biggest supplier of biofuels in Singapore. We supplied I think, almost 50% of all the 24% bio balanced fuel oil last year and we want to continue to expand on that there has been good uptake from the container industry. And when the EU ETS comes next year, then there will be opportunity more for biofuels because there will be an arbitrage between the price of biofuel and environmental regulation products. And we will get into the methanol and ammonia space at the point it is required. So you know, where do we see going forward to the

company, we are fully embracing it. We are putting a lot of resources into renewables throughout the value chain, not just in shipping. And it is an opportunity and an exciting opportunity for the business to have change. Change will ensure that modern tonnage fleets will have the competitive advantage and they will become preferred partners.

oppositely to tiny ship owners.

Transcribed Interview with IC-B

Date of Interview: 24-04-2023 Interviewers: Tobias Børglum & Mikkel Holbæk Mørch

Mikkel Holbæk Mørch

So how would you describe the main task of your current job, as well as the activities of your company?

Interviewee

So it's, it's a job without full job description obviously, it's happening everywhere. And I think all companies are in the process, finding the DNA. Because technology is not yet mature in some parts. Because service and fuels and price competitive and other parts and it's very hard to know exactly what to do at what time so it's quite open. As a big cargo owner. We use a lot of shipping services. About 75% of travelers have three missions already out of shipping, then we have a big requirement to decarbonize. We have \$70 billions of credit lines and we expect our banks to become a lot more stringent around those going down the road and we already start seeing in a very small scale. Anyway, the challenge the industry has, and then we have an industry doesn't decarbonize? We don't decarbonize. So we need the industry to decarbonize and that's also why we have been particularly active in the regulatory space. Sending out white papers we've done scientifical scientific articles and transport fuels of the future. And we come up with a second white paper very shortly from our leading up towards the next IMO meeting. Because we do need a pricing mechanism. So ship owners, such as yourself and cargo owners, such as us can afford, say afford in brackets to buy low on zero emission fuels. So that's one part of my job. Another part of my job is we investing in all the renewable activities. I'm responsible for a lot of different stuff, but really without having a specific job description and working closely together with our infrastructure engineering and M&A teams.

Mikkel Holbæk Mørch

How would you say the emission targets of your company looks like today?

Interviewee

Our strategy, I think is we've tried to be as aggressive and realistic as possible. Which I think makes sense. Because, I mean, of course, everybody likes to decarbonize tomorrow, but we have to acknowledge that it's not possible. A technology is not in the water. We believe ammonia is the future. Most of the methanol why because there's not enough biogenic CO2 available, whereas there will be a ton of blue ammonia coming from the U.S. and there will be green ammonia coming as well. So technology wise, it's not feasible to do it before 2027-2028. You can say in the first sort of larger scheme because the ammonia engine will only deliver 2025. For first test on the water and then it will be rolled out commercially at scale and in 2025 for ship delivery 2027.

Mikkel Holbæk Mørch

We can see that your company is a signatory of the Sea Cargo Charter. Could you elaborate a little bit why you are signatory to this initiative?

Interviewee

What I think charterers are missing is standardized emissions reporting, as it enables us to evaluate the performance of potential clients. I think all owners are coming on board with the need to understand and measure and report the emissions. I think that's great. But what we don't have is a global standardized system. And not for profit organizations are important as well, of course, because there's no one who makes money on Sea Cargo Charter. But what we need is if we all report on the same metrics, and that's not the case today. Sea Cargo Charter is an example and then you have the Poseidon Principles for the financing banks. The initiative provides a reporting frameworks for banks, pushing it into the global maritime financing markets. But the EU and the problem they have is that ship owners have not understood the scale of emissions across the board, owners believe what they do not is fine. But still a lot of ship owners have not come to the bottom of what the real emissions are. Listen to our charter. So why are we a member of the Sea Cargo Charter? The answer is to facilitate transparent emission reporting. We believe that voluntary emissions reporting is a strong signal to send, to start the decarbonization conversation. Is there value in reporting emissions? There totally is. and it's okay not to be number one. Now, it's totally okay. You don't have to be number one. It's not a ranking system. It's about understanding emissions for the industry. And then we understand that when we have one vehicle, which ideally is SCC who can actually stand as a strong voice for the industry, well, then we also can have a voice towards the IMO, which we obviously know on the CII is not very favorable to left but we don't have any practical systems which works on other measures, which can go in and tell the IMO that they're wrong. And so if SCC gets stronger, we have a bigger chance of being able to influence the IMO. And we will have global standardized emission reporting and as a charterer it is helpful if shipping companies use standardized emissions reporting frameworks, as it saves us time. So we don't have to go and see well, how is this company reporting this? What's the mechanics around that? How does Scorpio do it? How does Maersk Tankers do it? Which is the way we have to do it today, except for Maersk Tankers has not because they're part of the SCC, and that's very helpful.

Tobias Børglum

You mention that large parts of the industry have not signed up for Sea Cargo Charter. In your opinion, why is that and what is there any disadvantages of that?

Interviewee

I think they're afraid of it being a ranking system. That's one. Number two, I think that the SCC has made a mistake in terms of leaning out towards charterers. More so than shipowners and it's a target of mine to change that. There is a chance I may become chairman of the SCC this year. But not saying that we haven't done a good job to this point because it's been all about getting the bases up and running and SCC has 34 signatories now, but I believe it has to be targeted a lot more towards the ship owners. And that hasn't been the case as of now. And lastly that's one of the mistakes but conscious mistakes, I think. But now it's time to change that to get the owners to come on board. Nothing is perfect, but there's improvements which have been made amongst us around IMO ships, which have been reported as chemical tankers, which is wrong. So that has been changed.

Mikkel Holbæk Mørch

Okay, and as you say, one of the main missions is to try to drive the emissions reporting of ship owners as well. What value do you see in coming from the aspect of voluntary emissions reporting?

Interviewee

The banks appreciate it. They see emissions reporting as a sign that we want to improve. And then of course, over time, we need to improve. That's when we sort of start to be held more accountable for it, but is still too early to be held accountable for it. I think, also because we don't have the low emission fuels on the water. We don't even have the option. That's what the financing banks are realizing as well on the Poseidon Principles which is probably one of the reasons why it's a work for us. So the use for us is also that we get challenged. Because there's a lot of knowledge within the SCC. There's a technical committee, so you sit with a lot of companies, oil majors, table owners tanker pools, we're actually taking all into consideration to make a difference. And we can learn from that. They can learn from how the client things, but actually there's a lot of knowledge sharing around and, for instance, now the science based targets which I don't know if you're calling here, but which are on the process coming out in the IMO, but a less presentations around the SBTi is what does it mean? And of course everybody's fearful of can we live up to the SBTi and will we be held accountable internally if we then sell them SBTi targets within the SCC. That's being discussed on every quarterly steering committee meeting by the way. And then the question is do we wait for IMO to act or do we go ahead of IMO etc.? And does that scare somebody away? Or there's a lot of different thoughts around that. And a lot of customers are scared to set ambitious goals because they are afraid of potential consequences arising if they underdeliver compared to their peers and as a company can we be held accountable because suddenly we get a metric that we are not keen on reporting yet? But this is about courage. That's how I see it. And yes, we will probably not read SBTi targets as they get implemented within the IMO.

Tobias Børglum

We had a couple of talks with some consultancies as well, who have done some studies concerning customers or shipping companies willing to pay for greener transport of goods. Do you also experience or are you willing to pay more for a greener transportation products?

Interviewee

I think there's a targeted strategy of if low emission ships are available, then they get chosen. On day to day spot voyages there's not a willingness to pay more yet. I think it will come over time, and that's about the maturity of organizations and what is the requirements, but I still It's too early for cargo owners to pay a premium for low emission transportation. There isn't determined strategy to find low emission ships. And then when that avenue is exhausted, and it will be because everybody will start to do that more and more. Well, then what's the next step in that is you probably have to go and pay more. But I don't think the market is there yet to do that, unfortunately. And I think it goes for any market to be honest. Well, actually, I say that. Some markets are starting to be willing to willing to pay outside shipping.

Tobias Børglum

Have you experienced any markets within shipping who are more willing to pay so or provide greener services?

Interviewee

Containers, and they have the end client next to them obviously, that's the Nikes, the Walmarts, the Amazons who needs to have low emission transportation because the end user will start to be selective around and that's obviously much more difficult in the tramp world where the client is sitting far down the value chain. Yeah, I wish that point was different, to be honest. And that was the one point where I wish I was in the container industry.

Tobias Børglum

Do you also experience it on a geographical scale?

Interviewee

I can say that the decarbonization discussions are much more active in the West rather than in the East. But you can also see that in the Poseidon Principles, the signatory banks which are part of that the Poseidon Principles and ship owners that are part of the SCC, we see very few Asian players and I think that Asia is lagging behind in terms of willingness to come in and volunteer. Maybe it's down to I don't know if it's also personalities, cultures that people are afraid of failing whereas in the West we are maybe less afraid of failing. I don't know.

Mikkel Holbæk Mørch

Do you also see this discrepancy in emissions reporting on our size of company term as well?

Interviewee

I think yeah. The smaller companies they will be weaker in the space. Yeah. Because it will take resources to pile it all up and a lot of hours needs to be spent and that's why the SCC has value because you can gain a lot of value from participating without having to pay an employee to compile such data. So I think here the larger companies will have an easier task at hand because they have the size to really put people and money aside.

Mikkel Holbæk Mørch

And as you mentioned, we already talked about some companies not being members of the SCC, but I was curious to know if you assess the ship owners based on the SCC standards, and potentially benchmarking them where possible?

Interviewee

I think it's also going to be like that soon. And I think very soon if ship owners don't report emissions, that's going to influence the charterers choice, as they cannot compare vessels. The charterers will always have the demand or we have the demand that we need to understand the exact emissions that have been happening on our voyages that can maybe help delay it for the ship owners as long as they put the reporting into the specific orders at least from our side. I think it will not be many years way before all banks just will be absolutely demanding a full ESG report. The question is then whether it goes on to AER or EOOI. And that's unfortunate that we don't have a standardized tool. Ship owners should agree that it's EOOI which is the best and that's also why they should actually sign up to SCC so we can be united.

Mikkel Holbæk Mørch

Okay, and as you say you yourself as a charterer you really prefer the transparency that emissions reporting can create and is this also something you see from your peers or your competitors?

Interviewee

I think some of the oil majors are really sort of quite advanced in this view, and the trading houses definitely not all. It's coming but we not all on the same page. I'm not saying to people not doing

a great job. Maybe they are really sort of maybe they're just doing something a little bit different. I don't know.

Mikkel Holbæk Mørch

So just the last question here that we like to end the interview off with is basically how do you see the role of your company in influencing the decarbonization of the industry?

Interviewee

Well, I think we have taken a lot of responsibility, and I'm proud of that. We're just on route to our second white paper. We are getting testimonials in from a lot of different people. We have in writing from Japan that they found inspiration in our first white paper before they launched the proposal for carbon levy and the IMO. We have that in writing. We know from Marshall Islands, who found inspiration from our first white papers, well, we had numerous talks with them in Q4 2020 and 2021. And they were the one who launched an IMO proposal in June 21. So I know that we have been very well received. And we have been anticipating pushing the agenda forward on carbon pricing and for us carbon pricing means everything because that's what can incentivize the use of low emission fuels. So we've used our size and our PR accessibility, which we have to go out in a very broad scale to try and convince people that change can actually happen and we need change.

Transcribed Interview with TP-A

Date of Interview: 24-04-2023 Interviewers: Tobias Børglum & Mikkel Holbæk Mørch

Tobias Børglum

To begin we would like you to maybe describe a little bit about your background and also the studies that you're conducting that which is relevant to our paper.

Interviewee

The most paper I have made is the one on environmental global environmental politics on the EU MRV system. The mandatory monitoring, reporting and verification of fuel consumption and co2 emissions for ships that call it EU ports. And the other one is the energy efficiency paper in transportation research on the different stakeholders influence on fuel consumption and energy efficiency in ship operations which is also criticizing some of the limitations in the mandatory data collection system from the IMO.

Tobias Børglum

Okay, for our study, we have looked a lot at these industry initiatives such as the Poseidon Principles and Sea Cargo Charter and many more. Do you see any specific initiatives driving the decarbonization of the of the shipping industry and what impact do you see that they have?

Interviewee

So there's a distinction between the mandatory requirements from IMO and the EU. The EU data collection or MRV system is more demanding in terms of data collection and also more transparent and actually making them publicly available. The IMO system is less fine grained. uses a deadweight rather than transport work, or they use deadweight as a proxy for transport work. In the IMO system, the DCS is now feeding into the mandatory carbon intensity indicators, CII. How that's going to pan out and how that's going to influence the negotiations between shipowners and charterers is a verdict is still out there. BIMCO has tried to make a clause, the term charter clause,

that takes the CII into consideration balancing the requirements or the interest of the ship owners and the charterers in the clause. But there's also quite a lot of disagreement about whether this is a really balanced clause. You have some ship operators that say this is going to limit our, the way in which we operate our ships in unacceptable ways because CII is benefiting. The CII clause from BIMCO that's benefiting this ship owner more than it is benefiting the charterer. But I guess that yeah, you can ask the charterers about that in your research interviews and look at Lloyd's List as well. So how it's affecting emissions, it's too early to tell, I think. You have ship owners that say this is going to incentivize unintended behavior. Long empty ballast voyages to comply with the regulation, and you have BIMCO saying that the most efficient ship according to CII is a ship that sails at equal speed it never calls port and it is empty all the time. I think then the follow up response to that would be the ship owners that are so stupid that they operate their ships and that you're probably not.

Tobias Børglum

If we focus just on the voluntary emissions reporting initiatives, how do you see them impacting the industry not only focusing on decarbonization, but also in terms of pushing transparency and something down that lane?

Interviewee

In a study that we did some time ago, we clearly found that it didn't have a big impact. Things might have moved on in the meantime, the banks now formulating the Poseidon Principles, and trying to assess their portfolios in relation to the IMO greenhouse gas goals. And I don't want to give you with a conclusion a ask the other interviewees how it's affecting the way in which they conduct their businesses, how the conversation between financiers and ship owners, how that is affected. So I cannot give you a definite answer. But I mean, the study we did clearly found that it didn't have a big impact.

Tobias Børglum

Okay. If we focus a bit more on what we have in our paper called soft law, which is for example these GRI and SASB standards. How do you see their role in the in the shipping industry?

Interviewee

Yeah, no, I know what it is, but I actually don't really know how much this is influencing the shipment companies. Do they follow those reporting standards? I'm not sure. If they do then you should ask them why they're doing it and how that's affecting how they're doing business. I'm not sure.

Tobias Børglum

Okay, that's completely fair. As we told you, we have done this emissions reporting index where we looked at the different characteristics of who reports the most in shipping. Do you see any distinct characteristics of shipping companies in which they are reporting the most and conversely, who reports the least maybe?

Interviewee

I would say that firm size matters, the higher the larger the company the more attention it gets a type of ownership and whether it's publicly listed or privately held, Maersk has much bigger reporting than MSC just to give an example. And location, I mean, it is global business but nevertheless their head offices are located in different places that impacts the companies. EU countries are more ambitious on the greenhouse gas agenda than most other countries. You could have a hypothesis that the location of the head offices will also influence the company's transparency.

Tobias Børglum

We talked to some financiers and also some customers who hinted at they are actively engaged with these Poseidon Principles and Sea Cargo Charter as they believe that the goals of the IMO is insufficient. Do you believe that by raising the trajectories of these emissions you could affect the IMO's goals?

Interviewee

The IMO is going to adopt in your greenhouse emissions strategy in July at the next Marine Environmental Protection Committee meeting. And one of the discretions for that in that meeting, or leading up to the meeting, I mean, in negotiations and discussions are going on now, is whether
the IMO should strengthen the level of ambition. My guess is that the IMO is going to do that because so many convincing studies have shown that the IMO goals are not aligned with the Paris agreements 1.5 degree trajectory, and this is also what many member states are arguing.

Mikkel Holbæk Mørch

From a shipping company standpoint, do you see any advantages of setting goals that are more ambitious than the ones stipulated by IMO?

Interviewee

But I mean, you can think of quite a few shipping companies that go beyond the IMO goals. Maersk is one DFDS is another one. And there are quite a few others as well as they say net zero in 2050, and Maersk is in 2040. Some say 50% reduction in 2050 compared to 2008 That would be aligned with the current IMO goals, but there are not a big group or there are few companies that certainly go beyond that. And I mean the Poseidon Principles they will have to figure it out and Sea Cargo Charter has to find out what to do in case the IMO adopts a higher level of ambition.

Tobias Børglum

Okay, and do you see any risks of not being transparent and publishing your emissions data from a shipping company point of view?

Interviewee

I guess it depends on your prediction on the future. I mean, is this going to be more and more important. The agenda certainly thinks so. I mean, from the time we did this study to marine policy, the agenda has certainly moved on a lot. And back then the IMO adopted the initial strategy, greenhouse gas strategy. And it seems that it's not ambitious enough. It's not acceptable for the IMO, just to stick to that strategy. So the greenhouse gas agenda in society has moved on. But where that's going to be in 5-10 years' time, I don't know. I mean, a good prediction would probably be that this is going to be even more important. So if you cannot deliver the data in 5 years either financiers or your customers or the staff members or the EU or the IMO is going to demand that.

Mikkel Holbæk Mørch

Okay. Being a scholar, how do you see the research on the topic? Is it more important now? Or is it in the scope of research today? Do you see any differences compared to five or 10 years ago?

Interviewee

Yeah, so I started this type of research in 2011. And back then, everything that related to greenhouse gases was really just a reflection of discussions and energy efficiency. How to save energy when the bunker price was very high, and why shipping companies fail to implement energy efficiency measures. And then energy efficiency happened to have a spin-off of a benefit for the global climate. But it was not really the motivation. And there were lots and lots of stories of shipping being the green mode of transportation, the airlines having a much bigger footprint per transport work, trucks, railways having a bigger footprint. So shipping companies saying that shipping is not a problem. It's a sort of denying the need for any kind of regulation because shipping is a global enabler of trade. You don't want to penalize international trade and shipping is a living policy and all those kinds of arguments. But they don't stand alone anymore. Five years ago, the International Chamber of Shipping was denying the need for a market based measure but this is an impossible position now. They actually say they support some kind of market based measure.

Mikkel Holbæk Mørch

And of course, you being a lecturer at a university, how do you see the news batches of students coming in their point of view? What do you gauge materiality of this subject being?

Interviewee

There are lots of special projects and master's projects that somehow relate to the climate challenge for emissions in international shipping and some aspect of that. That was certainly not the case 10 years ago I mean, back then discussion was the northern sea route as viable alternative to Suez Canal and maritime economics questions.

Tobias Børglum

In the current literature it is apparent that there is limited targets for not setting ambitious targets and providing data. How do you see this topic?

Interviewee

Depends on your risk perception. And I'm pretty sure that if you ask at a company like Maersk, we'll get an answer that this is not doing anything is a major risk. If you have a lot of decarbonization going on in the shore side, public attention to the CO2 footprint of shipping or greenhouse gas footprint of shipping is likely to become strong. And I mean in the short sea trades if you have electric vehicles all over Europe, but you still have RoRo ships running on heavy fuel line then the short sea operators will have a problem.

Tobias Børglum

In a broader term, how do you see the role of academic studies and journal articles in illuminating these problems with emissions reporting and similar and how do you see that affecting the industry as a whole?

Interviewee

I don't know. You should ask the people who are affected by the research, whether it's relevant at all. I am biased and would say that this is super important, but of course, as the decision makers whether they agree.

Tobias Børglum

Okay, because it might be that that maybe you have been contacted by some of these stakeholders, some of the shipping companies asking for maybe your opinion on illuminating some topic

Interviewee

when I publish the articles and I do newspapers, shipping newspaper articles that summarize the findings. And then I've done presentations at various conferences. I gave the impression that they, I mean, I also use these conferences to validate the results to see does this really resonate with what people in the business experience?

Transcribed Interview with TP-B

Date of Interview: 26-04-2023

Interviewers: Tobias Børglum & Mikkel Holbæk Mørch

Tobias Børglum

So maybe you could give a short description of your work and your background and your knowledge about this area.

Interviewee

Yes, sure. So yes, so yeah, right now I mean, I act as a senior adviser on initiative which relate to the interface between finance and marine ecosystems or sometimes biodiversity, more generally. So I'm also a researcher at Brussels School of Governance. And, yeah, so before that, my background is in economics, and then I've worked close to more than 15 years actually, into the investment management industry. I focused a large part of my time there on ESG and how to integrate more specifically data into investments, processes, so risk management, engaging with companies reporting, etc. So, as it stands today, as a senior advisor, I'm doing this now for a bit of over two years. I've been working on a couple of projects which related to the Green Digital Finance Alliance, mainly, but also working with two main projects I'd like to highlight here. So one was basically on how to better share assets, level data. And then the other one was this meeting ocean count project. Telling people to engage with the current actors, so the ESG data providers, the largest ones to understand what they are able to provide, and yet one of the big focus has been to prove it actually. They need to have much more granular data at asset level to basically be able to get the right metrics which are much more meaningful for investors also, with now big focus on marine protected areas. And to that we did a proof of concept on the shipping industry. Yeah, so basically when we did is take eight companies, which were like, the most important companies in the universe of among the most important companies in the portfolios of Nordic investors, and then we got basically ownership data and a bunch of data on the ships that are either owned or chartered by these companies. And then from that, we could cross that with AIS traffic data. And then also, environmental data and there we mainly work with the protected areas, protected areas, datasets, and then developing an emission calculator. So for CO2 and using some methodologies such as the ICCT algorithm. And it could actually estimate with quite a granular way, the emissions

of those companies whether they are reported or not. And yeah, I mean, there is some data limitations, right. You only get 95% of AIS traffic signals and then coverage and then you need to do some estimations about the shipping routes, etc. But in general, it gives you like, quite high let's say quality estimations, because then they could be compared actually with some actual numbers from the companies and so we let you now assume office especially with your specific interested but let's finish on this project. I think what was fascinating was two things is that one, we're finding out that now if you can access asset level data on companies, you don't need a company to report much more. I mean, for the verification process, you will still need companies to do produce official numbers but as a third party, you could get real time data and much more customizable data on what are the emission scores by those companies. So we did it for, for instance, for CO2, but you could do it for NOx, SOx, particulate matters. And also potentially we were discussing noise pressure, measuring other types of environmental pressures and basically recalculating this based on information you can obtain on the ship's characteristics, their movements, etc. So I think what fascinating was is that first like, for instance, in the portfolio, we had a company which was not public, it was a private company. So they are per definition less subject to disclosure regulation, but then the investor could still have the information in real time about you know, this offense as we looked at Maersk, which is kind of like it's a higher standard right under the disclosure, but then, you know, in the latest Maersk report, I mean, for instance, you cannot see the splits necessary between, you know, different types of activities where it comes from the, you know, the shipping emission, it's aggregated, between different class of ships and then also per region. So, for instance, if you wanted to know what are the emissions of Maersk in the Baltic, the NOx emission of Maersk in the Baltics, you could generate this type of data.

Mikkel Holbæk Mørch

Okay, that's, that's pretty interesting, because in our study, we've looked a lot of the on these reporting frameworks, such as the GRI and the SASB and talked to a lot of different stakeholders about the importance of them and some stakeholders have really emphasized that they find them important because they give a universal framework for reporting and that gives them the ability to look into to the performance of different companies and benchmark them. Do you see the importance of these frameworks, maybe diminishing a little or how do you see the importance of these frameworks going forward?

Interviewee

Yeah, I think it's parallel. These voluntary frameworks are super important, especially with the SASB's integration into the IFRS. And then also, you know, that like for investors, I mean, the, you know, with EU Taxonomy, etc. So, I think the standards are needed to somehow define what does good disclosure look like what does good information look like, but then beyond the standards, I think having like let's say real data, which is actionable yeah, is also going to be very important. It is very complex because people need macro data, but there's also sometimes they need like very granular data. And that's where, right now, this bit of static Annual Report disclosures doesn't really give you what you need from an investor standpoint?

Mikkel Holbæk Mørch

Okay. We were talking to some different banks and also some customers of the industry who talked about these initiatives such as the Poseidon Principles and Sea Cargo Charter, in which they get access to these big data sets, which has not been manipulated in any way, and talked about the value of having these so they could use the data in the way that they wanted to. How do you see the importance of initiatives such as the Poseidon Principles and the Sea Cargo Charter going forward in the shipping industry?

Interviewee

Yeah, it is my impression that they are super important, actually. I think they are really a driving force, actually. When we talk to people about them, they were very interested to see also, you know, they started with basically, greenhouse gas emissions, but then like, you know, could that be extended actually, to other types of environmental pressures? Because this is yeah, I think this is like very important that that some of these standards are pushed by the industry right and not always by regulators.

Tobias Børglum

Yeah, and we've also we looked at a lot of the role of voluntary reporting standards, such as the SASB and GRI, like we just said, which have increased significantly in in recent time, but some of the stakeholders that we talked to, were really saying that they were maybe developing from

being sort of voluntary to being something that you have to report on. How do you how do you see that? Do you think it's imperative for companies to report on these standards?

Interviewee

Yes, so basically, I mean in the case of the EU, these standards are converging to something companies should report on, and we are seeing that in the CSRD and in the new taxonomy, but the whole idea is that we now with double materiality that we need to be like, extensive, non-financial environmental disclosure. So you know, at a European level that's the duration of travel that is going to become like the new normal to have like very specific metrics, you know, measures etc. to be included in the reporting standards. And then a global perspective, I haven't followed that, yet. You know, they proceed, but what I understand is that eventually, I mean, SASB is going into IFRS, right. So this is going to become like some sort of global standard because then IFRS is then applied globally.

Tobias Børglum

Do you see any tendencies of any segments or geographical locations, which are more willing to report on these standards?

Interviewee

Yeah, it depends. I think you have this trend towards non-financial, which was called before like non-financial reporting, so all the double materiality and environmentally. I mean, becoming like the new normal, etc. that's what the EU has been quite a forefront of this, but I think it's more and the OECD countries it's pretty much on track and then yes, you will have like, maybe in emerging markets and etc. Like, it is less of a priority right now, but I think because you've got then also like the let's say the industry framework, so the IMO and etc., I think this will be converging over time. But yes, I can imagine that in the in the next 10 years, you will have like, still, jurisdictions where those recordings are you know, less of a concern. All companies that are on the global financing markets, they will need to meet reporting expectations as a license to operate.

Tobias Børglum

Do you see any benefits or opposite any disadvantages of not setting greenhouse gas? reduction targets for shipping companies?

Interviewee

It has now become more and more difficult position to defend vis a vis your stakeholders. Yeah, so I mean for listed companies I think it's going to be like a more difficult position to defend because that's, that's becoming like a new investor standard and expectations. So yeah, I think it's going to be kind of like a challenge in the future.

Tobias Børglum

Obviously, the stakeholders are asserting their expectations on the shipping companies. But is it through more expensive or higher prices or is it through some other measures?

Interviewee

From a purely from the investor's standpoint. So, like, if we from a lending loan perspective or equity perspective, but yes, I mean, eventually. It will mean like, less access to capital markets, if you don't meet the expectations of investors. So yes, I mean, over a long period of time, that could translate into you know, higher cost of capital, because you have both on the on the lending side, equity side and then from more short term perspective, I can expect also like investor raising questions to the governance right of more on the engagement side. And, yeah, also this creating potential like reputational issues.

Mikkel Holbæk Mørch

Do you see, these expectations differ geographically across the world. I know it's you said you cannot allow this on the commercial markets of the world. But do you see the financial institution having different expectations?

Interviewee

Yeah, I think I mean, like, it will be a bit of a spectrum right some that you already see today like some even within Europe, right. I mean, they some countries there is more, let's say, focus on environmental impacts, etc. So I think yeah, I mean, you will have this these differences over time, but I think there will be some convergence. That will be my expectations.

Mikkel Holbæk Mørch

You mentioned that there might be this limited access or lessened access to equity from investors how do you see the expectations of investors to what the shipping companies

Interviewee

Yeah, so I mean, it's a different thing. So investors, I mean, they so you have to let's say two angles, right. So, one is the financial angles. So, basically to generate financial estimates and project future cash flows, etc. And then, I mean, companies not engaging in the transition will be hit by the costs of some transition risks, environmental transition risks, in particular in relation to carbon emissions, etc. into perspective. So you can expect that companies that don't have a plan in place to deal with, with emissions that will be penalized, right from a financial perspective, because there's this expectation that they will be facing higher transition risk, higher cost of compliance, risk or regulatory risk in the future. And then so that's one and then you have also the more impact investor angle to this which is called investor preferences that they have. They advise or allocate their money to companies which are doing good from a sustainability perspective because that's their preference and to also meet the expectations of their own clients or investors. So consider the Fama French model, anytime there is an investor preference, it should be reflected in the prices. You know, I don't like that analogy, but it somehow happens right. Also, I can assume like some places you have, you will pay a premium for a coffee that systemically grown because the consumer will be ready to pay a few cents more right to pay for coffee, which is you don't sustainability produced. I mean, You see in the financial sector that investors are willing to pay a premium for sustainable assets, which you see in green bonds etc. So companies that are not engaged are missing out here. So companies who are well positioned in terms of their transition plans and addressing environmental risk will be better valued from a pure financial perspective. So they will also have some sort of sustainability premium that they can benefit from their providers of capital. But that's also true for their clients. You know, I don't think you can say you're doing this only for the financial sector. You're doing this for many stakeholders. I can give you an example in the ocean project. It was quite interesting to me like we were approached by a major logistics company, because they're willing to develop a better tool to track the environmental impact of their activities where they move. So that was not the parcel service I was more like the logistics of bigger industrial supply chains. They wanted to so it was when I'm in a B2B angle to this, but they wanted to have like much better data that they can provide to their clients on their footprints on marine ecosystems. So it starts here, where the logistical providers will pay more and more attention to this emissions data. That's going to start to impact the bottom line of those companies.

Tobias Børglum

Yeah. So, based on the idea that larger companies have more capital to really put towards this green agenda. Would that also mean that the smaller shipping companies may be at a disadvantage because they will probably not receive this green premium for their services because they do not have the same ability to promote it?

Interviewee

Yeah, I mean, there is one company we did that on. I mean if they have more financing from, let's say, loan banks type of financing. The bigger the companies the more leverage they could have to transition, but I think that smaller companies, they have more flexibility right on how to deal with this. So I think that they have these advantages and disadvantages in terms of implementing the transition. So I think you're going to have to look company by company.

Mikkel Holbæk Mørch

All right. So you initiated the interview with the explaining the importance of understanding your emissions data. Do you see any disadvantages of not having an overview and understanding of your emissions data and not you know, just CO2 but also the different gases?

Interviewee

You mean from an investor's standpoint or?

Mikkel Holbæk Mørch

I could be from an investor or if you have a different scope as well that could also be interesting.

Interviewee

If you don't have this information today, you have a blind spot, right? I mean, there's some things that is unknown, and then you need to understand your risk appetite. But I think it's not going to be within the risk appetite of many investors today not to have this transparency anymore. That's why I don't know if I answered your question. The risk appetite right. 20 years ago it was different, but I think now it is more and more complicated. So that's one thing I think companies are a bit sensitive, and now may be a tipping point. Whether we realize that actually they have more incentive to disclose better. You have to know like the pros and cons of good disclosure, because one of the tipping point is that, as we say before, like this information anyway, it's going to be more and more accessible through asset level data.

Mikkel Holbæk Mørch

And as you said, more and more companies are disclosing but we still see a lot of shipping companies that are not disclosing or not engaging in in this trajectory. Why do you believe that? Are they unwilling or unprepared to disclose this data?

Interviewee

The pushback is that they don't seem to understand the value of disclosing the information because it can only be seen maybe as a negative. I think right now, I mean, there was obviously some operational questions around how to produce and verify that data making meaningful etc. But I think in general, yeah, The pushback has been that there's no incentives. I mean, there's no economic incentives and they cannot see the benefits of doing this. I think that when the benefits are more articulated that they will get lower costs related to their company. And also, I think this is a type of tipping point where it is suddenly crossing your mind that you are some sort of the average but now if you don't disclose then you are the laggard. And that starts to become a problem vis a vis your peers and the industry standards.

Mikkel Holbæk Mørch

Yeah, and I mean, this value proposition that you're saying, that's also something we investigated with some of the stakeholders that we interviewed, and they also conveyed this that a lot of

shipping owners do not understand the value of reporting these emissions data to their stakeholders. So there is some sort of discrepancy in that area. All right, thank you so much for participating.

Transcribed Interview with TP-C

Date of Interview: 19-04-2023

Interviewers: Tobias Børglum & Mikkel Holbæk Mørch

Mikkel Holbæk Mørch

I would like to start with you to tell us a little bit about your main tasks of your current job as well as the activities of your company, if you'd like?

Interviewee

I work as an associate at Boston Consulting Group. We're primarily within the climate and sustainability. I joined BCG three months ago from a role in Maersk Broker advisory services where I've worked with climate and sustainability in the shipping industry. And what we do we advise companies on the decarbonization strategies, so specifically in the shipping industry, that would be how to tackle this very complex topic also in terms of reporting but also other aspects of it. So securing the right fuels efficiency levers, and stuff like that. What we do in the company is very much trying to solve this complex issue together with the clients.

Mikkel Holbæk Mørch

We'd like to start off if you could identify any specific initiatives that drives the decarbonization of the shipping industry?

Interviewee

So, I think the most important initiative driving these are some of the big coalition's that are in the shipping industry right now. So you have the two centers, the Maersk McKinney-Møller Center for Zero Carbon Shipping and then the Singapore variant, which is called the Global Center for maritime decarbonization. What the projects do is they gather a lot of stakeholders from different parts of the industry together to try to solve some of these things. So I think that's one initiative that's really driving the conversation forward. Then you would have the upcoming regulations. So both into IMO but especially the EU, which is driving behavior. I've been in the industry for three years now doing this and I see a lot of interest growing now in 2023 with the new IMO regulations and the EU coming in so that's really driving the conversation. And then as you mentioned, there are other initiatives such as the Poseidon principles, the sea cargo charter, trying to increase

transparency of data emission sharing and reporting, which I would say is not driving as much as the other two, but it's increasing transparency and the talks about how to report data, which is also important, but I think the two first ones I would categorize as having a bigger impact right now.

Mikkel Holbæk Mørch

In recent years, the rule of emissions reporting requirements have increased across the shipping industry. How do you see the role of voluntary emission reporting standards in the shipping industry?

Interviewee

I think the shipping industry is a very conservative industry and has not developed as much as other industries, within the emissions reporting space. The voluntary emission reporting is only for some and it has a very limited commercial impact. I think it has become easier for companies with the EU MRV system when that was developed in 2018. You will probably know this better than me, but that has increased transparency and has developed the conversation on how to measure and how to report emissions. So I think that has been important. Now, the industry has to look at how to take that step further and try to commercialize this data sharing and this data reporting. But at the moment, the voluntary emission reporting is not providing you with a commercial advantage.

Mikkel Holbæk Mørch

What do you see the role of these reporting frameworks could be other than of course, as you say, there's not really any economic benefits?

Interviewee

Emissions reporting is extremely important for the ease of doing business. So as we see one of the pressures on the shipping industry as well as some of the big cargo owners if you as an example, take the container industry, some of these large cargo owners, so IKEA, Unilever, they're increasing their scope, three emission reduction targets, and they want to be able to report on their emissions on the entire value chain. So I think for a container liner that would be very important for them to be able to do this easily. So report on their emissions, do it in an easy way for every

cargo you've done for every voice. You've done. This is your emissions. So I think it's an ease of doing business. And I think potentially going forward some cargo owners will choose to do business with somebody that has already disliked this or have already this, done this work, instead of trying to you know, reinvent the wheel every time they have to do business. So I think reporting is a license to operate going forward for some of the ambitious cargo owners.

Mikkel Holbæk Mørch

You mentioned that you see no commercial advantage in the voluntary emissions reporting. Could you maybe elaborate a bit on potential disadvantages of not conducting this reporting?

Interviewee

So I think once again, we're not at a point where, as an example, if we take the science based targets, I think they've just done something for the maritime industry specifically. I don't think nobody's going to not do business with you just because you don't have science based target approved targets. What I think that this disadvantage will be that you're right now getting an image in the industry on whether you want to be a part of the solution or not. So I think a potential disadvantage would be that if you are not reporting then people don't want to do business with you going forward. At the moment, this is not happening, but people are trying to position themselves whether this could happen at some points. I think the biggest disadvantage would be to get a reputation that you're probably not that easy to work with on these emission reporting.

Tobias Børglum

Do you also have some knowledge from other shipping segments?

Interviewee

So I think in general, when you look at the shipping industry at large and also if you look at who's doing dual fuel new buildings and who's being ambitious on this, you see container liners because they have more consumer facing clients. What we've seen in the dry bulk sector is these very large companies. So if you look at an iron ore trade from Australia to Singapore, it's rather easy because it's large vessels, and it's large companies within the value chain. There you see some of them moving forward and being ambitious. And then I think you can look at it on the participants of the

sea cargo charter. I think that's mainly tanker and bulker companies. They will be ambitious and some of them are there. But it's just it's more scattered and it doesn't really have a pattern in some of the other industries where I think the container liner or the container industry is very much you have leaders, followers, and somebody's not doing anything. I think in the dry bulk in the tanker sector, you have specific companies doing something and the majority not.

Tobias Børglum

Do you also see these patterns scattered out geographically?

Interviewee

Yeah, I think I think you hit it. exactly there. So I think European companies, maybe just mentioning shipping industry is a global industry. So a lot of the companies will trade in the EU and Asia. I think what we see is that European based customers are putting more pressure on global companies, right? So if you have a large client base that are situated in Europe, then you would be more inclined to it, but it's not necessarily the headquarter of the shipping company, but more the customers that come from there. And then again, Europe has been very ambitious and the EU MRV system, I think, in general that has put more pressure and more development on that conversation here. I want to mention now that some of the regional differences, what we see is that Europe is the is going forward, but you've also starting to see some Chinese regulation, and especially American regulation on this, because the IMO is not moving quickly enough. So you're starting to see some regional differences here as well.

Mikkel Holbæk Mørch

If you could elaborate on the financiers' role in this space and their expectations towards emissions reporting of shipping companies, have you seen any patterns in that space?

Interviewee

Yes, so let me take it. Let me take on two angles here. So in general, you have the Poseidon principles for the shipping industry. I think that has been criticized a lot, because it's only IMO trajectory, Net Zero trajectory. So they're very much following the IMO. And my best understanding is that has not really put pressure on anybody. It's just really there to start the

conversation on reporting. So the Poseidon Principles is not per se, a driver, but more a transparency initiative. What we've seen in some other parts is these green bonds, where we actually do see a difference in the interest rate or the coupon rates that you can get and which actually is getting a bit more stricter on the targets. So if you asked me two years ago, you would say the financial institutions are there but not putting any pressure? I believe that the financial institutions are starting to put pressure on it to push the companies to report on their emissions. One comment that I do want to make on this one is that you've seen the financing so the shipping industry changed a lot the last maybe 10 to 15 years where previously it was very European based. European banks pulled out after the financial crisis and you've seen a lot of Chinese leasing. So I think, in that sense, just talk about what we talked about before I'm putting pressure on it. I think European banks are finding it difficult to put pressure on it because they don't have the same role as they did before. And they don't want to lose out on business on Chinese leasing as Chinese leasing companies do not have the similar requirements in terms of emissions reporting. So in my personal view is that they want to put pressure on it, but not really in a position to do it.

Tobias Børglum

Could you elaborate a bit on the findings of the BCG willingness to pay report?

Interviewee

What we're seeing though, is that it's slowly but it is increasing. What we see in the container industry is that liners are offering carbon neutral transportation, and that some customers are willing to pay a premium. The trend is not completely there yet in other segments, but I don't think it is that far away. And what we see is that the customers that are willing to pay are willing to pay a higher price than they did two years ago. Right now, that premium is not enough to offset the costs yet. So that is a strategic decision for container liners, whether they want to offer that or not. A very important aspect in this that is also either regulation or within what some of these coalition's that I mentioned before, is that the industry has to figure out how to do a sort of book and claim system so that you can do carbon neutral transportation on one vessel but sell it in other regions because you will not have the alternative fuel ready everywhere. So I think you still have some challenges or some questions that you have to answer before you can do this completely. So I think

right now it's a very theoretical conversation. You do see some deals, but it's not something that is there large scale. But maybe back to the topic of this thesis, I think the emission reduction reporting and the potential of using one fuel over another and reporting that in a certified way is going to be a disadvantage if you don't have it. And I don't think you will get business over others just because you have it because everybody must have it. But if you don't do this right, you will lose business and people will not choose your green product.

Tobias Børglum

Okay. From all the other interviews that we that we did the interviewees emphasized the idea that it was easier to put the costs on the customers in the container industry than it was in for example, the dry bulk industry, and therefore the willingness to pay is also a little bit different do you also see that?

Interviewee

I think it's a very good point. And in my view, this is very much because in a container industry, you spread out the costs across many different products are like that. The extra cost for a pair of jeans or a computer from China will not be significant. But if you're transporting iron ore, then that's part of a larger value chain, right like before it gets to the end consumer you have to pass on that premium a lot of times so it's easier just to pass that premium on once to the end consumer and that therefore it will be much easier for the container liners to ask for that may be also worth mentioning is that we've done a study here at BCG and if you take the likes of the automotive value chain then shipping will only make up 2% of their scope three emissions. So it's an easy way for them to reduce 2% and say that they have carbon neutral transportation, without it being you know, very much a large increase in cost. So as we see right now, it's also very much a marketing gimmick because it won't save IKEA's scope three emissions that your green up transportation, but it is an easy way to say that you've done it right. Whereas maybe just to add whereas in some of the like if you take NVRs as an example like the DSV or something that do end to end transportation, then shipping makes up 20% of their scope three emissions, and there that increase in price will be more difficult to pass on to all their customers.

How do you see the stakeholder pressure impacting the shipping companies Greenhouse gas reporting targets?

Interviewee

I think once again, very valuable question. Very interesting question, but not necessarily an answer that you have now. So just to add on that, I think Maersk, CMA and COSTCO are the three that have a science based target in the container industry. And then you would have some others in bulk and tanker without me remembering the names of it. As I see it right now, that will not give you a commercial advantage. I think companies are trying to increase their ambitions but I think they're afraid of over promising and being accused of greenwashing. But I think there's so much uncertainty on which alternative fuel to go for. I think Maersk is doing a great job and just saying we need to get it going. We're going to source our green methanol from some of these offtake agreements. I think very few companies in this industry are large enough to do that. Most of the companies have a fleet of less than 100 vessels, so it's very difficult for them to say I know exactly that in 2030 I will do this. This will be driven by the larger companies. And then it's still an open question whether that would be a commercial advantage to have those science based approved targets. I don't have an answer for that. But I think it is important to mention that the shipping industry is a hard to abate sector for a reason, and that a lot of companies do not want to press the button and be public about it before they're sure that they can reach those targets they set out.

Mikkel Holbæk Mørch

So you see it more as a way of signaling towards the stakeholders that the companies do want to do something or to commit to a trajectory in that regard?

Interviewee

Yes, I think it's all the intangible stuff that you have to believe in, that that will benefit you, right? Like if you're a public company, like investors will like you more, you can get better green financing for your vessels. You can get better employees, like all these stakeholder advantages, because right now there's no commercial business in doing it and then you have to believe that the investments you do now, you will get recouped in 15 to 20 years by being that green front runner

that was recognized as one of the ones that were first out. So once again, back to my comment on the public image right now. It's all about positioning yourself and then hoping or expecting that you will get the benefit later on.

Mikkel Holbæk Mørch

Can you maybe elaborate a little bit on why they have these expectations?

Interviewee

Yeah. Previously, when we talked about emissions reporting as a whole, you talked a little bit about the size of the company being relevant to their, to their disclosure, basically, or their emission targets as well. Could you maybe elaborate a bit upon what the size of a company has to do with its ability to report maybe does it affect the company's ability to report.

So, in my experience, from my previous job, I worked with ship owners, the fleet size between 20 and 100 vessels. I think, once you I saw that once you move past 30 reported vessels are below 34 vessels in your fleet. You do not have a big internal decarbonization department, so you would not have capabilities to measure this yourself, then you would find somebody else to do it. So I think the size of it is just that you don't have the capabilities within the company. But also, maybe just in terms of investments. You're not big enough to try some of these pilot things like go into green corridors or invest in new technologies pay that 15% premium on a new building, like you're not the one that are willing to take that risk also because you're not sure that you will recoup it later. So I think just in terms of risk appetite, once you're smaller, you're not willing to take that risk. And once again, shipping is a commoditized industry, probably the best thing you will find to a perfect competition. Like the margins are so low that like if you're not sure that you can recoup at least the investment, then you won't, you'll want to take that first step and a lot of smaller companies are looking to the larger ones and waiting for an answer.

Tobias Børglum

Do you also see some difference between private and publicly listed companies in their ability to report or their ambitions to report on the emissions?

Interviewee

Yeah, I think so. There's a perfect correlation between public companies and larger companies. I think once you've went public, you already have those reporting mechanisms in place. And there it's just to measure something new, right, like the emissions. Instead of doing an annual report on financials, you do a sustainability report. So I think for public companies, it's much easier and probably also a more public appearance, so they probably are forced to do something more and there's a lot of shipping companies that people have never heard about. They make up the majority of the industry.

Mikkel Holbæk Mørch

How do you see the role of your company in influencing the decarbonization of the industry?

Interviewee

I really do believe in such a complex topic as we're working on here, the decarbonization, both of the shipping industry but also other industries. I think it makes a lot of sense to just gather knowledge and best practices because there's no right answer on how to do this. And everybody's struggling to find out what to do. So I think just gathering knowledge together at one place is very valuable. And that's also what we see, like a lot of uncertainty. A lot of unanswered questions need us. You need a structured approach. I think the conversation we just had like why are some people doing it while others not? I think it really depends on your risk appetite on how much you're willing to invest in this right? How much you're capable of investing in this. So I think our role in this is really to help larger companies just get in those thoughts. And then on a fact based basis, take the right decisions that that makes sense for them.

Transcribed Interview with TP-D

Date of Interview: 17-04-2023

Interviewers: Tobias Børglum & Mikkel Holbæk Mørch

Tobias Børglum

So what we want to ask you is, can you see any specific industry initiatives which are driving the decarbonization of the shipping industry?

Interviewee

The mega trend, cross-cutting sectors, and also hitting shipping, I would say is that at the end of the day regulation is driving a lot and I think it's especially driven within the EU through the taxonomy and the whole Green Deal. And I think that has first been taken into consideration by the investors. So the LPS so that could be the pension funds and what have you, who see this as a risk if their funds and their assets are not responding to this and then that's a potential liability. So fund managers has felt that pressure earlier than we can see other companies who are not listed for instance, have felt it. And then I think there's a downside and upside to it. Because a new regulation is of course about complying with SFTR requirements peer principle adverse indicator, reporting, and so on, so forth. But there is also an object if you can prove, report on taxonomy alignment for your asset, we can see. We see both specifically with our companies but also in general, that there's an upside to it right? You can attract financing easier, you can easily get cleaner, cheaper, financing, you can grow top line, you can take a green premium for products. So there's a risk side to it, and there's an opportunity side to that regulatory pressure and then I guess on top of that has come both industry agnostic and industry specific frameworks or alliances. Reporting frameworks and alliances are underpinning the pressures for change and adoption of reporting. So cross cutting initiatives who wants you to report on both your impact but also how you plan to reduce GHG emissions in a credible way aligned with science and then you have industry specific alliances, that could be Sea Cargo Charter. That could be principles, somehow focused on different sides. What the projects do is they gather a lot of stakeholders from different parts of the industry together to try to solve some of these issues. I think there's just a common denominator across regulation, these frameworks that they also to some extent, go with the same course obviously that one you need to based on document what your causing of emissions today and have done before, two you need to have some credible plan for reducing that and that reduction needs to pass a bar and that

that bar for ambitiousness for stakeholders in shipping is increasingly becoming higher just adding a lot of pressure.

Tobias Børglum

Do you see any voluntary emissions reporting standards having an impact on the industry?

Interviewee

Yeah, no, I think it's good point. I mean, when I came into this three years ago, SASB were probably the dominating reporting frameworks I would say and to some extent, I think they still are. They might be merged into something. I think there's some ongoing work on merging them into like one coherent sustainability reporting standard, but at the end, they've set the tone for which KPIs to look at and so on, so forth, and that has kind of generally hold true I think. I think the reason they're probably not at the top of my list is that they're not that agenda setting so they are probably more who they become just a normal. whether you didn't choose to use GRI or SASB or both, is kind of like we don't see it as a complete big risk if you only choose one or the other. But it seems like a common a given almost now that when you report on your GHG emissions, you follow one of the applicable standards. But the reason I say that they hadn't become agenda setting is because they are basically they are linked to the first part of the equation which is around what you do and report on it. And then comes what has been the more agenda setting has then become what do you want to do about it right now, how ambitious Are you.? I would say they're just taken as standards. That you want to use for transparency to make sure that they kind of they function as a signal to stakeholders that we're not trying to hide anything. They become these kind of like unique identifiers. So that we don't all measure the same thing. And then of course, there's some underlying substance around how you actually calculate these deviations. I mean, so you can use you have to look into specific reports and look into the specific carbon standard to see and include all three categories, how to define operational and organizational boundaries, all those things. And I could imagine that at some point, reporting becomes even more strict and that you need to disclose that barrier upfront to say, like, we have taken, how we kind of like carved our organizational operational boundary,

I even think that emissions reporting is moving towards a license to operate. So even say that, currently, you have the pulse on the shipping industry but in general terms. It's already now you're behind if you can't show scope three emissions. But scope three will also become a license to operate. I mean, you have to have that and then I wouldn't even say even two years time, license to operate will almost be science based. I mean that's how fast moving this space is.

Tobias Børglum

Yeah, and I think I think in addition to this, we would also like to ask you, how do you see the stakeholder pressure really impacting the greenhouse gas targets of the shipping companies?

Interviewee

On one hand, it might not be the answer that you're looking for. So just to tell me if I'm on one hand, it seems like a super political process. So for example, I kind of follow the process regarding Science Based target on shipping right and it seems like it's been these review rounds where you have big companies such as Maersk and others sitting within the working group and giving input to a draft document, making sure it is a good quality. It seems like fairly political when you look at it. So really these frameworks are quite, of course, affected by vested interest, lowering the ambitions of the initiatives and you know, what are the big companies who can set the agenda and so on so forth.

Tobias Børglum

So, what we wanted to ask you is both that have you seen any difference in the adoption of reporting standards and the ambitiousness of targets?

Interviewee

I don't know. I mean, on one hand, I don't have the latest and greatest update on that. On the other hand, we have looked into that during our engagement but never got so I think I have some overall trends and comments at least and I think one let's just take the last point about geography. There's no doubt that I kind of said in the beginning that EU based companies has been leading on taking a first mover stance adopting emissions reporting standards on this and US-based shipping companies has followed. Where Asia is even further behind it, kind of see that as an overall trend.

And of course, there's EU, UK, north and south because I know that you know that Greece come up a lot within shipping, so it's not a clear cut thing, With geography, I would say Northern Europe, to some extent North America and then kind of the rest. The standard so say SASB for instance is American, right and GRI I kind of don't even know but the adoption rates seems to follow that same pattern. I think the other thing that I was just about to say was that so on one hand, I see shipping as quite mature in reporting since it's been scrutinized so much for the emissions. Like from a broader environmental perspective for so long. That like [The Company] was one of the first companies which I came into that actually had really, really good data on scope one emissions, which was a large chunk of the emissions simply because they were so used to reporting on that due to other regulation. So kind of they had this benefit from being quite regulated and quite scrutinized under the broader environmental level from way back. And then on the other hand, you've had this trend that it's been one of the last sectors to have set Science Based targets, decarbonization pathways calculated so it hasn't moved as fast on that parameter for incidents which would be one of the like normal parameters to score a sector within. When looking at carbon reporting. So it's a bit ambiguous in terms of like the maturity, per se but it definitely was a learning for me that the sector, and then you can compare that with big industries having also big industrial base also having big scope one and two emissions, there it would be much less common to see them having really good data on scope one and two than say a couple of years ago, but shipping has even kind of has due to the scrutiny of tailpipe emissions.

Mikkel Holbæk Mørch

So even though you see this kind of maturity in the efforts to report on these emissions. Why do you see so many firms not reporting then in the shipping industry?

Interviewee

I can say generally, I'm super biased by the fact that this fills a lot in the Danish media, the European media, and the Danish investors, European investors, and so on so forth. EU regulation, Danish regulation. I think this level of scrutiny and the stakeholder expectations for a company that's based in Asia is on a different level. I think they might be somewhere comparing themselves to global markets but on the other hand, I don't think that investors to the same extent value ESG reporting or you can say deem these risks as high as European investors would do or European

stakeholders would do for instance, simply because they feel like the regulation is not there yet. Whereas EU investors look at EU regulation and then they say, wow, have to report on this tomorrow. Our companies, our funding will have to report on this tomorrow. If we can't do that, that's going to look quite painful for us. And when we report, we have high emissions then we have an explanation problem and all that kind of thing. So I think stakeholders are simply just responding to different contextualized pressures and that pressure is simply just higher in the EU and most agenda setting in the northern EU. I guess that's the underlying drivers for that variance more than, let's say data maturity or could they have the ability to do it. It's less of a capabilities and more of a how big is the pressure I would assume.

Mikkel Holbæk Mørch

Okay, and do you also see any difference in the adoption of emissions reporting standards based on the size of companies big versus small and also public versus stock listed in any regard?

Interviewee

I think that the average goes that, you know, those companies who are stock listed have a broader audience of stakeholders that they need to report to and they will also be benchmarked to a much larger extent across different asset classes. Best practice just becomes a higher gain to live up to So yes, the bigger and those listed will be the ones who are more mature here and they are probably also the ones who have whole departments just carved out for ESG reporting and somewhat feel that this becomes quite a hassle, right? Whereas the beauty of being a bit smaller here is that you could engage in emissions reporting with a commercial mindset and examine which of the frameworks do we want to report on from a commercial perspective.

Transcribed Interview with TP-E

Date of Interview: 20-04-2023 Interviewers: Tobias Børglum & Mikkel Holbæk Mørch

Mikkel Holbæk Mørch

Initially, we would just like to ask you how you would describe the main tasks of your current job as well as the activities of your organization?

Interviewee

So we are simply put, addressing the decarbonization of global shipping, focusing on deep sea shipping. And so, we bring in representatives from companies across the maritime value chain into the center to collaborate on solutions to support the industry transition. Most of this is industry focused, so supporting stakeholders within the industry on how to decarbonize. I think we are aiming to develop and get better at is speaking to policymakers on how they can develop an implement policy that can support maritime decarbonization. I would say I'm kind of between these two worlds. So a lot of what I did and I'm about a year and a half into working at the center. My background is in environmental policy, mostly from the US side. So I'm having to get up to speed on EU policy and as well as the IMO policy. But I've done a lot of kind of state of the industry work looking at what are the ambitions that shipping companies are making? How credible do we think those ambitions are and what actions are they taking to ensure that credibility? The next kind of chunk of work I did was directly related to this was ESG and shipping that started with looking at an overview of the existing and coming regulations on ESG reporting. And the finding there is of course, that they're getting much stronger. And then we I collaborated with Anne Katrine, our colleague here's head of ESG, and then Boston Consulting Group on an ESG playbook. So how shipping companies can get started. Now I'm transitioning more into the policy side. So working on EU policy for maritime decarbonization. Yes, so I have been quite a bit in this space. I obviously kind of from your seat, you know, in the research side, but speaking with the shipping companies a bit yeah.

Mikkel Holbæk Mørch

Do you see any specific industry initiatives driving the decarbonization of the shipping industry other than your organization?

Interviewee

Yeah, I mean, I think there is two sides the demand pole, so I would say that's largely coming from the capital providers, so banks and lenders, ships are expensive. So the shipping industry relies on debt. And there's pressure from those capital providers, in large part because of ESG reporting requirements, or just interest from large pension funds and so on, to have a more sustainable portfolio. So that's the kind of demand poll and then there's also I would say, the other. Maybe one more on that would be I think there's a sense that, that generally, this is where the world is going. So there's also interest in being a first mover and developing new technologies that then can put them in at an advantage. But I think the real big drivers actually on the other side, which is the push from largely from regulations. That mostly would be from the EU and also the IMO. We're trying increasingly, kind of tightening the screws on shipping and pushing them and that's starting to make financial decisions or decarbonization measures make more financial sense, because penalties will be starting in the next few years.

Mikkel Holbæk Mørch

In recent years, the role of emissions reporting requirements have increased across the shipping industry, how do you see the role of voluntary emissions reporting standards in the shipping industry?

Interviewee

I think that they are used for different reasons. One of them is that as these new regulations are coming on board, I think a lot of companies are seeing voluntary tools as a way to kind of ramp up their ESG capacity. It obviously requires a lot of new types of skills that shipping especially has not maybe had in their offices before. So that's one reason. I mean, I think though the biggest driver again, is access to capital, that they are getting these requests from either their shareholders or from banks or other lenders for ESG information. And so as more of those requests are coming in, it starts to make more sense rather than having one person, drop everything and try and figure out an emissions portfolio to start to build up in a capacity within shipping companies. There are also just a lot of shipping companies, the majority that aren't, don't fall under these two criteria. And that don't report anything or I mean, you've probably seen hardly even have a website. There's a lot of small ship owners out there I forget what the statistic is, but so this is marked mostly among the big players

Mikkel Holbæk Mørch

And why do you see this discrepancy in small and large firms?

Interviewee

Yeah, larger firms need more access to capital. They also are more likely to be public and then public both have tighter regulation, but also just demands from their shareholders. And, you know, in general, they just have more resources to throw at a sustainability department. And then, you know, small ship owners is it's kind of a, it's been described to me as kind of, you know, a bit of an old fashioned industry. A lot of these are companies that have been in the same family for many generations, I guess, including Maersk. I wouldn't put them in that category, but that they are also right. So controlled by the same family and, and there's a lot of these companies where they've kind of done things a certain way and until very recently, haven't faced a lot of pressure and I think that really is, you know, shipping has been out of sight out of mind. Consumers don't interact with shipping companies, they barely know what they do. And because it's a far more efficient way of transporting goods, it also hasn't gotten a lot of heat from regulators the way that air fare or air travel and air freight has. So I think those small players really just haven't had much pressure.

Mikkel Holbæk Mørch

Do you also see differences in different shipping segments?

Interviewee

Oh, yeah, I guess. Yeah, we actually. So in that state of the industry, we broke down by segment we looked at containers, tankers, bulker, and then we also looked at ro-ro even though it's a small segment, we were curious if because they're carrying high value cargo also in the future going to be carrying a lot of EVs. Maybe they as a sector have more pressure to decarbonize and no surprise

really, but the container segment is really the front runner on their reporting. Across the board, they have more net zero commitments. They have more emissions reporting or just in general sustainability reports. And we've linked that to more pressure from their customers. So the big retailers and so on that, that are their customers, which, for commodities, which have smaller margins and also face less customer pressure, it doesn't trickle down their scope three isn't as important as the scope three of an Ikea.

Mikkel Holbæk Mørch

You already mentioned that the customers in the container segments have a lot to say, but do you have any indications on the customers for the other segments so their expectations towards reporting and decarbonization as well?

Interviewee

I think it's just going to be then very product specific. Nobody cares about the emissions from coal shipping. They shouldn't right, that doesn't matter. But iron ore, which goes into steelmaking, that is a sector that's under pressure to produce green steel. There's also demand plus Volvo wants to use all green steel in the production of its cars. That's a lot of steel and therefore a lot of iron. So that could be an opportunity. And then Okay, so here's actually, I think it's super interesting, which is the tanker and the gas carriers. Because as fuels start to change, and these new kind of hubs of green fuel producers shift, and the US is going to be big Australia is going to be big. All of those places are going to start exporting green fuel. And we you saw this with LNG. LNG as a shipping fuel started because people started putting LNG on ships and they thought, well, let's also burn the fuel while we're carrying it. So I think those are going to be kind of obvious first movers for decarbonization. So you know, do they face pressure, you know, I think if you're, if you're sailing with green ammonia for fertilizer, for Europe, say, taking it to Rotterdam, those customers for that green ammonia are perhaps going to care about the scope three emissions, and they're kind of like ready to go because they've got the fuel on the ship.

Do you see any pressure from stakeholders of shipping companies to disclose on GRI/SASB it could also be some of the other standards?

Interviewee

We looked at the state of the industry, we looked at top 30 in these four segments. And so one of the things we looked at was which reporting frameworks are they using voluntary? And so I can send you those numbers if that's useful, but they're GRI was the top followed by SAS B, and then TCFD. And what's the platform where you go on See, carbon disclosure project? Yes, CDP those are about like 30%, SASB was like 40% and then GRI was like 50%. And then the rest. They have reporting but they don't mention any frameworks. Or they don't use those or maybe they just don't report so I think it's generally reflects the those also fall on the same like most popularly used I do see you know, they're using multiple frameworks, though to so. Usually, it's like GRI and SAS B, and then maybe they'll do a CDP filing if they have to. So I guess that's an indication of what where the pressure is, or it could be an indication that they're like we don't know. So we'll just use the most popular

Tobias Børglum

Do you see any advantages or disadvantages in using these frameworks?

Interviewee

I would just say that it's a big advantage if you're a European based company to use SAS B because it's connected into ISSB. Now, so it's going to help you with these new standards, which are likely going to be the new universal standards. So in terms of just building up the right kind of capacity in your in your reporting, and disadvantages of using any of these. Yeah. I mean, the obvious there is greenwashing. Right. If you're not using any, I've looked into some of these numbers, and there's a big difference even when they were they referenced the same frameworks. There's big differences in how they're reporting. The big one that we looked into is what is scope three? Which is a big question for shipping companies. If you charter a ship, do the emissions on that ship count as your scope one or your scope three and, and different shipping companies? do that differently?

Do you see any stakeholder pressure for companies to set some ambitious targets?

Interviewee

Yeah, IMO. I mean, from the shipping company's point of view is like the bare minimum. It's kind of not even anything to say you're following because it's like, well, yeah, there's going to be regulation. That forces you to follow that. So. But the ones that we hear, I guess, through shipping companies that they say their stakeholders are looking at is to do SBTI Align targets. But then there's also some backlash from shipping companies which say like, if that's the if that's the criteria, we're out because that's like impossible for us. And really, I think it's only Maersk. And one other is right now. SBTI aligned. So there's some concern that for shipping, it's so that pressure is like an unattainable level and you kind of either do that or you do nothing. But then I would say the other is like, establishing a net zero target, which obviously Maersk was a first mover on that and then now we see increasing numbers of companies setting net zero targets and so on.

Mikkel Holbæk Mørch

Do you see any disadvantages of not committing to the trajectories that we're talking about here?

Interviewee

I think that there's this risks on both sides, of course. So the risks on the side of not setting a Paris aligned target, is that I would say your targets are seen as not credible and that you get labeled as greenwashing. So it's basically the same as doing nothing. That you maybe lose access to markets. But I think that's a that's a pretty long-term thing. Right now, I think. Yeah, I think that it's why actually you don't see as higher rates as you do in other sectors is that that kind of penalty for not setting these super ambitious targets is pretty low at the moment. And it's more about potential opportunities for being a first mover that is driving it, I would say, but maybe Okay, one last thing. Maybe I'll go back on myself. Is this access to capital? Right? I think that that's really the key, or you might not get or you just will have more expensive capital.

Have you also seen some differences in the reporting efforts based on the geographical location of companies?

Interviewee

I mean, not super surprising that Europe had higher rates, but it is it would be interesting to kind of break down Europe, because I think most of that is going to be Northern Europe, Germany, Denmark, Norway, where the Greek shipping companies make up the majority of European shipping and it's very low on sustainability reporting. And then otherwise Japan stands out as being highly ambitious. And yeah, I would say those two were, were kind of the leaders. No surprises. also happened to a lot of our partners are from those two regions, Northern Europe and from Japan.

Transcribed Interview with TP-F

Date of Interview: 25-04-2023 Interviewers: Tobias Børglum & Mikkel Holbæk Mørch

Mikkel Holbæk Mørch

So just to initiate the interview, if you could describe the maintenance of your current job as well as the activities of your organization.

Interviewee

Yeah, so I'm the CFO in a nonprofit foundation set up to do some figures in the ocean space. And we're all about data technology and collaboration, right. So we tried to come up with a cloud based platform tools that allows users to start using ocean data on land. So from science governments and industry, making sure that you can actually utilize that data across the different sectors and connect them in one place this cloud platform that we call ocean data platform allowing users to kind of create insights from the data. So we have a broad ocean mandates and then we also looking specifically into certain sectors. We'll also be covering Science and Government approach but we also have an executive focus and we have basically picked four sectors finance, we have shipping offshore wind, and aquaculture. And it's all about can we actually prove some value. So we actually have some good concrete projects and offshore wind and also finance and shipping that we calculate the emissions from ships called our ship emission Tracker or simulator that is used by brokers and shipping charter companies to calculate their scope three and average efficiency or annual efficiency ratio. Basically the numbers are real time, instead of waiting and one year delay, we actually can do that real time with the tools. And we try to take those tools forward to the finance Institute's actually creating a portfolio tool that allows you to look at co2 emissions but also biodiversity and ecological impacts of where does the ship move in relation to marine protected areas? And what is the kind of the biodiversity impact could be NOx, SOx, particulate matter, local pollution, air pollution, or it could be noise pollution. So we're trying to combine data and provide tools for industry but also finance Institute's. So that's, that's the setup.

Mikkel Holbæk Mørch

Do you see any of these specific industry initiatives driving the decarbonization of the shipping industry?

Interviewee

You kind of feel like you have IMO that is putting regulation isn't really hard. It's more loose than the other targets that we've seen, like, let's say well net zero by 2050 is not the kind of ambition that I think we need and want but still, it's something that is coming right. And we have tools that we started to create to make something that is easy to get access to not waiting a year for companies to report but actually doing it real time, based on ship characteristic. And then we also look for additional things that is coming and this is where can be the discussion. You see this all over the place where you have climates, focus have to really ask us and those kinds of emissions meet them. But it's also the biodiversity and the impact on nature. And this is where we kind of have to start working. Basically with local impact data. We're not just talking about general co2 emission calculated we're talking about actually measuring where a ship moves in relation to a marine protected area and looking for pollution or impact in those areas. There you need a lot of data about data is not standardized. So everyone have to work together, industry, science and governments to make sure that we standardize data. We kind of try to get away from the silos of data. It's a lot of silos like shipping companies, don't really wants to share any data. But if they can actually share temperature, salinity data when they are moving around and oceans, thus useful information for science, for example, and if shipping companies share emissions data, that can also be a tool for being transparent in terms of how they impact the planet. So that data and making sure that the data moves is what's super important for us in motion making sure that we part of that.

Mikkel Holbæk Mørch

Have you engaged with Mærsk Mc-Kinney Møller Center For Zero Carbon Shipping?

Interviewee

We are knowledgeable partner of the center, and they are a partner of us. Just last week I presented for their internal staff. We have the proof-of-concept tools when it comes to co2 emissions and basically risk exposure. We present that to them. And we're looking for ways where we can actually

start using data tools to better measure impact from shipping and that could be through these tools that we're creating or give them tools that allows them to measure for example, blue corridors or green corridors, and also meta data in terms of the worlds global shipping fleets, if you can calculate through algorithms, the emission from this and their impact on nature, directly from the data point ais traffic data ship characteristic data, then you can actually start to make some really good insights in terms of future operations of this. So it's working with the data that we have and working with the likes of Mærsk Mc-Kinney Zero Carbon Center to make sure that we kind of talked to the right people in the industry.

Mikkel Holbæk Mørch

How do you see the role of voluntary emission standards in the shipping industry?

Interviewee

Shipping companies haven't felt the needs to report until now, but now it's coming. And it's led by the taxonomy. But then you have the CSRD that's coming that's going to make it mandatory to report on environmental numbers basically, same way you do that financial numbers, and it's going to cover biodiversity, climate, etc. So it's going to be a big discussion how you actually get a handle of these numbers and assure that they are right, but then they also have these voluntary standards, right? TCFD on climate but also TNFD working quite closely with in terms of local nature impacts, and that's going to be the one thing that's going to be even more if not more important, but it's going to be equally important going forward actually your impact on nature and biodiversity, not just co2 emissions, and working and understanding what's coming. They actually defined for shipping, three major areas that you kind of have to cover going forward like air pollution NOx, SOx, particular matters, climate co2 emissions, and then ecological impact and how much time you should spend in the marine protected area and so we actually covering all the three things that is important in SASB. So all international companies outside you that is listed on the stock exchange, have to report in the same way on environmental data.

Tobias Børglum

Do you experience any difference in the reporting efforts of companies depending on their geographical location, their size?
Interviewee

Yeah, I think shipping for sure, like containers companies are the ones that are reporting the most, as they have customers at the end that is requiring scope three calculations like they are developing their own ways to calculate the emissions from parcels from different types of cargo carried. So they are quite sophisticated in the way they provide tools for the customers basically, to calculate this and, and they use the same kind of setup that we do where you use algorithms and they use AIS traffic or use basically real time information instead of having this yearly IMO report and then divided on parcels. So we see particularly cargo with containers, also quite a bit on ro-ro, then you have bulk and tankers where the end consumer is far down the value chain, so they don't really feel the pressures. But what we've seen in that industry as well, is that shipping companies are starting to feel it not just from the customers but from the financial institutes that is actually pushing for this information. Because if shipping companies can prove their commitment to the green agenda, they can get access to much more funding at a better rate than competitors. So they try to position himself as being quite environmental friendly, not just for the customers, which is good, but also for kind of getting the best capital to finance their operations, or the chapest capital.

Mikkel Holbæk Mørch

And on a geographical spectrum as well. Do you see any differences in reporting?

Interviewee

Europe is really forward. From what I see the European companies are really pushing quite a bit on this. US is a little bit lagging. But it depends on some companies are really forward looking and so far lagging Asia is a different thing. Like some companies do something but yeah, it's difficult to get data and it's difficult to understand what they're actually doing sometimes. So I think Europe and US is probably the one that is going to have to lead. But if you set the precedence and a lot of these Asian companies are looking for capital in the European and US markets, they also kind of feel this basically going forward. You have some geographical differences as it stands now. However, I believe we will have some convergence over time to see others also starting to report more.

Mikkel Holbæk Mørch

And you mentioned this convergence towards the same reporting standards of a lot of shipping companies. What do you think the impact of that could be on the industry?

Interviewee

I think emissions reporting standards have to converge to a single, global standard. I think there's 200 different reporting standards that people are working with, like you have the Global Reporting Initiative, SASB, you can just pick and choose. And, and that's been the problem, right? The problem is that companies are just picking different kinds of reporting frameworks based on what they believe investors and customers want to hear. Actually, having these converging into some standards that is common, and you kind of have to report on the things that is relevant for you. So the EU taxonomy that's something that you will see going into kind of future reporting standards when they are mandatory. That is good, because then you can't just pick and choose and it's much easier for shipping companies to actually understand what they're reporting on and for stakeholders to understand the reporting. They kind of feel this as well, like they want to own their own narrative is what they tell me like, actually having someone collecting data on the outside on them. You have Bloomberg telling the investors what these companies are doing is not good for them. They want to own their own narratives. They are starting to collect data, they are starting to build up these dashboards and make sure that they control the data.

Mikkel Holbæk Mørch

Do you think that these voluntary standards such as SASB or GRI have somewhat nudged the European Union to make these common standards?

Interviewee

I think voluntary standards have nudged EU to create these mandatory reporting standards and the reporting frameworks in the EU wouldn't be able to come together if GRI or SASB didn't exist, right. So it's a good thing to actually exist and we understand how they've been working for a long time and then trying to find the best way to kind of combine them and make it mandatory I think is the way

Tobias Børglum

How do you see first movers influencing the adoption of emissions reporting in the industry?

Interviewee

This is a question that we have also uncovered. Offshore wind companies have explained this and their way of sharing data when it comes to like impact on biodiversity. And that's like answering something in the future when it comes to humanitarian impact. And prove that you're doing the right things, right. And the standards are being written as we speak. So they're trying to kind of okay, how do we position our data so we have our own narrative, establish the baseline and monitor this. And that's a benefit for them because they can win new tenders, or in the case of shipping companies, if they understand their environmental impact they can get more customers they can get better offerings on capital. It is a good way to kind of position themselves and being recognized as the leader on this because then if they have an established standard, and it's data that is basically driving it aligned with future standards, they can be the first movers, but then I ask them like, do you want to kind of keep that as a closed box like a secret sauce, so you always are the only one with that data? And they said no. We want to be front runners and we want to kind of set the standards, but we want everyone to participate on these standards. Otherwise, it's not going to work. You need big companies to kind of show what is possible and set a precedence on how you adopt this. And then the small companies will follow. So I think when they get better access to capital customers being the frontrunner and, and the others are getting kind of okay, this is the use case. This is the reference case. Let's go with that. So, I think is a win for all parties that you have these companies.

Mikkel Holbæk Mørch

Do you see any disadvantages for shipping companies not adopting such standards?

Interviewee

I think it's an easy thing to do. Just say I'm not going to do it. And currently that works. But how does that work in two years time. I think the problem that they don't really understand is that by not doing it and not starting with kind of internal collection of data. You can't control your data point and you don't own your story. And when it's mandatory to report, you can say, Okay, I've

been doing this I've been having an internal rate and you can control it. If you come late to the party and everyone else has applied by the standards and you are the only one that hasn't made sure that you are ready, then you will lose out on the markets and Green Deal right.

Collecting emissions data enables shipping companies to do better internal business decisions. And that's what we see as well. We have this emissions tool that we use as a way for companies to calculate emissions from future legs. And brokers can use that to kind of set a high premium on using these new ships that has a good annual efficiency ratio. And you can actually price it and that's quite an interesting thing. If you look at how much co2 does that ship emit on that leg and you put that information next to or just link it up to the current price on the days for carbon trading basically, and the price on carbon and you can estimate what is the actual price and then you can look at the difference between the old ships and new ships and you can price it into your decisions. That's the important thing. And I think that's where we moving like using that data in a productive way to make the right decision. Once carbon has a price set on it. That's important.

Tobias Børglum

During our talks with some financial institutions, they highlighted then some of their clients were reluctant to adopt these standards as soon as they would start being transparent then they would have to also show some continuous progress in their ambitions. Do you see any substance in that statement?

Interviewee

To a certain degree, you kind of have this in the market and shipping companies they are quite afraid of the unknown and just sharing data for sharing data, it doesn't resonate with them because I might lose my competitive advantage. I've shared some data points and disclosing things they only disclose it if they see the real benefit. So you kind of have to make it clear, what are they gaining by disclosing and not looking at the flipside. But I think it's better to look at the upside, getting access to more customers, because this is going to be more prevalent in the future getting access to better capital better insurance terms because that's going to be something that is required by the ones that is giving out capital and put up policies on the insurance.

Tobias Børglum

How do you see the impact of PPFI?

Interviewee

Yeah, I think you have the IMO and all that is driving when it comes to reporting and then they have the taxonomy and the other kind of standards and mandatory ways to report so there's a lot of different initiative that is pulling this. More reporting is going to be required by companies if it's Poseidon, it's IMO, or it's EU taxonomy and CSRD like that's coming from different angles and usually a lot of the same numbers like, for instance, like Poseidon is the annual efficiency ratio. While IMO is CII those are quite similar. It's just more specification on granularity on actual the cargo that you moving around. So it's quite the similar data points that you have to kind of report on. So the data is the same. That's the point and I think, for companies is good to have control over their own data, because if they are not having control over their own data, I can promise you that someone is selling information on them, because we've been talking quite a bit to the data providers like the s&p the Bloomberg, and they go with what they have, right? They scrape the web page, they have biased and personal opinions. And you don't want to be left out of that loop. Someone else telling your narrative you want the companies themselves to control the narrative.

Tobias Børglum?

We've been talking to quite a few industry customers. Have you experienced any pressure from them for shipping companies to adopt standards?

Interviewee

From what I'm seeing from certain companies, especially in Nordics is that they want to have regulation that levels the playing fields. Because if you have some areas of the world that is not having the requirements and they have to abide by the requirements, it's not helping them that's why they have to go through the IMO we have to make sure that everyone is covered by the same rules. Otherwise it's going to be us losing out to others. So many times they will push for more regulations actually. And make sure that everyone has those regulation in place because then it's just a level playing field and you can compete the best one wins, basically. But that's a tough one

in today's kind of geopolitical scenery. And getting everyone to abide by the same rules. But I see that companies themselves sometimes push this to level the playing field.

Appendix H – Companies in the Emissions Reporting Index

		_		Shipping	Market Cap
No.	Company	Country	Continent	Segment	(USDbn)
1	A.P. Moller - Maersk*	Denmark	Europe	Container	80.78
2	Hapag-Lloyd*	Germany	Europe	Container	53.47
3	COSCO Shipping Holding (COSCO)*	Hong Kong	Asia	Container	22.81
4	Nippon Yusen Kabuskiki Kaisha (NYK)	Japan	Asia	Diversified	13.07
5	Evergreen Marine	Taiwan	Asia	Container	10.80
6	Orient Overseas (International)	Hong Kong	Asia	Container	10.73
7	Mitsui O.S.K Lines (MOL)	Japan	Asia	Diversified	9.40
8	Hyundai Merchant Marine (HMM)	South Korea	Asia	Diversified	8.27
9	Yang Ming	Taiwan	Asia	Container	7.33
10	Wan Hai	Taiwan	Asia	Container	7.26
11	Kawasaki Kisen Kaisha (K-Line)	Japan	Asia	Diversified	6.25
12	Frontline*	Norway	Europe	Tanker	4.14
13	Euronav	USA	North America	Tanker	3.73
14	Scorpio Tankers	USA	North America	Tanker	3.63
15	Hafnia	Norway	Europe	Tanker	3.07
16	ZIM	USA	North America	Container	2.98
17	Torm*	Denmark	Europe	Tanker	2.92
18	Matson	USA	North America	Container	2.55
19	International Seaways	USA	North America	Tanker	2.55
20	Pan Ocean	South Korea	Asia	Diversified	2.54
21	Star Bulk Carriers	USA	North America	Dry Cargo	2.52
22	Golar	USA	North America	Tanker	2.45
23	D/S Norden	Denmark	Europe	Diversified	2.35
24	Wisdom Marine Lines	Taiwan	Asia	Dry Cargo	2.21
25	Stolt-Nielsen	Norway	Europe	Tanker	2.08
26	Golden Ocean Group*	Norway	Europe	Dry Cargo	2.06
27	DHT Holdings	USA	North America	Tanker	1.88
28	Flex LNG*	Norway	Europe	Tanker	1.88
29	U-Ming Marine Transport	Taiwan	Asia	Dry Cargo	1.68
30	SFL	USA	North America	Diversified	1.45
31	Costamare	USA	North America	Container	1.31
32	Danaos	USA	North America	Container	1.22
33	BW LPG	Norway	Europe	Tanker	1.16
34	Teekay Tankers	USA	North America	Tanker	1.15
35	Navigator Holdings	USA	North America	Tanker	1.06
36	Nordic American Tankers	USA	North America	Tanker	0.91
37	Dorian LPG	USA	North America	Tanker	0.90
38	Eagle Bulk Shipping	USA	North America	Dry Cargo	0.89
39	Genco Shipping & Trading	USA	North America	Dry Cargo	0.81
40	MPC Container Ships	Norway	Europe	Container	0.79
41	Okeanis Eco Tankers	Norway	Europe	Tanker	0.79
42	NS United Kaiun Kaisha*	Japan	Asia	Diversified	0.76
43	Ardmore Shipping	USA	North America	Tanker	0.76
44	Odfjell	Norway	Europe	Tanker	0.75
45	Global Ship Lease	USA	North America	Container	0.73
46	Tsakos Energy Navigation	USA	North America	Tanker	0.69
47	Avance Gas	Norway	Europe	Tanker	0.53
48	GasLog Partners	USA	North America	Tanker	0.50
49	Sincere Navigation	Taiwan	Asia	Dry Cargo	0.49
50	Samudera Shipping Line	Singapore	Asia	Diversified	0.48

*Companies listed on more than one exchange

Ap	pendix	I –	Com	oanies	in	the	Em	ission	s Re	eporting	Index	TES	in	2020
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No	Company	TES 2020	Country	Continent	Shipping	Market Cap
1		7.0		T	Segment	(USDbn)
1	A.P. Moller - Maersk*	7.0	Denmark	Europe	Container	80.78
2	Global Ship Lease	7.0	USA	North America	Container	0.73
3	Evergreen Marine	7.0	Taiwan	Asia	Container	10.80
4	Wan Hai	7.0	Taiwan	Asia	Container	7.26
5	Frontline*	7.0	Norway	Europe	Tanker	4.14
6	Teekay Tankers	7.0	USA	North America	Tanker	1.15
7	MPC Container Ships	7.0	Norway	Europe	Container	0.79
8	Mitsui O.S.K Lines (MOL)	6.6	Japan	Asia	Diversified	9.40
9	Orient Overseas (International)	6.6	Hong Kong	Asia	Container	10.73
10	BW LPG	6.0	Norway	Europe	Tanker	1.16
11	Eagle Bulk Shipping	6.0	USA	North America	Dry Cargo	0.89
12	Avance Gas	6.0	Norway	Europe	Tanker	0.53
13	Euronav	6.0	USA	North America	Tanker	3.73
14	Flex LNG*	6.0	Norway	Europe	Tanker	1.88
15	Odfjell	6.0	Norway	Europe	Tanker	0.75
16	Genco Shipping & Trading	6.0	USA	North America	Dry Cargo	0.81
17	Hyundai Merchant Marine (HMM)	5.3	South Korea	Asia	Diversified	8.27
18	Matson	5.0	USA	North America	Container	2.55
19	Golden Ocean Group*	5.0	Norway	Europe	Dry Cargo	2.06
20	Costamare	5.0	USA	North America	Container	1.31
21	Scorpio Tankers	5.0	USA	North America	Tanker	3.63
22	SFL	5.0	USA	North America	Diversified	1.45
23	Danaos	4.9	USA	North America	Container	1.22
24	Hapag-Llovd*	4.1	Germany	Europe	Container	53.47
25	Yang Ming	4.1	Taiwan	Asia	Container	7.33
26	Star Bulk Carriers	4.0	USA	North America	Dry Cargo	2.52
2.7	Dorian LPG	4.0	USA	North America	Tanker	0.90
2.8	Wisdom Marine Lines	3.7	Taiwan	Asia	Dry Cargo	2.21
29	Sincere Navigation	3 7	Taiwan	Asia	Dry Cargo	0.49
30	Stolt-Nielsen	3.7	Norway	Europe	Tanker	2.08
31	ZIM	3.5	USA	North America	Container	2.00
32	COSCO Shipping Holding (COSCO)*	3.3	Hong Kong	Asia	Container	22.90
32	International Seaways	3.0		North America	Tanker	2 55
34	Okeanis Eco Tankers	3.0	Norway	Furone	Tanker	0.79
35	D/S Norden	3.0	Denmark	Europe	Diversified	2 35
36	GasLog Partners	3.0		North America	Tanker	0.50
30		3.0	Denmark	Furane	Tanker	2 92
39	Kawasaki Kisan Kaisha (K. Lina)	2.0	Jopan	Asia	Diversified	6.25
20	Ning on Vusen Kabushili Kaisha (NVK)	2.0	Japan	Asia	Diversified	0.23
39	Color I NC	2.0	Japan	Asia	Tombon	13.07
40	Golar LING	2.0	USA	A sie	Diversified	2.43
41	NS United Kalun Kalsha	2.0	Japan	Asia	Diversified	0.70
42	Hainia	1.0	Norway	Europe	Tanker	3.07
43	Dri foldings	0.0	USA Saudi V	North America	Direct C 1	1.88
44	Pan Ocean	0.0	South Korea	Asia	Diversified	2.54
45	U-Ming Marine Transport	0.0	Taiwan	Asia	Dry Cargo	1.68
46	Navigator Holdings	0.0	USA	North America	Tanker	1.06
47	Nordic American Tankers	0.0	USA	North America	Tanker	0.91
48	Ardmore Shipping	0.0	USA	North America	Tanker	0.76
49	Tsakos Energy Navigation	0.0	USA	North America	Tanker	0.69
50	Samudera Shipping Line	0.0	Singapore	Asia	Diversified	0.48

*Companies listed on more than one exchange

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Appendix	J = Com	panies in	the H	missions	Reporting	Index	TES 1	n 2021
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No	Company	TES 2021	Country	Continent	Shipping	Market Cap
1	A P. Moller Moerck*	9.0	Denmark	Furone	Container	(USDBII) 80.78
2	Huundai Merchant Marine (HMM)	9.0	South Korea	Asia	Diversified	8 27
23	TORM*	9.0	Denmark	Furone	Tanker	2.92
3	$Mitsui \cap S K Lines (MOL)$	9.0	Japan	Asia	Diversified	9.40
	Kawagaki Kigan Kajaha (K. Lina)	8.0	Japan	Asia	Diversified	9.40
5	Global Shin Lease	0.0 8.0	Japan	Asia North America	Container	0.23
7	Matson	0.0 8.0		North America	Container	0.73
	Danaos	8.0		North America	Container	1.22
0	Ninnon Vusen Kabuskiki Kaisha (NVK)	8.0	Japan	Asia	Diversified	13.07
9	Evergreen Morine	7.7	Japan	Asia	Container	10.80
10	Won Hoi	7.0	Taiwan	Asia	Container	7.26
11	Wall Hal	7.0	I alwali Namway	Asia	Tombor	7.20
12		7.0	INOFWAY	Europe	Tanker	4.14
13	MDC Contain on Shine	7.0	USA	North America	Tanker Cantain an	1.15
14	MPC Container Snips	7.0	Norway	Europe	Container	0.79
15	BW LPG	7.0	Norway	Europe	Tanker	1.16
16	Eagle Bulk Shipping	7.0	USA	North America	Dry Cargo	0.89
17	Avance Gas	7.0	Norway	Europe	Tanker	0.53
18	Golden Ocean Group*	7.0	Norway	Europe	Dry Cargo	2.06
19	Costamare	7.0	USA	North America	Container	1.31
20	Sincere Navigation	7.0	Taiwan	Asia	Dry Cargo	0.49
21	Orient Overseas (International)	6.6	Hong Kong	Asia	Container	10.73
22	Euronav	6.0	USA	North America	Tanker	3.73
23	Flex LNG*	6.0	Norway	Europe	Tanker	1.88
24	Odfjell	6.0	Norway	Europe	Tanker	0.75
25	Scorpio Tankers	6.0	USA	North America	Tanker	3.63
26	Star Bulk Carriers	6.0	USA	North America	Dry Cargo	2.52
27	ZIM	6.0	USA	North America	Container	2.98
28	Hafnia	6.0	Norway	Europe	Tanker	3.07
29	Hapag-Lloyd*	5.5	Germany	Europe	Container	53.47
30	COSCO Shipping Holding (COSCO)*	5.3	Hong Kong	Asia	Container	22.81
31	Genco Shipping & Trading	5.0	USA	North America	Dry Cargo	0.81
32	SFL	5.0	USA	North America	Diversified	1.45
33	Wisdom Marine Lines	5.0	Taiwan	Asia	Dry Cargo	2.21
34	International Seaways	5.0	USA	North America	Tanker	2.55
35	Okeanis Eco Tankers	5.0	Norway	Europe	Tanker	0.79
36	Stolt-Nielsen	4.5	Norway	Europe	Tanker	2.08
37	Yang Ming	4.1	Taiwan	Asia	Container	7.33
38	Dorian LPG	4.0	USA	North America	Tanker	0.90
39	DHT Holdings	4.0	USA	North America	Tanker	1.88
40	D/S Norden	3.0	Denmark	Europe	Diversified	2.35
41	GasLog Partners	3.0	USA	North America	Tanker	0.50
42	Golar LNG	2.0	USA	North America	Tanker	2.45
43	NS United Kaiun Kaisha*	2.0	Japan	Asia	Diversified	0.76
44	Pan Ocean	0.0	South Korea	Asia	Diversified	2.54
45	U-Ming Marine Transport	0.0	Taiwan	Asia	Dry Cargo	1.68
46	Navigator Holdings	0.0	USA	North America	Tanker	1.06
47	Nordic American Tankers	0.0	USA	North America	Tanker	0.91
48	Ardmore Shipping	0.0	USA	North America	Tanker	0.76
49	Tsakos Energy Navigation	0.0	USA	North America	Tanker	0.69
50	Samudera Shipping Line	0.0	Singapore	Asia	Diversified	0.48

*Companies listed on more than one exchange



Average IMO Score for each shipping segment and continent in 2020 and 2021



Average Paris Agreement Score for each shipping segment and continent in 2020 and 2021

Global Theme	Organizing Themes	Basic Themes	Codes		
Financial Institutions			Lower quality reporting in Southern Europe		
		Geographical Location	North American have caught up with European companies		
			Northern European companies report the most		
			Geographical location impacts the willingness and ability to report		
			Emissions reporting varies across shipping segment		
	Characteristics of Emissions Reporting	Shipping Segment	Stakeholder expectations vary across shipping segments		
			Depends on position relative to the end consumer		
			Emissions reporting is more difficult for smaller companies		
		Company Size	Size impacts companies ability to report		
			Large public companies have the capacities to report		
		Ownership Structure	Small companies experience less stakeholder pressure		
			Public entities have different pressures to report		
	The Role of Emissions Reporting		Defining a common threshold		
		Assert Commitments to Decarbonization	Emissions reporting increases trustworthiness		
			Financial institutions' portfolio construction will look different in the future		
		Universal Framework for Reporting	Universal framework for reporting		
		Emissions Depositing is Descening Hard Law	Allow companies to comply with future mandatory regulation		
		Emissions Reporting is becoming frare Law	When soft law becomes hard law, change in behavior occur		
		Enable Benchmarking	Reporting is used to benchmark performance across the same segments		
			Expectation that shipping companies disclose their sustainability strategy		
		Disclosure of Sustainability Strategy	Expectation that shipping companies provide emissions data and targets		
			Emissions strategy is important to continuously obtaining finance		
			Increasing materiality of emissions reporting		
	Expectations of Financial Institutions	Increased Minimum Requirements	Red flag to not report		
		Participation in Industry Initiatives	An expectation that shipping companies engage in decarbonization initiatives		
		Higher Expectations to Young Companies	Important for young companies to conduct emissions reporting		
		Lower Expectations to Existing Clients	Lower expectations to companies with a track-record		

Appendix L – Example of Categorization of Codes