Investigating how Norwegian companies report Environmental Metrics

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Acknowledgements

Executive Summary

Table of contents

1 Introduction

1.1 Relevance

1.2 Limitations

2 Theory

2.1 Key terms and definitions

2.2 The importance of ESG in Business

2.2.1 Firms

2.2.2 Investors

2.3 Measuring and reporting of environmental performance

2.4 Concerns

3 Data and Methodology

3.1 Collection of data

3.2 Document Analysis and Classification of Metrics

3.3 Population

3.4 Validity and Reliability

4 Empiricism and Analysis

4.1 Which environmental key performance indicators (KPIs) are most commonly disclosed by the companies?

4.1.1 Total

4.1.2 GHG

4.1.3 Energy

4.1.4 Waste

4.1.5 Water

4.1.6 Biodiversity

4.1.7 Accidents and fines

4.1.8 Others

4.2 To what extent is there conformity between the companies' presentation of environmental metrics?

4.2.1 Total

4.2.2 GHG

4.2.3 Energy

4.2.4 Waste

4.2.5 Water

4.2.6 Biodiversity

4.2.7 Accidents and fines

4.2.8 Others

4.3 - Which industries disclose the most environmental data, and which industries disclose the least?

4.3.1 Total

4.3.2 GHG

4.3.3 Energy

4.3.4 Waste

4.3.5 Water

4.3.6 Biodiversity

4.3.7 Accidents and fines

4.3.8 Others

4.4 Do companies with larger environmental impact disclose more than others?

4.5 Do larger companies report more environmental data than smaller companies?

4.6 Is there any relation between companies' disclosure of environmental metrics and their sustainability score received by BI in the following year?

4.7 Discussion against theory - similarities and differences to previous findings

5 Conclusion

5.1 Conclusions from the study

5.2 Suggestions for further research

5.3 Discussion

References

Appendix: Discussion Paper- International

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Executive Summary

How do consumers perceive sustainability within Norwegian companies? That is a question that has been researched by BI in the past five years through their *Norwegian Sustainability Barometer*. By surveying Norwegian consumers about their view of companies, and translating the responses into sustainability ratings, the research aims to understand how companies have communicated their sustainability efforts to consumers.

The Norwegian Sustainability Barometer is part of the research project Norwegian Customer Barometer, which for almost 30 years has measured customer satisfaction and loyalty among Norwegian consumers. In the last annual survey, 4690 Norwegian consumers expressed their opinion and told how satisfied they were with companies they buy goods and services from. 155 businesses from around 30 different industries were judged. Consumers have assessed companies they are customers of on the three main dimensions of sustainability: Economic sustainability, environmental sustainability and social sustainability. (BI, 2024).

One of the most important ways companies can communicate their sustainability efforts and performance is through their annual reports. There is a growing interest in corporate social responsibility (CSR), and with it comes the growing need to measure a firm's CSR performance. (Li et al, 2021)

This thesis has collected data from the companies included in BIs study and chosen a sample of twenty companies for further research. This research aims to investigate how these companies have reported environmental metrics in their most recent annual reports. To be clear, only environmental data is part of the study. Social and Governance factors are not included. The companies included in the sample were chosen because they were the ones that reported the highest revenue in 2022. This sample covers a wide array of industries and may therefore be somewhat representative for Norwegian corporate business.

The focus of analysis is environmental key performance indicators (KPIs) reported by the companies. All KPIs are retrieved from annual reports and sorted into one of seven environmental categories: greenhouse gas (GHG), energy, waste, water, accidents and fines, biodiversity and others. Further, they are classified as either unique or not unique. A KPI that is reported in the same way by more than one company is considered not unique.

Through the data collection and analysis, the thesis investigates the following questions:

Which environmental key performance indicators (KPIs) are most commonly disclosed by the companies?

To what extent is there conformity between the companies' presentation of environmental metrics?

Which industries disclose the most environmental data, and which industries disclose the least?

Do industries with larger negative environmental impact disclose more than others?

Do larger companies report more environmental data than smaller companies?

Is there any relation between companies' disclosure of environmental metrics and their sustainability score received by BI in the following year?

1354 environmental KPIs were found in data collection. Analysis shows that out of these, GHG was the most reported category by a large margin. Still, even with the large number of total metrics reported, the most disclosed KPI was only reported by six of the companies. The most reported metric was "emissions from total waste", followed by "bought products and services", "employee commuting", "use of sold products", "GHG intensity from total operations" and "scope 1: total GHG emissions". As many as 1199 out of the 1354 reported metrics were deemed unique, indicating a low degree of conformity between the presentations of environmental data by the companies. Out of the 11 industries included in the study, "furniture" had the highest average of reported environmental metrics per company, while "building materials" had the lowest. It should be noted, however, that these industries only contain one company each. Out of the four industries with more than one company, "cars" reported the most and "gas station" reported the least. "Gas Station" is one of the 11 industries represented in the research sample. Considering the two companies included in this, it may be more correct to refer to this group as "fossil fuel companies". This is the most polluting industry on the planet (Binns, 2023), and therefore the industry with the largest negative

environmental impact. At the same time, fossil fuel companies are known to disclose less environmental data compared to other industries (IEA, 2020). The findings of the study support this view, as the number of reported environmental metrics was significantly lower than the total average.

Existing literature has shown that larger firms tend to disclose more environmental data such as their climate risks and greenhouse gas emissions compared to smaller firms (The Conference Board, 2022). From the sample of twenty companies, the ten smallest (by reported revenue in 2022) reported considerably more environmental metrics than the ten largest companies. While this is a small sample, no evidence was found to support the hypothesis that larger companies report more. Further, little correlation was found between companies' disclosure of environmental data and their sustainability scores.

The findings imply large discrepancies in environmental reporting. This makes it difficult for consumers, ESG rating agencies and investors to compare and evaluate environmental performance. Thus, consumers are less knowledgeable about environmental sustainability within companies and are less likely to be able to choose the "green option". ESG rating agencies have suboptimal data to base their calculations on, which may affect investors who rely on the ESG scores they provide. A 2020 study showed that "while the correlation between credit ratings is around 99 percent, the correlation between industry ESG scores is only around 60 percent" (Berg et al, 2019). The study found that this discrepancy across ESG rating agencies was influenced by different ways of ESG weighing and reliance on different metrics for measurement of ESG (Berg et al, 2020). Thus, investors may not act on the most correct information. This affects the financial markets and means that even those acting with the best (environmental) intentions do not necessarily make as much of a positive difference as wanted.

By analyzing how environmental sustainability efforts and results are reported, the study aims to enhance understanding of corporate transparency and accountability. This research contributes to academic literature and offers practical insights for companies, investors, regulators and researchers.

Companies may use it as a benchmarking tool to find out which environmental metrics can be gathered and disclosed to better align reporting with peer companies.

Investors may get a better understanding of what determines the environmental part of ESG ratings, and thereby be better equipped to compare environmental performance across companies or industries.

Regulators who want to improve reporting standards and standardize disclosing requirements for certain metrics may get insight into current reporting trends.

Researchers that wish to further explore this topic can use this method of measuring environmental reporting, which goes beyond other ESG scores and focuses on the metrics publicly disclosed by companies (Li et al, 2021).

Table of contents

List of figures

List of tables

1 Introduction

It is an established truth that our planet is facing crisis. The United Nations refers to it as *the triple planetary crisis*, with the word triple referring to three major interlinked issues: climate change, pollution and biodiversity loss. Out of these, climate change is the most pressing issue. The term refers to long-term changes in temperatures and weather trends that over time will completely alter the existing ecosystems that support life on our planet. Air pollution is the biggest cause of disease and premature death the world, with it being responsible for more than 7 million premature human deaths per year globally. Ninety percent of people in the world breathe air that contains pollution levels exceeding the WHO guidelines. The third and final major issue is biodiversity loss, which refers to a decline or even disappearance of biological diversity. This includes animals, plants and entire ecosystems. As UN puts it, "biodiversity is the baseline for everything on the planet – as in the end we are all interlinked. Biodiversity loss impacts food supplies and access to clean water – without it we have no future on our planet" (UN, 2022). This is, of course, the reason for pacts such as the Paris Agreement, committing us to take the necessary steps to limit the damages (UN, 2024). NASA`s intercontinental panel on climate change states that "the magnitude and rate of climate change and associated risks depend strongly on near-term mitigation and adaptation actions, and projected adverse impacts and related losses and damages escalate with every increment of global warming".

It may seem like the time we live in calls for companies to take steps to become more environmentally friendly and communicate their environmental efforts. With increased public focus on the topic, one could imagine that a perception and reputation as a sustainable company might be beneficial. There is indeed a growing demand for CSR information, and while large companies in Europe are already required to report some ESG data, we have seen an increasing frequency of companies going beyond the minimum requirements and disclosing even more (Li et al, 2021).

This is also true for many of the companies included in this study. Common for all of them is their inclusion in the BI research, where they have received a sustainability rating based on the views of Norwegian consumers (BI, 2020). By providing data on perceived sustainability, the study allows for new research, particularly concerning the value for companies in

marketing themselves as "green" or sustainable and particularly for Norway and similar markets.

The twenty companies researched in this study were chosen because out of all firms included in BIs study, they were the twenty largest (by reported revenue in 2022) to be included in each of the studies up until 2023. Out of these companies, all twenty had disclosed environmental data in reports during the period where they had been included in the BI research. For nineteen companies, the most recent report was from either 2023 or 2022. The only company whose most recent report was older than this was Strawberry (formerly Choice), for which the 2021 annual report was the newest available source eligible for the research. Out of the twenty reports chosen for data collection, eight of them were regular annual reports whereas the remaining twelve specifically concerned ESG. Some called it a "sustainability report" while others titled it "climate report" or "impact report".

These reports include a huge amount of information and are valuable to stakeholders such as peer companies, regulators, investors and researchers. Stakeholders may find value in this study, because it identifies the most commonly disclosed environmental key performance indicators.

Up until now, the regulations in force in Norway concerning ESG reporting has been stated in §3-3c of The Accounting Act. It states that large public companies must report on human rights, worker rights, social relations, corruption and the external environment. The law provides minimum requirements for disclosure of information but does not set concise requirements for how the reporting should be designed (Ellefsen, 2019).

Today, the number of Norwegian companies bound by this is roughly 300. However, from the accounting year 2024, EUs Corporate Sustainability Reporting Directive (CSRD) will be introduced in Norway as well as the rest of Europe. CSRD consists of requirements for reporting. The European Sustainability Reporting Standards (ESRD) was adopted by the European Commission in 2023, as a reporting standard that will be used by companies to meet these new requirements.

CSRD will require a far bigger number of companies to report on sustainability. This will be a gradual process. Large corporations "of public interest", with at least 500 employees and either a yearly revenue of at least 580 million NOK or a balance of at least 290 million NOK, will be bound by the regulations in 2024. With each year, the bar for what qualifies as being bound by the regulations is lowered, and by 2028, all public companies with at least 10

employees and a yearly revenue or balance of at least 10 million NOK will be required to report environmental information. Already from the first year, 1200 Norwegian companies will be required to follow CSRD. Compared to the current number of 300 companies required to report on sustainability, that is a 300% increase. Not only will more companies have to report on sustainability; the directive also aims to ensure a more standardized reporting that will cover topics such as risk, opportunities and consequences. The reporting requirements will be based on the principle of double materiality – an assessment of the impact a company's operations have on the environment (material impact) and the impact various sustainability themes have on the company's financial results (financial materiality). The directive builds on established frameworks such as the Taskforce for Climate-related Financial Disclosure (TCFD) and the Global Reporting Initiative (GRI), as well as the UNs sustainability goals. Requirements follow the European Sustainability Reporting Standards (EFRS), which state that greenhouse gas emissions must be measured in accordance with the requirements of the GHG protocol and that science-based targets must be set (Deloitte, 2024). The weakness of having multiple standards in use is that comparison across companies is difficult. The market, including Oslo Børs, is demanding a more harmonized standardization in order to obtain uniform and good sustainability reporting that investors can use (Ellefsen, 2019).

It is likely that the requirement for companies to follow the same reporting framework will allow for easier comparisons and possibly a more correct presentation of actual ESG performance in the future. It can be argued therefore, that consumer knowledge and awareness is likely to increase in the coming years. In other words, consumer perceptions of corporate sustainability could become more informed and nuanced.

The methodology of this thesis requires collection of a lot of data. Firstly, reported revenue must be retrieved for all the companies eligible for research, so that the twenty largest can be identified for further data collection. Secondly, it requires reading a report from each of the twenty companies and noting all reported environmental metrics in a separate document. The metrics get sorted to their company, and are color-coded as one of seven colors, representing which of the seven environmental categories they belong to. The seven categories are: GHG, energy, waste, water, accidents and fines, biodiversity and others.

When all reports have been read and all environmental metrics have been noted in the document, the metrics get categorized as either unique or non-unique. Unique metrics are data only reported by one company. While it is interesting to see the large number of unique metrics across a sample as large as twenty companies, it is the repeated (non-unique) metrics

that are the main topic of interest. The metrics are organized in a way that allows them to be counted, so it can be investigated what sort of environmental data is most commonly disclosed across the companies researched. This is one of six main research questions this thesis aims to answer.

The data collection and sorting method makes it easy to see which metrics were reported by each company, and allows investigation of the second research question: To what extent is there conformity between the presentation of environmental data by the firms?

The companies have been categorized to their respective industry by BIs study. Using this same categorization allows answering of the third research question: Which industries disclose the most environmental data, and which industries disclose the least?

The fourth research question explores whether industries with larger negative environmental impact discloses more or less environmental data than other industries. With the data collected, we can compare the reported metrics of each industry included in the sample.

The fifth research question investigates whether larger companies report more environmental KPIs than smaller companies. From the data collected, an answer can be given for the researched sample.

The sixth and final research question concerns whether any relation can be found between companies' disclosure of environmental metrics and their sustainability score received by BI in the following year. This requires further data collection. Sustainability scores from the relevant years are received from BIs Sustainability Barometer. With this information, the relationship can be explored.

1.1 Relevance

The thesis can be relevant in several ways. It is an addition to the existing academic knowledge on ESG reporting. It can help us to understand better how transparent and accountable companies are. While the broad topic is already heavily researched, this thesis has a narrow focus, concentrating on a selected sample of companies operating in the Norwegian market. By looking at the reporting practices of these companies, the research sheds light on how they communicate their "green" efforts to their stakeholders. It allows companies, regulators, investors, researchers and consumers to see how committed these

firms are to environmentally sustainable practices and transparent disclosure of environment-related data.

Detailed analysis of this specific market for this specific period may contribute to further research, by facilitating future comparisons to track how findings change over time. If researchers keep highlighting strengths and weaknesses with the current reporting practices of environmental metrics, they can influence public debate on corporate responsibility and environmental questions, thereby pushing companies to increase their transparency about their sustainability efforts.

Companies can use the research to better understand how peers disclose environmental data, so that they can align their own practices for transparency and comparability.

Further, investors, who are known to take ESG into account in decision-making, are offered an analysis of the current reporting standards. By providing detailed insights into the environmental disclosures of large Norwegian companies, the thesis may give investors the chance of making better-informed decisions and direct their investments towards more responsible businesses.

Consumers who claim to be concerned with the environment may also benefit from this study, as it may increase their knowledge about how "green" companies really are. Thereby, they may be better equipped to make more informed decisions when choosing who to do business with. A feeling of being knowledgeable on a topic such as environmental sustainability may also increase motivation to act sustainably. Thereby, this thesis could contribute towards narrowing the intention-action gap.

Findings from the thesis can be useful for policymakers and regulators. By examining how large companies in Norway report on environmental data, the study offers insights that may help shape and improve regulations, promoting better ESG disclosures and leading to a more transparent and accountable corporate world where sustainable practices are more prominent. Given the seriousness of the global environmental crisis, it is important that governing bodies such as countries seek knowledge of how to most efficiently facilitate transition into greener solutions. Research on environmental topics in corporate business may give insight on how environmental factors affect business and vice versa and can therefore have value. Papers such as this one can be valuable when making laws, regulations or incentives for firms and people, so that the interests of growth and prosperity are aligned with our common environmental goals.

1.2 Limitations

When interpreting the findings and considering the broader implications of the research, it is important to be aware of and understand the limitations of the study.

One of the main limitations is the selection of companies. Since the study only includes 20 companies, they may not represent all industries or the full range of business practices in Norway. Choosing only relatively large companies also naturally means that smaller ones do not get included. This may affect how generalizable the findings are. This is especially apparent when analyzing industries, because no industry consists of more than four companies and several only consist of one.

There are a number of differences between the twenty annual reports of the companies that form the basis for this research. While some of the companies are Norwegian, several are foreign and/or multinational. Some of these have own dedicated reports concerning operations in Norway, such as Shell who publish as "A/S Norske Shell". Others, like Tesla, report on the performances and efforts for the whole company and its global operations. This is a challenging starting point for making comparisons (Shell, 2023; Tesla, 2023).

It is difficult to dispute the fact that the quality of environmental reporting in general could be better. Last year, CDP – a nonprofit organization with a global focus on environmental disclosure, scored more than 21 000 companies based on their disclosure of climate change, deforestation and water security. From this huge sample, less than 400 received the highest possible score for reporting of "actionable, high quality environmental data" (CDP, 2024).

Some may define this as a limitation for such a study, for instance due to the risk of greenwashing. The large degree of freedom in reporting allows companies to be selective, possibly sharing positive information while omitting some negative aspects. This can lead to a biased view of a company's true environmental impact. However, rather than a limitation, the author sees it as an interesting starting point for a thesis, as it aims to investigate how companies chose to report when given a large degree of freedom. Nevertheless, this freedom should be acknowledged.

A potential limitation with the study is the difficulty other researchers may face if they were to try and replicate it. While all data is retrieved from publicly available sources and all processes are explained in detail, it is possible that other researchers would reach different

conclusions. This could for instance happen because of differences in which category a metric gets sorted as, or how strict researchers are when deciding if two metrics are identical or not. Further limitations are related to the author. The study is conducted by one person, and processes such as data collection have been done without supervision. With just one set of eyes, there is a risk of mistakes happening.

2 Theory

2.1 Key terms and definitions

Typically, companies report about ESG, CSR and sustainability. These terms overlap somewhat and are sometimes used interchangeably, which is why some clear definitions are in order. ESG, which is short for Environmental, Social and Governance, can be seen as the largest term that covers the most. It includes Corporate Social Responsibility (CSR) as well as sustainability.

CSR is the idea that a business has a social responsibility to the society that exists around it. While there are several definitions of what social responsibility means, it is common to refer to the triple bottom line, or the three Ps: Profit, People and Planet (Miller, 2020).

Sustainability has several definitions, with one of the most acknowledged ones provided by the UN World Commission on Environment and Development: "Sustainable development is development that meets the need of the present without compromising the ability of future generations to meet their own needs" (UN, 1987). A more recent definition was provided by Alexandra Spiliakos: "Sustainability in corporations is a way of doing business which has no negative impact on the environment, communities, and society" (Spiliakos, 2018).

Another way to look at ESG is to take the abbreviation literally, and break it into three parts: Environmental factors, social factors and governance factors. It is environmental factors that are the focus of this thesis. A number representing a piece of environmental data found in the report of a company is referred to as a KPI, which is short for key performance indicator. The word "metric" is also used interchangeably with KPI throughout this thesis.

In this thesis, environmental metrics get classified as one of seven categories. *Greenhouse gas*, commonly referred to as "GHG", concerns the companies' emissions of GHG. *Energy* is defined as the companies' usage and management of energy. *Waste* is defined as treatment of waste produced by the companies. *Water* is defined as the companies' usage and management

of water. *Accidents and Fines* is defined as companies' environmental accidents and fines that reflect their compliance with environmental regulations. *Biodiversity* concerns the variety of life on earth. "*Others*" consists of environmental metrics that were not deemed to fit any of the six primary categories. The first five of these definitions are heavily inspired by Li et al. Li et al (2021) is also the main inspiration for this thesis as a whole (Li et al, 2021).

2.2 The importance of ESG in Business

2.2.1 Firms

As established, it is commonplace for firms to concern themselves with the triple bottom line. That means that in addition to using *profits* as a measure of success, *people* and the *planet* count as well.

However, one thing may well lead to another. As a company, concerning yourself with people and planet is likely to positively affect your ESG ratings. These ratings, in turn, have been shown to have a significant positive impact on the cash flow of firms, by providing higher valuation and lower cost of capital. This was found in a study by MSCI (Giese & Lee, 2019). Another study found that companies that performed well within CSR metrics, for instance through high ESG ratings had better profitability and higher stock prices than companies with worse CSR performances. This study also found strong CSR performances to be positively correlated with reduced costs of capital and increased cash flows, which they linked to profitability and stock price (Cheng, Ioannou & Serafeim, 2014).

A 2020 study found that companies that adopted sustainable practices experienced significant increases in brand value (Kadekova et al., 2020). Further, a 2018 study found that customer loyalty increased more than expected when sustainability measures were implemented (Strenitzerová & Gaňa, 2018). Several studies have also suggested a positive correlation between sustainable business approaches and economic profit, often through an increase in willingness to pay. One thesis found that the "self-expressive benefits" of purchasing electric vehicles greatly increased consumers` willingness to pay (Ng, Law, Zhang, 2018).

Consumers pay for a consumption experience. The consumption experience has a perceived value that can be split into two parts. The first part can be measured through a cost-benefit analysis, and therefore in theory be measured objectively. The second part, however, involves subjective perception and is therefore harder to quantify (Bloch & Bruce, 1984). More

recently, with the increase of awareness concerning sustainability, it has been argued that symbolic value should be added to the consumption experience equation (Keeble, 2013). With the increasing awareness of how important sustainability is among consumers, being perceived as one that makes sustainable choices could be an example of an empathetic personal trait, which for many of us is desirable. Studies have shown that self-esteem and social identity significantly push consumer choices towards sustainable offerings, as these choices signal personal values and commitment to environmental and social causes (European Parliament, 2020).

Behavioral intention can be defined as 'the subjective likelihood of performing a particular behavior'. The same study who introduced this definition also came up with *The Theory of Reasoned Action*, hereby referred to as TRA. TRA suggests that a person's behavior is determined by their intention to perform the behavior and that this intention is, in turn, a function of their attitude toward the behavior and subjective norms (Fishbein and Ajzen, 1975). Behavioral intention does not always translate into actual behavior, creating the issue of an intention gap. Such an intention gap typically occurs in situations where consumers lack volitional control. Volitional control refers to the capacity of an individual to deliberately regulate and direct their own actions, behaviors, and thoughts through conscious decision-making and willpower. This concept is closely related to self-control. Without adequate volitional control, intentions are less likely to be translated into actions effectively (Conner & Norman, 2022). A common reason for lack of volitional control is the lack of knowledge or skills necessary to implement intended actions (Vieira et al., 2023).

A recent Harvard study showed that "consumers- particularly millennials- increasingly said that they want brands that embrace purpose and sustainability". However, while a report revealed that some categories of products had twice the growth of traditional competing products, the harsh truth remained: Few consumers who claim to be positive toward sustainable offerings actually follow through with their wallets. In fact, while 65 percent of the people surveyed expressed a willingness to choose the sustainable options, as few as 26% were doing it. This is an example of an intention-action gap, and once such gaps narrowing down such gaps is essential for reaching climate and sustainability goals and ensuring the well-being of our planet (White, Hardisty, Habib, 2019). When intention-action gaps narrow, incentives for firms to positively communicate sustainable efforts increase.

2.2.2 *For investors*

Investors have been known to consider ESG in decision-making. It should be differentiated between institutional investors and private investors. Any single person can be a private investor on their own. Institutional investors, on the other hand, can be defined as legal entities that gather funds from several investors to invest in various financial instruments. In other words, an institutional investor is an organization that invests on behalf of its members (CFI, 2024). Examples of institutional investors are government pension funds and sovereign wealth funds (World Economic Forum, 2024).

Different categories of investors may have different concerns and motivations when making decisions. They may also be bound by different levels of regulation. While private investors are typically free to allocate their funds as they please, some institutional investors must consider ethical implications, and therefore abstain from investing that supports things such as weapon manufacturing, alcohol, gambling or unsustainable practices. For instance, the Norwegian Sovereign Wealth Fund has incorporated strict state-imposed ESG requirements limiting what sort of companies that can be invested in (Regjeringen, 2022). Some would argue that sustainability and profits are now two sides of the same coin, and that one thing may well contribute to the other. In fact, studies have shown that performing well on ESG metrics can improve long-term financial performance in investments. Taking customers` ESG concerns into account when making investment decisions may lower the portfolio risk and reduce exposure to systematic risks (Jagannathan et al, 2018).

2.3 *Reporting and measuring of environmental performance*

It has now been established that ESG have a real impact on the corporate world. It is therefore interesting to investigate how ESG is reported and measured.

It has become the norm for firms of a certain size to report environmental data in their annual reports or even in standalone reports solely focusing on ESG or CSR. This is the case for every single company investigated in this study. However, researchers have argued that the quality of reporting is low. A report by The Governance Group that evaluated the disclosure of sustainability by the 100 companies in Norway with the most revenue, found that only 14 of them were worthy of a "good" grading. Most of the companies received a "very bad" grade (Ellefsen, 2019).

Companies' reporting of environmental data is one of the sources used by ESG rating agencies. For the time being there is no universal agreement or framework for which metrics are to be measured, nor how they should be measured or how the grading system should work. Nevertheless, the scores are being used by investors, both private and institutional, in decision-making (Berg et al, 2022). They affect companies and financial markets.

One of the major providers of ESG scores is EIKON`s Refinitiv. Like other similar agencies, EIKON has their own framework for measuring each of the factors and quantifying the qualitative data in each factor. The data is collected from sources such as the firms` annual reports and ESG reports, company websites, NGO websites, stock exchange information, and even news reports. Data is then analyzed on more than 600 ESG measurements in total. Each of these measurements belong to one of ten categories. Three categories belong to the environmental factor: *resource use, emissions* and *innovation*. Four categories belong to the social factor: *workforce, human rights, community* and *product responsibility*. Lastly, the three categories belonging to the governance factor are *management, shareholders* and *CSR strategy*. For each of the three factors, a score is calculated and expressed as a number between 0 and 100, where 0 is the worst possible result and 100 is the best. Additionally, there is an ESG controversy scored that is based on 23 measurements that fit into the topic of controversy. Scandals, lawsuits and other legal disputes are among the factors that contribute to a total score (Calvert, 2021).

This way of grading is in contrast to one of the more notable alternatives- MSCI, who provides letter grades from AAA (best) to CCC (worst) (MSCI, 2023). The fact that each company can use different data sources and choose which ESG factors to consider and how the factors are weighed, may open for criticism. Perhaps not surprisingly then, differences in ESG ratings by different agencies have been proved to be significant. In fact, a study found a correlation of only 0,38 when analyzing the ratings from several agencies (Berg et 13 al., 2022). It should be noted however, that another study found a high correlation of 0.95 or more among the worst performing companies. It showed that "a standard set of variables would partially resolve inconsistencies and lack of uniform standards among rating providers, which often confuses investors." While this statement concerned ESG as a whole, it argued that environmental data specifically "can be useful as it allows investors to choose what rating will align more with their preferences" (Lopez et al. 2020).

However, the most relevant ESG scores for this thesis are the ones given in BIs Sustainability Barometer. In the Sustainability Barometer, the views of the consumers regarding companies

are expressed through their responses to survey questions related to the three main dimensions of sustainability: environmental, economic and social. Based on the answers to these questions, an average score is calculated from each respondent for each company, in the form of a number on a scale from 0-100 where 0 is the worst possible result and 100 is the best. Each of the companies were then given an average score based on all the answers, resulting on a ranked list from most to least (perceived) sustainable practices (BI, 2020).

2.4 Concerns

A concern with the current landscape of environmental reporting is the lack of conformity between what is reported and how it is measured, which is a result of the large degree of freedom allowed by the current regulations. Unlike with financial data, there has up until now not been any universal agreement or requirement for what must be reported or how these KPIs should be measured. With freedom for companies to report (and not report) as they wish, it is difficult for consumers to get an unbiased view of how "green" companies truly are. The large degree of freedom in reporting means that the more environmental data available to a company, the more data is available to put into their own calculations as they see fit. This can lead to divergence in what gets disclosed and how it is presented. The existing reporting standards are designed so that companies can to a certain extent choose what they want to report on ("pick-and-choose accounting"). When it is possible to present environmental data in such a way that it paints a company in a better light than it may deserve, by choosing to disclose what looks good in a report while downplaying environmental risk (Ellefsen, 2019). When comparisons are challenging, it reduces the incentive for companies to better themselves environmental-wise (Berg et al, 2022).

This thesis sheds light on the need for a universal reporting framework. That would contribute to decreasing the risk of one of the most major concerns with ESG reporting: Greenwashing. When there may be something to gain from appearing sustainable, companies may want to be perceived this way, even when they may not deserve it based on how their products were produced, distributed and handled after use. If there is a belief that perceived sustainability has positive effects on companies, and it is possible to manipulate such a perception, the risk of greenwashing exists. It is not realistic to expect consumers to investigate the origins of the ingredients of the products or services they purchase, if that is even possible. Therefore, they are vulnerable to be affected by greenwashing (De Vries et al., 2015).

21

In a future where environmental data has become more standardized and requirements for disclosure are stricter, companies may be influenced to also commit more to sustainable solutions. One concern related to that is cost. Any business initiative, for instance towards increased sustainability, is going to require investment. Investing puts a financial strain on companies, since they have finite resources. Financial constraints are particularly relevant in times of high inflation and economic uncertainty, when it may be harder to allocate resources (Bloomberg, 2022).

In other words, investing in one area may limit others. Thus, there is the issue of opportunity cost. Implementing new reporting standards has a cost, and there are costs associated with controlling and fact-checking. As for the improvement of sustainability in processes, it should be noted that sustainable options often tend to be more costly than the traditional ones. For instance, this has proven to be the case with packaging. It is also clear that new innovations are going to cost more than continuing as usual, at least in the short term (*Berg et al., 2022; Ozanne et al., 2016*).

Another concern is the verifiability of the reported environmental data. Firstly, there is the question of if it is even possible to verify the data. Even if that is deemed possible, there is the question of whether or not it gets done. Thirdly, there is the question of who is verifying the data. Ideally, it should be done by an independent third party. After all, the reports are among the sources used by ESG Score providers, whose scores have been proven to affect financial markets, for instance by "guiding" investors to companies with high ratings.

3 Data and Methodology

3.1 Collection of data

The criteria for a company to be included in the study was to be on the list of firms receiving a sustainability score on the Sustainability Barometer in at least three of the four years. For each of these companies, reported annual revenue for 2022 was retrieved from proff.no. Proff is an online business directory which provides detailed corporate and financial information on Norwegian companies. The reason why revenue data was collected for 2022 rather than the more recent 2023 was simply availability of data. At the time of data collection, the vast majority of companies did not yet have their 2023 numbers on the site (Proff, 2024).

All sustainability scores the companies had received were also retrieved from BI. To limit the sample of the study, the twenty companies with the largest revenue in 2022 were selected for further research. They cover a wide array of industries and may therefore be somewhat representative for Norwegian corporate business.

Company Name	Ticker	Industry	Revenue 2022 (mNOK)
Shell	SHL	Gas Station	kr 69 660 000
DNB	DNB	Bank	kr 57 521 000
Norsk Tipping	NT	Others	kr 46 707 220
Tryg	TF	Insurance	kr 31 988 000
Esso	ESSO	Gas Station	kr 28 158 000
Handelsbanken	HAB	Bank	kr 27 727 000
Fjordkraft	FJK	Electricity	kr 21 206 882
Vinmonopolet	VIN	Others	kr 18 457 000
Choice	CHO	Hotels	kr 15 188 223
Tesla	TSL	Cars	kr 14 988 124
Posten Bring	POB	Postal Services	kr 12 994 000
Bertel O. Steen	BOS	Cars	kr 12 963 119
XL-Bygg	XLB	Building Materials	kr 11 154 916
Ruter	RUT	Passenger Transport	kr 11 036 383
Nordea	NRD	Bank	kr 9 804 000
Avinor	AVI	Passenger Transport	kr 9 077 000
Ikea	IKEA	Furniture	kr 8 490 057
Bilia	BIL	Cars	kr 8 014 167
Toyota	TOY	Cars	kr 7 062 851
Danske Bank	DAB	Bank	kr 6 703 000

Table: Companies included, with their respective industry and reported revenue.

(Proff, 2024)

The industry categories used are based on BIs own categories. Six of the companies are the only representative from their respective category. When the sample of included companies has been chosen, reported environmental metrics were gathered from each of the companies' most recent available annual report. The oldest report is from 2021, while the most recent ones are from this year. When examining the reports, it had to be decided what qualified as a reported KPI and what did not. The rules were this: Any number that can be found in a table or figure qualifies. The same is true for numbers that are written with such a large font or bolded out in such a way that it stands out. However, any metric "hidden away" among masses of text is overlooked.

3.2 Document Analysis and Classification of Metrics

Each reported environmental metric belongs to one of the seven categories: GHG, energy, waste, water, biodiversity, accidents and fines, and others.

When all KPIs were retrieved, they were classified as either unique or not unique. This meant that every KPI reported by a company had to be compared to every reported KPI of all other companies, to find if there were "duplicates" or not. If a KPI was deemed to be unique, that means that there is no other metric across the twenty annual reports that said the same thing. If the opposite was true, i.e. more than one company has reported the same thing, then the KPI was not unique. The author was strict when evaluating whether two companies reported the same thing or not. Two reported KPIs did not have to be written with the exact same words to be considered identical, but they had to mean the same thing. If one company reported on "Total GHG emissions from Scope 1" while another company reported on "Scope 1 Total" in a table concerning GHG, then these would be deemed identical. If, however, the second company reported "Scope 1, Total Cat.1" that would not be identical, as Cat. 1 is just one of several categories.

KPI 1	KPI 2	Identical?	Explanation
Plastic waste total	Plastic waste	Yes	They mean the same: total plastic waste generated
Plastic waste total	Plastic waste (excl. packaging)	No	Must assume that KPI 1 does not exclude packaging, as it does not state so
Water consumption	Freshwater consumption	No	Water and freshwater are not the same
Number of driven kilometers with fuel-driven cars by workers	Driving allowance to workers	No	KPI 1 is measured in kilometers while KPI 2 is measured in NOK. KPI 2 also does not differentiate between fuel-driven and electrical cars
Total emissions	Total emissions per employee	No	Different ways of presenting

Table: Examples of assessments in classification

3.3 Population

Companies included in the Sustainability Barometer were chosen because BI has deemed these companies as worthy of research concerning sustainability. The choice of twenty as the number of companies was made because the author aimed for a workload that was achievable, while also ensuring that the sample was large enough that any findings could have value. As the chosen companies were those with the largest revenue in 2022, and many of them are publicly traded, it can be assumed that there is a need for information regarding these companies. Using BIs sorting of categories, 11 different sectors are represented: Bank, Gas Station (Fossil Fuel), Cars, Passenger Transport, Insurance, Electricity, Hotels, Postal Services, Building Materials, Furniture and Others. "Others" is not really an industry, but rather a grouping of companies that did not fit any other category. The two companies from this sample included in the group, Norsk Tipping and Vinmonopolet, do however have some things in common: They are both fully owned by the state of Norway, and are not publicly traded. Both control their respective markets as monopolists (IBM, 2023; Vinmonopolet, 2024).
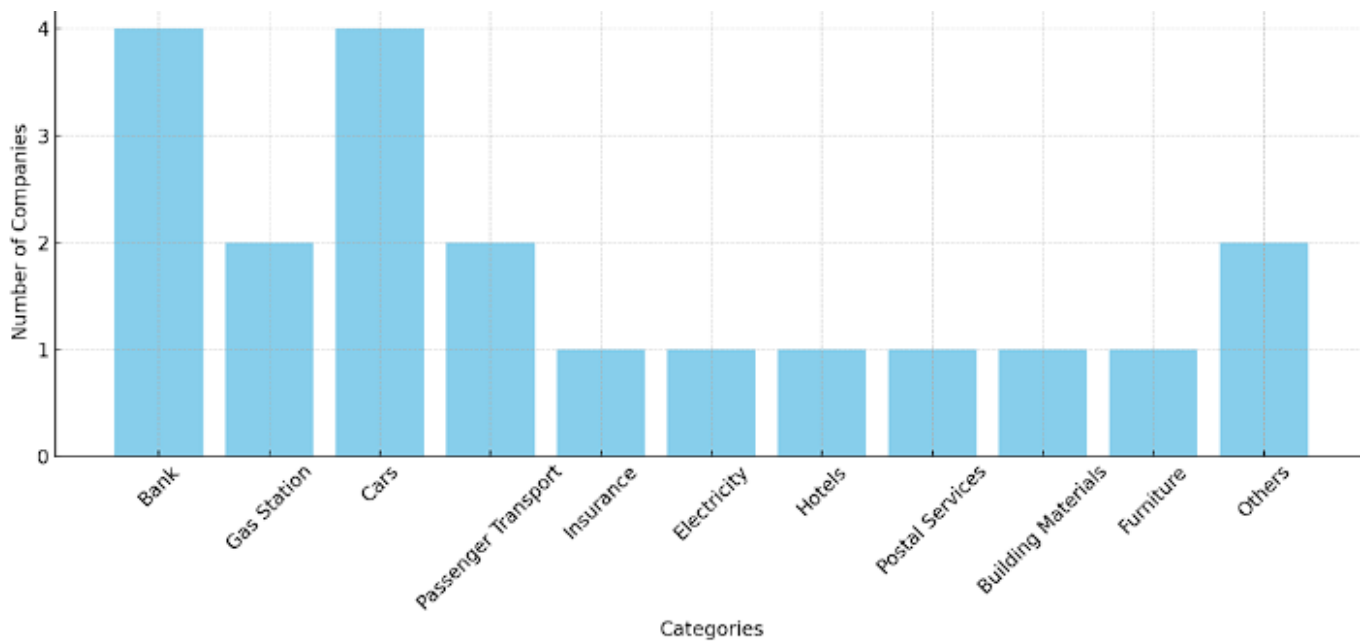

Figure: Industries included in the study

This facilitates a study that covers a broad range of corporate business in Norway and allows for interesting comparisons.

3.4 Validity and Reliability

The research method is a form of social science research (Abdoli, 2016). A prerequisite for such research is that the data presented can be validated. It must be assessed whether the information is credible, whether it can be confirmed, and whether it is transferable (Thagaard, 1998, p. 20). It should be noted that this is not a question of whether the data presented by the companies is correct, but whether this thesis renders the contents of the reporting correctly.

Confirmability concerns whether the findings can be confirmed. The findings derive from the analysis, which happens due to the goal of answering the research questions. Analysis is done with data, and all data is retrieved from publicly available sources that are referenced. All processes are explained in detail and can therefore be replicated by other researchers. When analyzing data, assessments get made that will affect the final result. While a framework is established for what sort of environmental metrics are counted and how to decide whether a metric is unique or not, there is a risk that other researchers would make some different assessments and therefore reach different results.

The author has no bindings to any of the companies included in the analysis, and therefore no incentive to present anyone as positive or negative. For all intents and purposes, it is an unbiased study. Validity can also be related to the author, who in this case is a student in the process of completing his master's thesis in business administration.

Transferability concerns whether findings have any transferable value to other research. In the case of this study, findings can have value as a tool for comparison. Other researchers may for instance want to replicate the same study at a later point in time and see how environmental disclosure has evolved. Researchers may also be interested in conducting similar research on a different sample of companies. The sample could be larger, or more specific to certain industries, or it could belong to a different country. In such cases, findings could be related to the findings of this thesis, to investigate similarities and differences between samples.

4 Empiricism and Analysis

4.1 Which environmental key performance indicators (KPIs) are most commonly disclosed by the companies?

4.1.1 Total
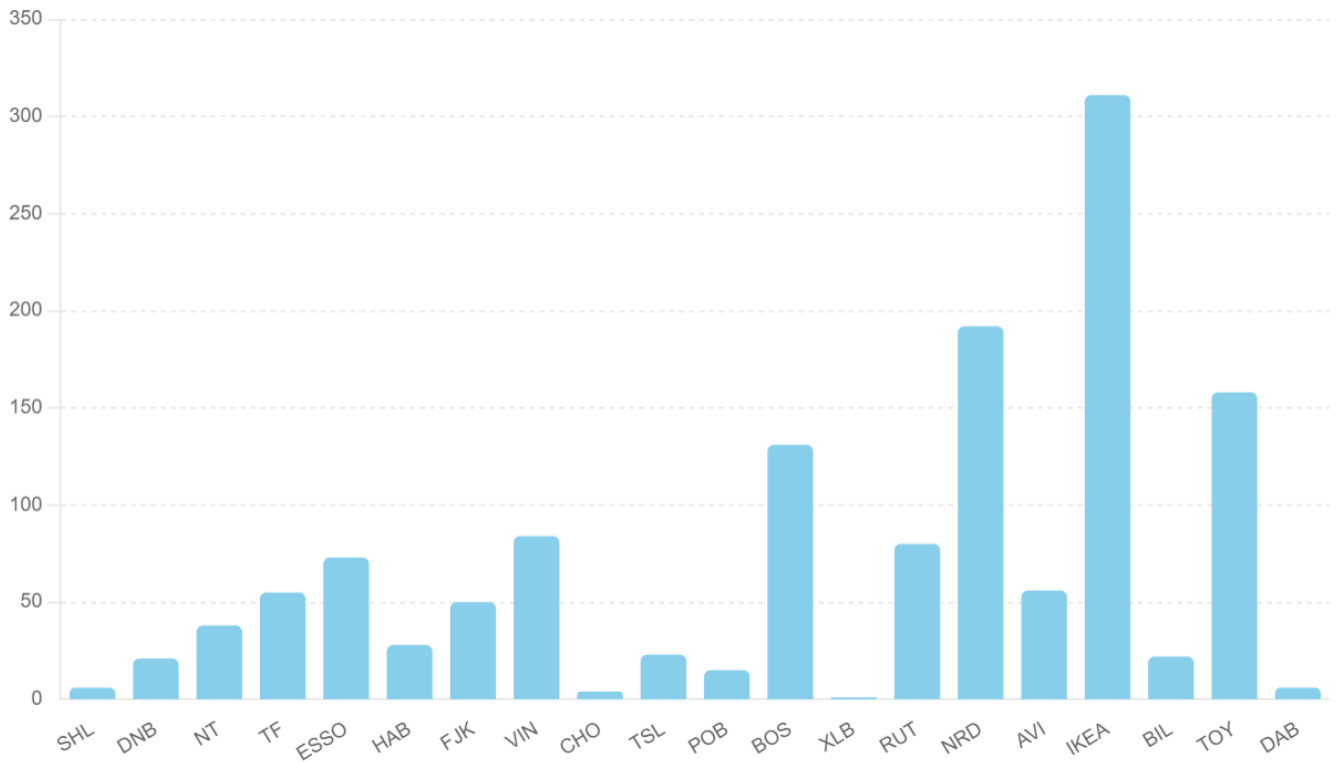
Figure: Total number of reported environmental metrics by company.

	GHG	Energy	Others	Waste	Water	Biodiversity	Accidents and Fines	SUM
SHL	4	0	0	0	0	0	2	6
DNB	0	6	15	0	0	0	0	21
NT	0	8	6	15	0	9	0	38
TF	38	3	14	0	0	0	0	55
ESSO	45	0	1	12	8	0	7	73
HAB	2	5	9	6	2	4	0	28
FJK	37	9	4	0	0	0	0	50
VIN	16	3	54	2	0	9	0	84
CHO	0	1	0	2	1	0	0	4
TSL	16	2	0	0	5	0	0	23
POB	12	3	0	0	0	0	0	15
BOS	109	10	0	12	0	0	0	131
XLB	1	0	0	0	0	0	0	1
RUT	63	16	0	0	0	1	0	80
NRD	185	2	4	0	1	0	0	192
AVI	34	4	5	13	0	0	0	56
IKEA	140	140	29	0	0	2	0	311
BIL	21	0	0	1	0	0	0	22
TOY	63	18	6	38	29	4	0	158
DAB	0	1	5	0	0	0	0	6
SUM	786	231	152	101	46	29	9	1354

Table: Reported metrics by company, sorted by category

The dataset shows the number of KPIs reported by each company, also sorted into each of the seven environmental categories. It shows a total of 1354 reported metrics, for an average of 67,7 per company.

	Number	Percentage
GHG	786	58,05 %
Energy	231	17,06 %
Others	152	11,23 %
Waste	101	7,46 %
Water	46	3,40 %
Biodiversity	29	2,14 %
Accidents and Fines	9	0,66 %
SUM	1354	100,00 %

Table: Reported environmental KPIs sorted by category

23 environmental metrics were repeated by three or more companies:

Metric Name	Category	Number of Companies
Emissions from Total Waste	GHG	8
Bought Products and Services	GHG	5
Employee Commuting	GHG	5
Use of Sold Products	GHG	5
GHG Intensity, Total Operations	GHG	5
Scope 1: Total GHG Emissions	GHG	5
Business Travel	GHG	4
Downstream Leased Assets	GHG	4
Scope 2: Emissions from District Cooling	GHG	4
Hazardous Waste	Waste	4
Total GHG Emissions	GHG	3
Climate Footprint, Product End-of-Life	GHG	3
Upstream Transport and Distribution	GHG	3
Bio Heating Oil	GHG	3
Emissions from Electricity, Market Based	GHG	3
Emissions from Electricity, Location Based	GHG	3
Emissions from District Heating, Total	GHG	3
Total Emissions, Market Based	GHG	3
Scope 2, Total	GHG	3
Renewable Energy Use, Total	Energy	3
Paper and Cardboard	Waste	3
Electronic Waste	Waste	3
Wood Waste	Waste	3

Table: All environmental metrics reported by 3 companies or more.

The most reported metric was "emissions from total waste", with eight companies disclosing this KPI in the same manner. This was followed by "bought products and services",

"employee commuting", "use of sold products", "GHG intensity from total operations" and "scope 1: total GHG emissions", all of which were reported by five companies.

Of these 23 metrics, 18 were deemed to belong to the GHG category, which is in line with the general trend that this category gets reported on the most. The remaining metrics consist of four that are waste-related and one that is energy-related. It should be noted, however, that other researchers might sort some of the metrics into different categories, such as "emissions from waste" that could also be categorized as "waste".

In addition to these, there are 28 environmental metrics that were reported by exactly two companies. Of these, 22 belong to GHG, while five belong to waste and one belong to the water category.

4.1.2 GHG

The twenty companies reported a combined total of 786 key performance indicators related to greenhouse gases, making this the most reported category by a comfortable margin. This represents 58% of the total number of KPIs reported by all the companies. The average number of reported GHG KPIs is 39,3, while the median is 18,5.

Metric Name	Category	Number of Companies
Emissions from Total Waste	GHG	8
Bought Products and Services	GHG	5
Employee Commuting	GHG	5
Use of Sold Products	GHG	5
GHG Intensity, Total Operations	GHG	5
Scope 1: Total GHG Emissions	GHG	5
Business Travel	GHG	4
Downstream Leased Assets	GHG	4
Scope 2: Emissions from District Cooling	GHG	4
Total GHG Emissions	GHG	3
Climate Footprint, Product End-of-Life	GHG	3
Upstream Transport and Distribution	GHG	3
Bio Heating Oil	GHG	3
Emissions from Electricity, Market Based	GHG	3
Emissions from Electricity, Location Based	GHG	3
Emissions from District Heating, Total	GHG	3
Total Emissions, Market Based	GHG	3
Scope 2, Total	GHG	3

Table: The most commonly disclosed GHG metrics.

"Emissions from Total Waste" is the most commonly disclosed metric in the GHG category, and also the most commonly disclosed metric across all categories.

4.1.3 Energy

The twenty companies reported a combined total of 231 key performance indicators related to energy, making energy the second most reported category in the sample. This represents 17% of the total number of KPIs reported by all the companies. The average number of reported energy-related metrics is 11,55, while the median is 3. The large discrepancy between average and median is driven by one big outlier, namely Ikea who reported as many as 140 energy-related KPIs. If we were to exclude the outlier, the median would remain 3 while the average would drop to 4,79. "Total use of renewable energy, measured in terajoules" was the only repeated metric, being disclosed by two companies. It was therefore the most reported KPI from this category.

4.1.4 Waste

The twenty companies reported a combined total of 101 key performance indicators related to waste, making waste the fourth most reported category in the sample. This represents 7% of the total number of KPIs reported by all the companies. The average number of reported waste-related KPIs was 5,05, while the median is 0. "Hazardous waste" was the most repeated waste-related metric, disclosed by four companies.

4.1.5 Water

The twenty companies reported a combined total of 46 key performance indicators related to water, making it the fifth most reported category in the sample. This represents 3% of the total number of KPIs reported by all the companies. It should be noted that Toyota had more than the rest combined and can therefore be considered an outlier. Removing it from the dataset would reduce the average to less than half, moving from 2,3 to 0,89. The median was 0. Only one single metric was repeated by more than one company: "Global water consumption" was disclosed by Toyota and Nordea and is therefore the most disclosed water-related KPI.

4.1.6 Accidents and fines

This was the least reported category, with only two companies reporting anything at all and the total number of KPIs being 9. This represents less than 1% of the total number of KPIs reported by all the companies. It is interesting that the two companies disclosing anything from this category belong to the same industry: gas stations. The average number of metrics reported per company is 0,45, while the median is, of course, 0. No single metric was deemed non-unique in this category, hence there is not one that was reported more than others.

4.1.7 Biodiversity

With a mere 29 reported KPIs, biodiversity is the second least reported category in the sample. This represents 2% of the total number of metrics reported by all the companies. The average number of reported biodiversity KPIs is 1,45, while the median is 0. Six companies reported anything on this category, with Norsk Tipping and Vinmonopolet contributing the most with nine KPIs each. No single metric was deemed non-unique in this category, hence there is not one that was reported more than others.

4.1.8 Others

For a KPI to be classified as "others", it must not fit in any of the other categories. The twenty companies reported a combined total of 152 metrics that were classified as "others". The average number of reported KPIs is 7,6, while the median is 4. No single metric was deemed non-unique in this category, hence there is not one that was reported more than others.

4.2 To what extent is there conformity between the companies' presentation of environmental metrics?

4.2.1 Total

A total of 1354 KPIs have been found. The distribution is very uneven, with seven companies reporting more than the average and the remaining 13 reporting less. Ikea is the company that reports the most (311 KPIs), while XL-Bygg (1), Shell (6) and Danske Bank (also 6) have

barely reported anything. Out the 1354 disclosed metrics, 1199 were deemed to be unique, meaning that only one company disclosed a certain form of data with a certain form of measurement. For a metric to be deemed unique did not necessarily mean that no other company had reported something similar or on the same topic. It could mean that the way of measuring was different, or that the area in question was not the same. Some metrics were also very specific to the company, to the degree that it would be surprising to see anyone else disclose the same. This was the case for a large percentage of metrics reported by Vinmonopolet and Tesla, for example.

Metric	Category	Reported By
Environmental Spills (Marine Vessel)	Accidents and Fines	Esso
Hydrocarbon Flaring: Asia Pacific	GHG	Esso
Carbon Intensity in the Funds	GHG	Handelsbanken
CO2e Footprint in grams per liter sold	GHG	Vinmonopolet
Carbon Stored in Forestry, Agriculture etc	Biodiversity	Ikea
Percentage of kilometers driven in zero-emission cars, own car fleet	Energy	Tryg Forsikring
Share of Scope 3 Emissions: Battery	GHG	Tesla

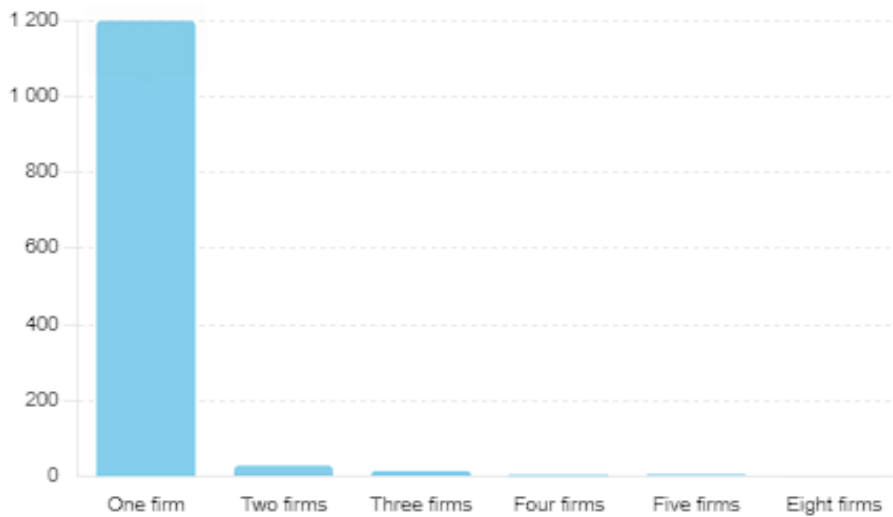*Table: Examples of unique reported environmental metrics.*

Figure: All reported environmental KPIs, sorted after how many firms reported each.
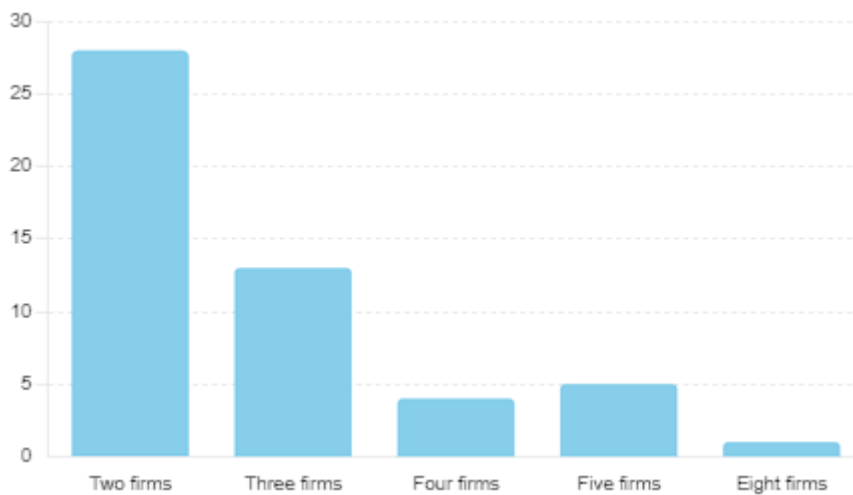
Figure: Non-unique reported KPIs, sorted after how many firms reported each.

The non-unique metrics represent only 155 of a total 1354 disclosed environmental KPIs. This means that only 11,4% of metrics were reported by more than one company. Even among those that were repeated, the average number of companies reporting the same metric was as low as 2,82. This indicates a very low degree of conformity in disclosure across the sample.

4.2.2 GHG

While being by far and away the most disclosed category, differences from company to company are still significant. Four out of twenty did not report a single GHG-related KPI, while three reported more than a hundred each.

18 GHG metrics were disclosed by three or more companies, as shown in 4.1.2. In addition, a further 22 GHG metrics were reported by exactly two companies:

Metric Name	Category	Number of Companies
Personal Transport, Direct Leased Cars	GHG	2
Travelling	GHG	2
Upstream Leased Assets	GHG	2
Processing of Sold Products	GHG	2
Emissions from Franchises	GHG	2
Emissions from Investments	GHG	2
Outside of scope: Biogenic Emissions (tonnes CO2e)	GHG	2
Scope 1+2 Emissions in Percentage	GHG	2
Car Travel, Total Emissions	GHG	2
Natural Gas, Total Emissions	GHG	2
Nox (Nitrogen oxides) Emissions, Millions of Tonnes	GHG	2
Nox Emissions, Change from Previous Year	GHG	2
Annual Reduction, Particle Emissions, in Percentage	GHG	2
Sox Emissions, Millions of Tonnes	GHG	2
Total GHG Change from Previous Year, Percentage	GHG	2
Cat. 3: Fuel and Energy related activities	GHG	2
VOCs Emitted, Millions of Metric Tonnes	GHG	2
Scope 1 share of total GHG emissions	GHG	2
Scope 2, share of total GHG emissions	GHG	2
Scope 3, share of total GHG emissions	GHG	2
Cat. 2: Emissions from Capital Goods	GHG	2
Emissions from Air Travel	GHG	2

Table: GHG metrics reported by exactly two companies.

That means that the vast majority of reported GHG-related metrics were not repeated, but rather deemed as unique. This indicates a very low degree of conformity in disclosure across the sample.

4.2.3 Energy

Four of the companies reported zero energy-related KPIs: Shell, Esso, XL-Bygg and Bilia. Of the 231 metrics disclosed, only one was deemed to be non-unique. This was "total use of renewable energy, measured in terajoules", which was reported by Ikea, Posten Bring and

Toyota. 230 metrics were judged to be unique, indicating a very low degree of conformity in disclosure across the sample.

4.2.4 Waste

As many as eleven companies have not reported a single KPI that was classified to the waste category. Toyota reported the most with 38 KPIs, while a further four reported more than ten: Tryg Forsikring with 15, Avinor with 13, and Esso and Bertel O. Steen with 12 each.

Nine waste-related KPIs were found to be non-unique:

Metric Name	Category	Number of Companies
Hazardous Waste	Waste	4
Paper and Cardboard	Waste	3
Electronic Waste	Waste	3
Wood Waste	Waste	3
Masses and Inorganic Material	Waste	2
Glass Waste	Waste	2
Metal Waste	Waste	2
Rubber Waste	Waste	2
Plastic Waste	Waste	2

Table: Repeated metrics related to waste.

However, these nine come from a total of 101 disclosed waste-related metrics. That indicates a low degree of conformity in reporting across the sample.

4.2.5 Water

Only four out of twenty companies reported more than one water-related metric: Toyota with 29, Esso with 8, Tesla with 5 and Handelsbanken with 2.

Only one single metric was repeated by more than one company: "Global water consumption" was disclosed by Toyota and Nordea and is therefore the most disclosed water-related KPI.

Only one of the reported metrics was repeated more than once. This indicates a very low degree of conformity in disclosure across the sample.

In this category, disclosure was especially specific to the actual company reporting, making comparisons especially difficult. For instance, Toyota splits its water reporting into smaller

categories such as surface water, groundwater, seawater and third-party water. They also disclose how much water usage has been reduced in their operations in specific countries such as Brazil and China. Tesla also reports on reduction of water usage, but their area of measurement is their "gigafactory" in Berlin and only concerns vehicle production. Choice, who are in the hotel business, discloses the average water consumption per guest.

Metric Name	Category	Disclosed by
Freshwater intensity: Upstream	Water	Esso
Freshwater withdrawn, millions of cubic meters	Water	Esso
Surface Water Withdrawal	Water	Toyota
China: recovery rate, reuse of water	Water	Toyota
Percentage of Assets: Sustainable Water and Wastewater Management	Water	Handelsbanken

Table: Examples of disclosed water-related metrics.

4.2.6 Accidents and Fines

A total of nine metrics were identified that were classified as "accidents and fines". None of these reported metrics were repeated more than once. This indicates a very low degree of conformity in disclosure across the sample.

Metric Name	Category	Disclosed by
Spill, oil-based drilling fluid (accident)	Accidents and Fines	Shell
Spill, hydraulic fluid	Accidents and Fines	Shell
Environmental expenditures, billions of dollars	Accidents and Fines	Esso
Total dollars spent on environmental penalties, fines and settlements, billions of dollars	Accidents and Fines	Esso
Environment spills: Marine vessel	Accidents and Fines	Esso
Hydrocarbon spills (not from marine vessels) (oil spilled), number	Accidents and Fines	Esso
Hydrocarbon spills (not from marine vessels) (oil spilled) volume, thousands of barrels	Accidents and Fines	Esso
Other spills (not from marine vessels) (non-hydrocarbon), number	Accidents and Fines	Esso
Other spills (not from marine vessels) (non-hydrocarbon) volume, thousands of barrels	Accidents and Fines	Esso

Table: All reported metrics related to accidents and fines

4.2.7 Biodiversity

Out of a total 29 reported biodiversity-related metrics, none were repeated more than once. This indicates a very low degree of conformity in disclosure across the sample.

Metric Name	Category	Disclosed by
Percentage of Assets: Sustainable Forestry	Biodiversity	Handelsbanken
Number of projects/NPOs supported for addressung biodiversity/climate change	Biodiversity	Toyota
Number of sold ecological products, basic sortiment	Biodiversity	Vinmonopolet
Yotal biogen deviation driving, Oslo	Biodiversity	Ruter

Table: Examples of disclosed biodiversity-related metrics.

4.2.8 Others

It is difficult to identify any trend among this selection of metrics. Every single disclosed metric in this category was judged as unique. This indicates a very low degree of conformity in disclosure across the sample.

Metric Name	Category	Disclosed by
Number of suppliers who have a certified environmental management system	Others	Norsk Tipping
Sound: Level change Lden (dBA)	Others	Avinor
Commission income, total environmentally sustainable assets	Others	DNB
Number of responding companies, CDP supply chain program: climate change	Others	Toyota
Payments to claims prevention	Others	Tryg

Table: Examples of metrics that were classified as "others".

4.3 - Which industries disclose the most environmental data, and which industries disclose the least?

4.3.1 Total

Using BIs sorting of categories, 11 different industries are represented in the sample: Bank, Gas Station, Cars, Passenger Transport, Insurance, Electricity, Hotels, Postal Services, Building Materials, Furniture and Others.

Bank	Building Materials	Cars	Electricity	Furniture	Gas Station	Hotels	Insurance	Passenger Transport	Others	Postal Services
DNB	XLB	TSL	FJK	IKEA	SHL	CHO	TF	RUT	NT	POB
HAB		BOS			ESSO			AVI	VIN	
NRD		BIL								
DAB		TOY								

Table: Companies sorted by industry

As aforementioned, companies have been sorted into the same industry categories as they were by BI.
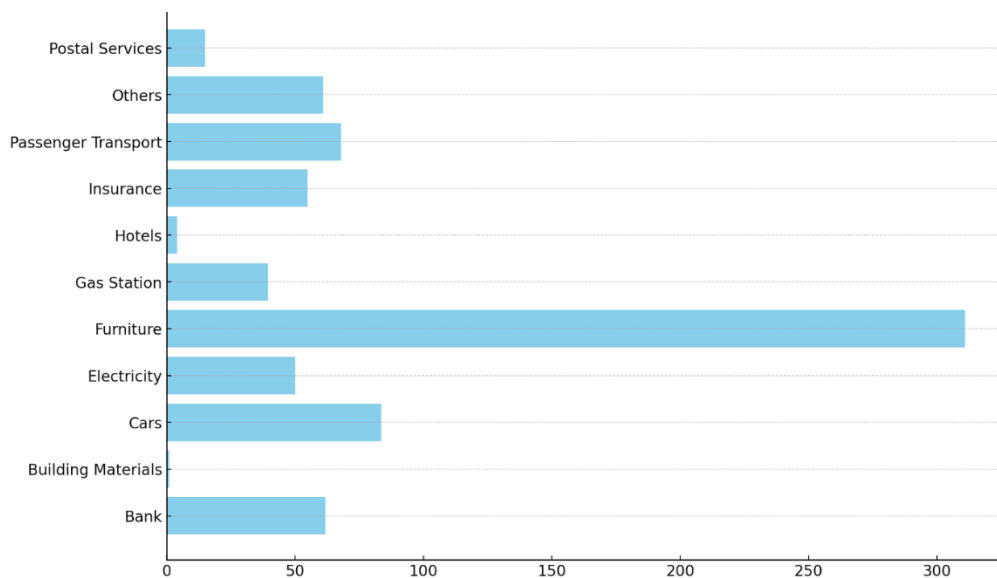
Figure: Industry averages, number of total environmental metrics reported.

Out of the 11 industries included in the study, "furniture" had the highest average of total reported environmental metrics per company with 311, while "building materials" had the lowest with 1. It should be noted, however, that these industries only contain one company each. Out of the four industries with more than one company, "cars" reported the most with 83,5 and "gas station" reported the least with an average of 39,5. The "gas station" industry might also be called the "fossil fuel" industry and will be revisited in 4.4.
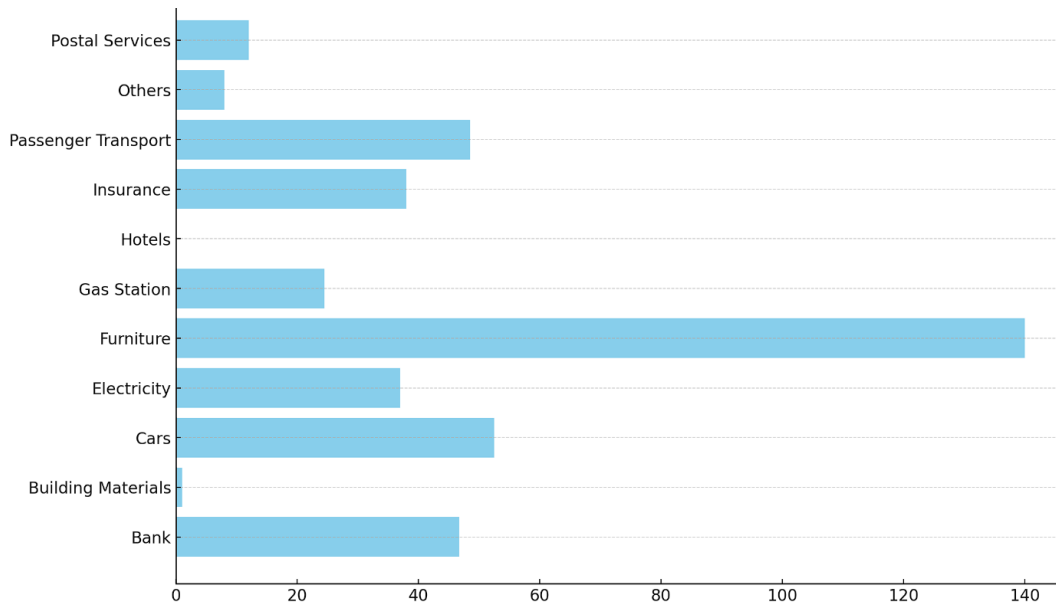
4.3.2 GHG

Figure: Industry averages, number of GHG-related metrics reported.

"Furniture" had the highest average of reported environmental metrics per company with 140, while "hotels" had the lowest with 0. Out of the four industries with more than one company, "cars" reported the most with a 52,25 average while "gas station" reported the least with an average of 24,5.
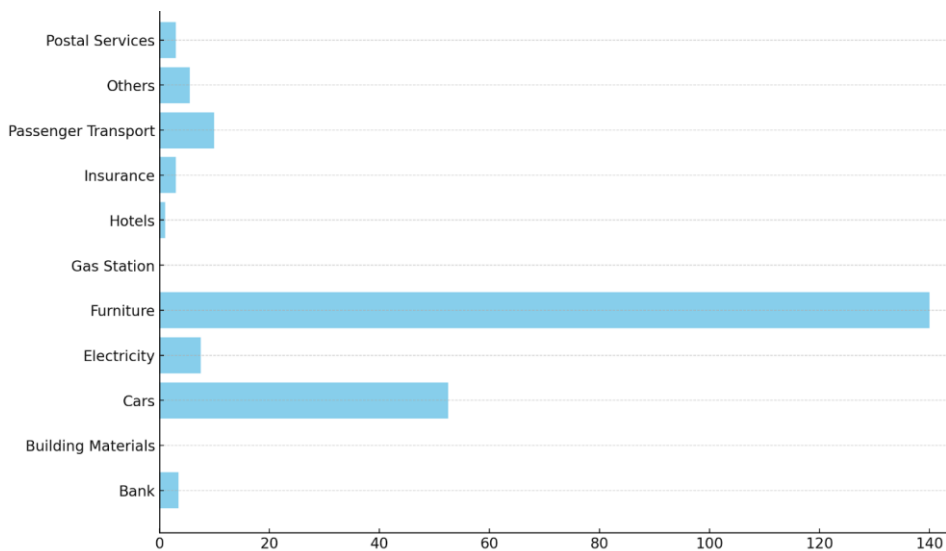
4.3.3 Energy

Figure: Industry averages, number of energy-related metrics reported.

"Furniture" had the highest average of reported energy-related environmental metrics per company with 140, while "building materials" and "gas station" both disclosed 0 metrics. Out

of the four industries with more than one company, "passenger travel" reported the most with an average of 10.
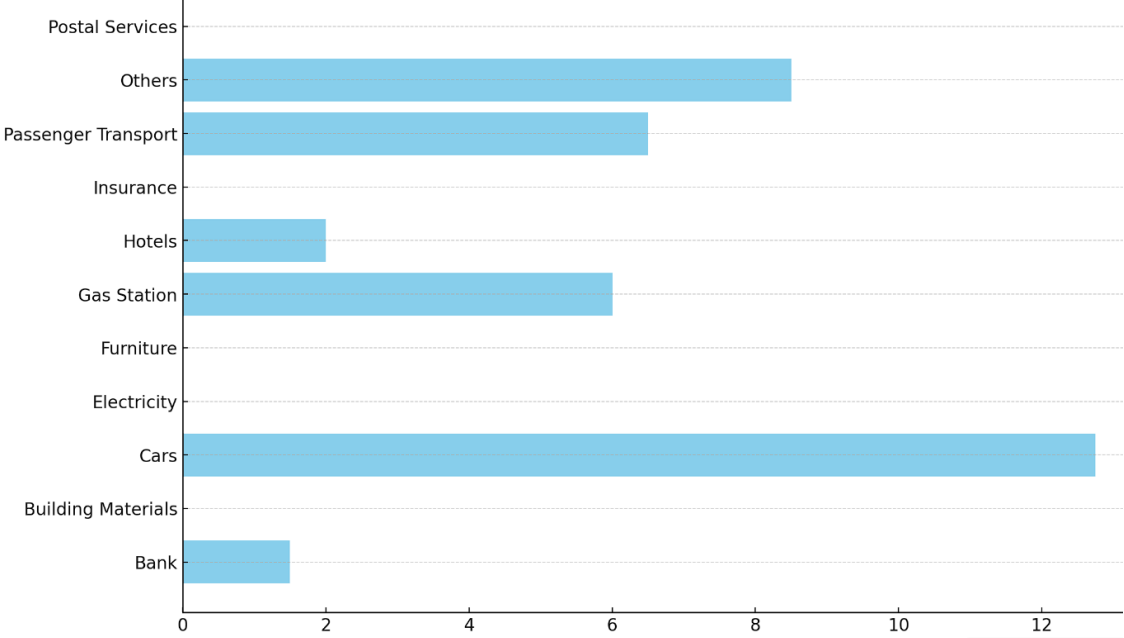
4.3.4 Waste

Figure: Industry averages, number of waste-related metrics reported.

"Cars" had the highest average of reported waste-related environmental metrics per company with an average of 12,75, while four industries did not disclose anything at all: Postal services, insurance, furniture and electricity.

4.3.5 Water
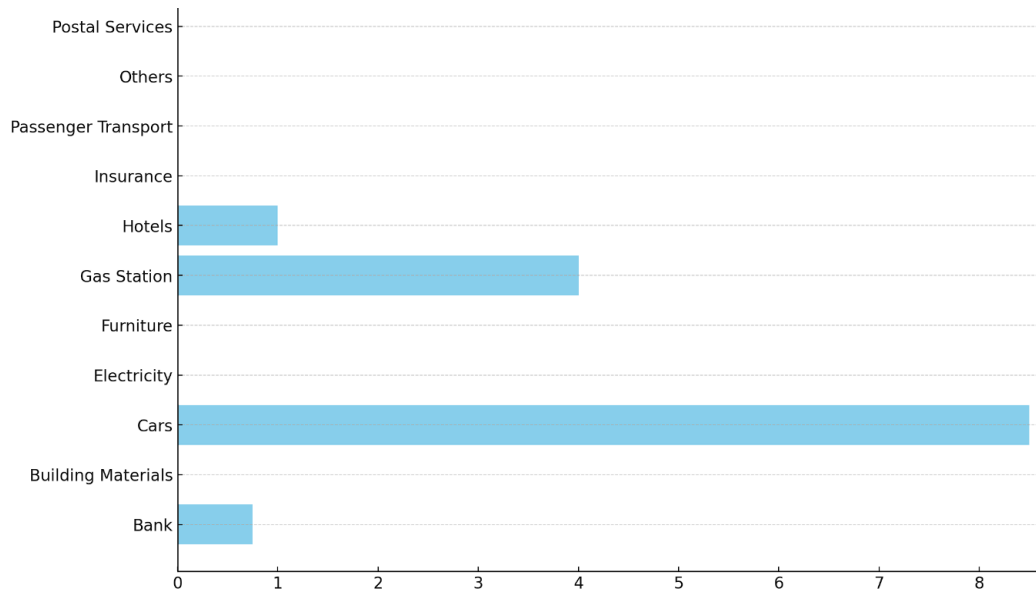
Figure: Industry averages, number of water-related metrics reported.

Once again, "cars" is the industry that discloses the most metrics, with an average of 8,5. Meanwhile, seven industries have not reported a single water-related metric: Postal services, others, passenger transport, furniture, electricity and building materials.
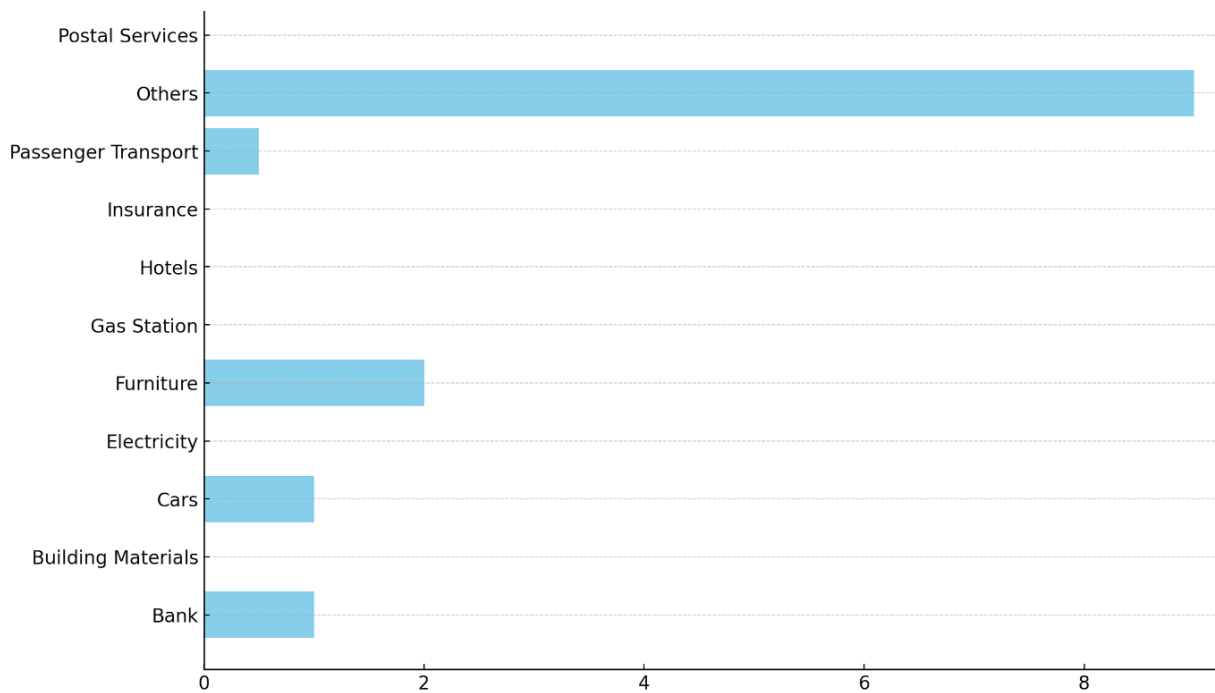
4.3.6 Biodiversity

Figure: Industry averages, number of biodiversity-related metrics reported.

"Others", which is not really an industry but a grouping consisting of two companies, had the highest average of reported biodiversity-related environmental metrics per company with 9. Of the "real" industries, "furniture" had the highest disclosure with two metrics reported. As many as six industries disclosed no metrics related to this category: Postal services, insurance, hotels, gas station, electricity and building materials.
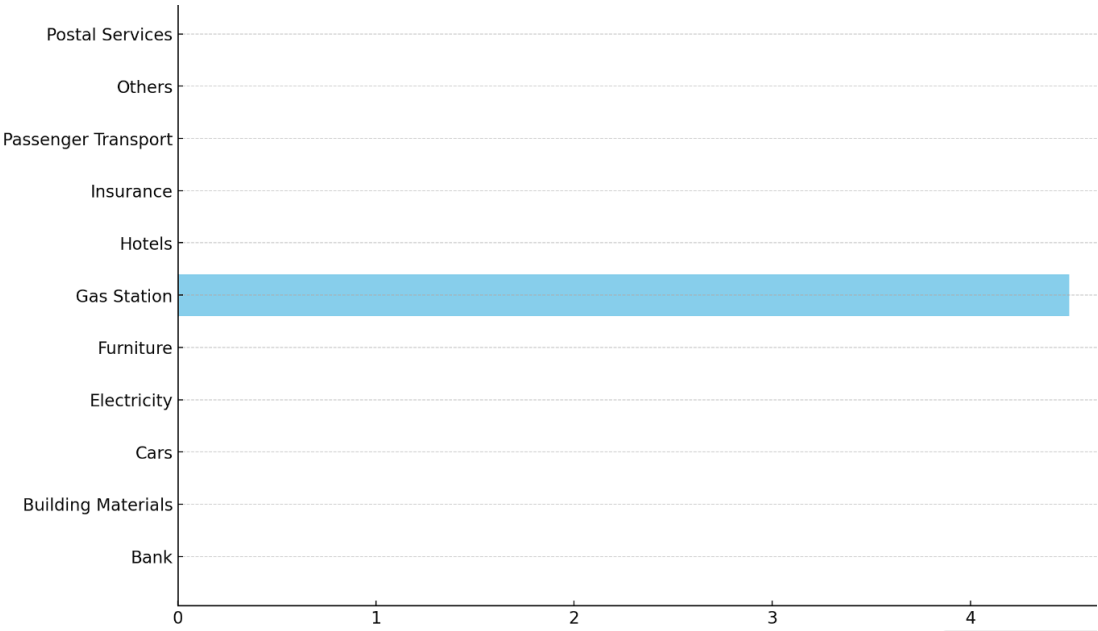
4.3.7 Accidents and fines

Figure: Industry averages, number of metrics reported related to accidents and fines.

"Only two companies disclosed any metrics related to this category, and since they both belong "gas station", that is the industry which disclosed the most about accidents and fines. The average for this industry was 4,5 reported KPIs.
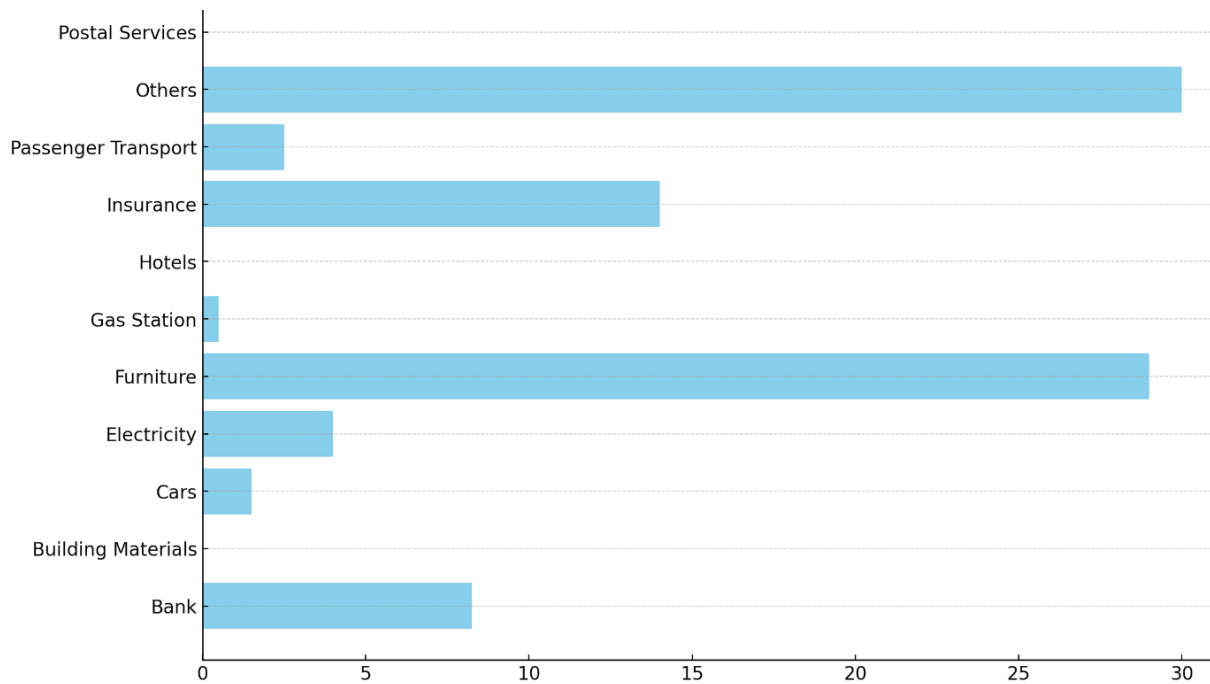
4.3.8 Others

Figure: Industry averages, number of metrics reported that is classified as "others".

The "others" group had the highest average of reported environmental metrics per company that were classified as "others", with an average of 30. Of the "real" industries, "furniture" disclosed the most with 29 recorded metrics. Of the real industries with more than one company, "bank" had the highest average with 8,25. Three industries had no recorded metrics with this classification: Postal services, hotels and building materials.

4.4 Do companies with larger environmental impact disclose more than others?

"Gas Station" is one of the 11 industries represented in the research sample. There are two companies belonging to this industry in the sample: Shell and Esso. Esso is a trading name for the more globally known ExxonMobil (ExxonMobil, 2024). While it is true that these companies are known for their gas stations in Norway, it might be more correct to refer to this industry as *oil and gas*, or *fossil fuels.* From here on, it will be referred to as the fossil fuel industry. This is the most polluting industry on the planet (Binns, 2023). The industry is a big part of the energy sector, which is responsible for about 73% of global emissions (IEA, 2021). It is therefore safe to define this industry as the one with the largest negative environmental impact. At the same time, fossil fuel companies are known to disclose less environmental data compared to other industries (IEA, 2020). The question is whether the data collected from the annual reports of the twenty companies support this statement.

The average number of total reported environmental metrics per company in the sample was 67,7. For fossil fuel companies the average was 39,5, which is significantly lower. The GHG category was most reported overall, and arguably also the category that is most relevant to the fossil fuel industry given their large amounts of carbon emissions. The average number of reported metrics across the entire sample was 39,3, while the same number was 24,5 for the fossil fuel industry. From the seven environmental categories, there were three were the fossil fuel industry disclosed more than the total average: Waste, water, and accidents and fines. In two categories- energy and biodiversity, the fossil fuel companies reported zero metrics. Overall, findings from the data tend to support the idea that the industry with the largest negative environmental impact discloses less environmental data than other industries.

4.5 Do larger companies report more environmental data than smaller companies?

Existing literature has shown that larger firms tend to disclose more environmental data such as their climate risks and greenhouse gas emissions compared to smaller firms (The Conference Board, 2022). To investigate if data from our sample supports this, the included companies can be split into two groups: The top 50 percent by reported revenue in 2022 and the bottom 50 percent.

Company Name	Ticker	Industry	Revenue 2022 (mNOK)	Reported Metrics
Shell	SHL	Gas Station	kr 69 660 000	6
DNB	DNB	Bank	kr 57 521 000	21
Norsk Tipping	NT	Others	kr 46 707 220	38
Tryg	TF	Insurance	kr 31 988 000	55
Esso	ESSO	Gas Station	kr 28 158 000	73
Handelsbanken	HAB	Bank	kr 27 727 000	28
Fjordkraft	FJK	Electricity	kr 21 206 882	50
Vinmonopolet	VIN	Others	kr 18 457 000	84
Choice	CHO	Hotels	kr 15 188 223	4
Tesla	TSL	Cars	kr 14 988 124	23

Table: The ten largest firms and their total number of reported metrics.

Company Name	Ticker	Industry	Revenue 2022 (mNOK)	Reported Metrics
Posten Bring	POB	Postal Services	kr 12 994 000	15
Bertel O. Steen	BOS	Cars	kr 12 963 119	131
XL-Bygg	XLB	Building Materials	kr 11 154 916	1
Ruter	RUT	Passenger Transport	kr 11 036 383	80
Nordea	NRD	Bank	kr 9 804 000	192
Avinor	AVI	Passenger Transport	kr 9 077 000	56
Ikea	IKEA	Furniture	kr 8 490 057	311
Bilia	BIL	Cars	kr 8 014 167	22
Toyota	TOY	Cars	kr 7 062 851	158
Danske Bank	DAB	Bank	kr 6 703 000	6

Table: The ten smallest firms in the sample and their total number of reported metrics.

While this is a small sample, no evidence was found to support the hypothesis that larger companies report more.

4.6 Is there any relation between companies' disclosure of environmental metrics and their sustainability score received by BI in the following year?

This research question investigates whether any relation can be found between the extent of environmental disclosure by a company and its perceived sustainability among consumers. To do that, one can look at the sustainability score received by each company in the year following the reporting period. This is because it is normal that ESG efforts have lagging effects. Research has shown that benefits of environmental reporting, such as improvements in sustainability ratings, typically materialize after some time. It takes time for company efforts to translate into recognition and reward from stakeholders (KPMG, 2024).

	Company	Sustainability Score		Company	Metrics Reported
1	HAB	75.4	1	IKEA	311
2	NT	73.8	2	NRD	192
3	TOY	70.9	3	TOY	158
4	BIL	70.4	4	BOS	131
5	CHO	69.6	5	VIN	84
6	TSL	69.5	6	RUT	80
7	VIN	67.7	7	ESSO	73
8	XLB	66.9	8	AVI	56
9	IKEA	66.3	9	TF	55
10	BOS	66.3	10	FJK	50
11	TF	65.6	11	NT	38
12	POB	65.3	12	HAB	28
13	RUT	64.8	13	TSL	23
14	AVI	61.0	14	BIL	22
15	FJK	57.9	15	DNB	21
16	NRD	57.5	16	POB	15
17	DNB	55.3	17	SHL	6
18	ESSO	54.7	18	CHO	4
19	SHL	50.8	19	XLB	1

Tables: Side-by-side comparison of two ranked lists.

 The first table ranks the companies based on Sustainability Score, while the second table ranks the companies based on number of environmental metrics reported. One company, Danske Bank, did not receive a sustainability score in the relevant year. The sample is therefore reduced from twenty to nineteen. Little correlation can be found between the rankings of companies' disclosure of environmental data and the ranking of their sustainability scores. There are some observable similarities, such as the fact that Shell ranks

low on both lists while Toyota is third on both. This could, however, be coincidental. To further investigate possible relationships between the variables, one could look at industries rather than companies. However, with a sample as small as this with several industries only consisting of one company, the author sees little point in further exploring this research question. It is concluded that from the researched sample, no relationship can be found between these variables.

4.7 Discussion against theory - similarities and differences to previous findings

In this chapter, the findings of the research are compared to the findings of previous researchers. When evaluating the findings of this study, it must be remembered that the sample size is rather small, with just 20 companies split into 11 industry categories. Nevertheless, findings may conflict with, or support, existing theory.

Regarding which environmental KPIs are most regularly disclosed in company reports, literature suggests that information about greenhouse gases, energy consumption and energy efficiency is generally reported more thoroughly than other environmental data. Metrics related to natural resources tend to have lower rates of disclosure. This includes metrics related to waste, water and biodiversity (Hristov & Chirico, 2023; Yip & Pu, 2023). The findings of this study seem to underscore this. GHG is the category with the most reported metrics, and also the category with the most repeated metrics. Energy scores second, with more reported metrics than categories such as waste, water and biodiversity.

Concerning the degree of conformity in reporting, literature has shown that there is significant discrepancy in environmental disclosure. This is due to differences in regulations, as well as industry practices and corporate strategies. Both the quality and the comprehensiveness of disclosed metrics vary. Due to the lack of one universal standard of reporting, reports are often filled with excessive repetition of certain data while other critical metrics may be missing. This makes it difficult for stakeholders to assess and compare environmental efforts and performances (Wong, 2017). Findings of the study fully support existing literature on this point.

Furthermore, literature has shown that industries with significant environmental impacts typically are the ones that disclose the most environmental data. This is due to regulatory pressures and stakeholder demands (Helfaya et al, 2023). It has been found that among

European companies, those with a large environmental impact were more likely to report extensively about environmental data (Garcia-Sanchez et al, 2019). This conflicts with the findings of this study, where the fossil fuel industry, which has the largest carbon footprint and environmental impact, was among those that disclosed the least environmental metrics. At the other end of the scale, KPMG states that industry sectors like "consumer and retail" and "banking and insurance" are among those that report the least comprehensive ESG data. Typically, they lack detailed disclosures of categories such as waste, water and biodiversity (KPMG, 2024). Looking at how these same industries did in this study, both the "bank" and the "insurance" industry reported less metrics than the total average in the study. They also reported close to nothing on waste, water and biodiversity. The findings therefore support existing theory on this point.

Existing literature widely agrees that larger companies report more environmental data than smaller companies. A report by The Conference Board revealed that large companies report GHG emissions at 2.5 times the rate of smaller firms. This trend is driven by higher regulatory and stakeholder expectations for larger companies, which often face more criticism for their environmental impact (The Conference Board, 2022). Further, the SEC's climate disclosure rules also find a difference between large and smaller companies. Larger companies are required to disclose more detailed information about their emissions. However, voluntary disclosure rates are also considerably higher for large companies in the S&P 500 compared to smaller companies in the S&P SmallCap 600. (Whieldon et al, 2024). From the sample researched in this study, the ten smallest companies reported a total of 972 environmental KPIs- a vastly larger amount than the 382 environmental metrics reported by the ten largest companies. This thesis therefore provides no support for this claim.

Regarding the relationship between companies' disclosure of environmental data and their sustainability scores, the existing literature has shown a positive relationship. For example, a study on firms listed on the Borsa Istanbul Sustainability Index found that comprehensive ESG disclosures positively influenced their sustainability ratings (Kartal et al, 2024). Another study, which focused on European companies showed that detailed reporting on environmental data was linked to improved sustainability performance and better sustainability scores (Pulino et al., 2022). This view was further supported by a 2024 study on Taiwanese industries. It showed that active engagement in ESG practices, for instance thorough environmental disclosures, contributed to better sustainability scores (Binh & Lee,

2024). However, it was not possible to establish any positive relationship between these variables based on the sample researched in this study.

5 Conclusion

5.1 Conclusions from the study

Six research questions were proposed for the study:

Which environmental key performance indicators (KPIs) are most commonly disclosed by the companies?

To what extent is there conformity between the presentation of environmental KPIs by the firms?

Which industries disclose the most KPIs, and which industries disclose the least?

Do industries with larger negative environmental impact disclose more than others?

Do larger companies report more environmental KPIs than smaller companies?

Is there any relation between what companies' disclosure of environmental metrics and their sustainability score received by BI in the following year?

These are the conclusions reached from investigating those questions:

The most reported metric was "total waste", followed by "bought products and services", "employee commuting", "use of sold products", "GHG intensity from total operations" and "scope 1: total GHG emissions". All these were categorized as GHG-related. The most commonly disclosed metric outside the GHG category was "hazardous waste", which belongs to the waste category. As many as 1199 out of the 1354 reported metrics were deemed unique, indicating a low degree of conformity between the presentations of environmental data by the companies. Out of the 11 industries included in the study, "furniture" had the highest average of reported environmental metrics per company, while "building materials" had the lowest. It should be noted, however, that these industries only contain one company each. Out of the four industries with more than one company, "cars" reported the most and "gas station" reported the least. From the sample of twenty companies, the ten smallest (by reported revenue in 2022) reported considerably more environmental metrics than the ten largest companies. While this is a small sample, no evidence was found to support the hypothesis that

larger companies disclose more environmental data. Further, little correlation was found between companies' disclosure of environmental data and their sustainability scores.

5.2 Suggestions for further research

Future researchers may replicate this study to investigate whether there are any changes in environmental disclosure over time. This would likely happen after CSRD has been introduced, meaning that one may get to see how this new EU directive affects disclosure and whether it is effective in doing what it aims to do, which is ensuring standardization of disclosure. Alternatively, future research might replicate the study with another sample. This could be a larger sample in the same country, or it could concern another market entirely. One suggestion is to study environmental disclosure in a country with a significantly lower standard of living, to investigate similarities and differences between practices in countries that differ in this way.

To help narrow the gap between consumer intention and action, it may be helpful to investigate the relationship between consumers' perception of how sustainable companies are and their loyalty towards these same companies. Another way of framing this is if consumers are more likely to choose what they deem to be sustainable. It has been found that consumers in countries and regions with a higher standard of living tend to be more concerned with sustainability and have a higher willingness to pay for sustainable products compared to consumers in poorer countries (Faelli et al, 2023). To further investigate this, Norwegian consumers may be a relevant group to study. Such research could aim to answer whether perceived sustainability is positively correlated with financial key metrics such as revenue or profit margins. It could also be investigated whether the results differ between different industries.

However, it is the view of the author that such a thesis would suit better for a future project. Preliminary considerations suggested that the correlation between perceived sustainability and sales might be low. The impact of sustainability on sales can be obscured by many other factors influencing consumer decisions, such as price, quality, brand loyalty and marketing effectiveness. Additionally, not all companies measure success the same way. Some view profits as the main target, while others focus more on people and the planet. The complexity and multitude of these external variables mean that any correlation found could be weak and would need to be interpreted carefully. Such complexity necessitates a robust methodological

design to isolate the effects of perceived sustainability, which might still result in findings that must be taken with a grain of salt. That is not to say that findings from such research could not be valuable. However, findings could likely be more valuable in the not-so-distant future. With more years of registered perceived sustainability, the data set for analysis would be larger and therefore more meaningful. Additionally, we are currently living in a time where knowledge and awareness about ESG is relatively low, as noted in the BI report. Reasons for this include outside factors such as the pandemic, the electricity crisis, interest rate hikes, stock market turmoil, supply crisis and war in Europe. During the early stages of the pandemic, there was a noticeable dip in consumer awareness and understanding of corporate sustainability practices. This fluctuation indicates that consumer knowledge can be quite variable and influenced by current events, which complicates efforts to measure the true impact of perceived sustainability on consumer behavior over time. In fact, almost one fourth of customers were unable to answer even one single question in the most recent survey, which is considerably worse than pre-covid numbers. While the environmental aspect may be what most people think of when they hear about sustainability, analysis by BI have shown that working on the social and economic aspect of ESG is more effective if you want to effect customer habits and customer loyalty (BI, 2023; BI, 2024).

5.3 Discussion

The study finds that discrepancy in reporting of environmental data remains large. It will be interesting to see if the introduction of CSRD will increase the extent and conformity of environmental reporting. Many more companies will have to disclose environmental data, and it remains to be seen how similar reporting will look once they all must adhere to the same framework. If conformity in environmental disclosure increases, comparisons of environmental efforts may become easier, reducing the risk of greenwashing and increasing transparency and trust in reporting. Thus, stakeholders such as peer companies, regulators, ESG agencies, investors, consumers and researchers may become more knowledgeable on the topic and get a more correct perception of which companies are acting more environmentally friendly than others.

While Li et al (2021) acknowledges that standardization of metrics alone does not solve the problems of ESG evaluation, it should be the starting point. Consistent and comparable

metrics will at the very least provide us with the tools to facilitate more, and better conversation. In such conversations, analysts must ask questions such as:

Why does one company have a higher value on a metric than a peer company? Is it a result of their business models, or can it be related to the measurement?

Why is there a change in the value of a metric from one year to the next? Does it result from a strategy change or a measurement change? (Li et al, 2021).

This type of conversation can guide business and investments towards more sustainable options, thus aligning the interests of people and firms with the best interests of the planet.

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Discussion Paper – International

The title of my master's thesis is: "Investigating how Norwegian companies report Environmental Metrics".

The study takes inspiration from BIs Sustainability Barometer, a research project that aims to understand how firms operating in Norway have communicated their sustainability efforts to consumers. This is done by surveying Norwegian consumers about their view of a large selection of companies and translating the responses into sustainability ratings (BI, 2024).

This study chooses a sample of twenty companies that were included in the Sustainability Barometer for further research on how these companies have expressed their environmental efforts to stakeholders. By analysing data disclosed in each of their published annual reports, the study aims to answer six research questions:

Which environmental key performance indicators (KPIs) are most commonly disclosed by the companies?

To what extent is there conformity between the companies' presentation of environmental metrics?

Which industries disclose the most environmental data, and which industries disclose the least?

Do industries with larger negative environmental impact disclose more than others?

Do larger companies report more environmental data than smaller companies?

Is there any relation between companies' disclosure of environmental metrics and their sustainability score received by BI in the following year?

The sample of companies is relatively small, and findings must therefore be taken with a grain of salt. Still, some findings supported existing theory. For instance, greenhouse gas emissions and energy were the categories that got reported on the most, while categories such as waste, water and biodiversity had less disclosure. Literature has also shown that industries with significant environmental impacts typically are the ones that disclose the most environmental data. This is due to regulatory pressures and stakeholder demands However, this conflicts with the findings of this study, where the fossil fuel industry, which has the largest carbon footprint and environmental impact, was among those that disclosed the least environmental metrics. At the other end of the scale, KPMG stated that industry sectors like "consumer and retail" and

"banking and insurance" were among those that report the least comprehensive ESG data. Typically, they lacked detailed disclosures of categories such as waste, water and biodiversity. Findings from this study showed that both the "bank" and the "insurance" industry reported less metrics than the total average in the study (KPMG, 2024). They also reported close to nothing on waste, water and biodiversity. The findings therefore supported existing theory on this point. It was, however, not possible to find a trend of larger companies reporting more than smaller ones. Further, the study failed to identify any relation between which companies had disclosed the most environmental data and which companies had recorded the best score in the Sustainability Barometer.

Perhaps the most interesting part of existing literature is the broad agreement about lack of quality and comprehensiveness in environmental disclosure globally. A large number of sources show significant discrepancies in environmental disclosure, which the findings of this study also supports.

Discrepancies in reporting is a problem for stakeholders such as peer firms, regulators and policymakers, ESG rating agencies, investors and consumers. Therefore, one wants more standardization in reporting. This may happen soon, with the imminent introduction of ESRD and CSRD. This is an international force in the form om regulations that state which companies have to disclose data, and what sort of data must be disclosed. This applies all across Europe and affects firms operating in the continent. In todays globalized world, that means that firms from all across the globe will have to deal with this in the near future. Meanwhile, this study shows the current state of environmental disclosure among a sample of relatively large Norwegian companies. This may have value for any of the aforementioned stakeholders.

Environmental disclosure is a global phenomenon and is constantly influenced by international trends and forces. Increased global awareness of climate change and environmental issues has driven companies worldwide to improve their environmental reporting practices. This has led to a demand for more transparency and accountability in how companies deal with environmental impacts. Norwegian companies are not exempt from this trend and are facing pressure from both local and international stakeholders to report more detailed and accurate on their environmental performance.

International standards such as the Global Reporting Initiative (GRI), the Task Force on Climate-related Financial Disclosures (TCFD), and the upcoming European Sustainability

Reporting Standards (ESRS) under the Corporate Sustainability Reporting Directive (CSRD) set the framework for how companies must report environmental information. These standards will aim to ensure consistency and comparability across companies and national borders. For Norwegian companies, this means that their reporting practices must be in accordance with these standards in order to meet the expectations of global investors and other stakeholders. The directive builds on established frameworks such as the Taskforce for Climate-related Financial Disclosure (TCFD) and the Global Reporting Initiative (GRI), as well as the UNs sustainability goals. Requirements follow the European Sustainability Reporting Standards (EFRS), which state that greenhouse gas emissions must be measured in accordance with the requirements of the GHG protocol and that science-based targets must be set (Deloitte, 2024). The weakness of having multiple standards in use is that comparison across companies is difficult. The market, including Oslo Børs, is demanding a more harmonized standardization in order to obtain uniform and good sustainability reporting that investors can use (Ellefsen, 2019).

Investors worldwide are placing increasing emphasis on environmental, social and governance (ESG) factors when evaluating investment opportunities. ESG requirements are becoming increasingly integrated into investment decisions, and companies that can demonstrate strong environmental performance are becoming more attractive to investors. Norwegian companies must therefore focus on improving their environmental reporting practices in order to attract and retain investments from ESG-focused funds and investors.

Technological developments, including the use of big data, artificial intelligence and advanced analysis tools, make it easier for companies to collect, analyze and report environmental data. This enables companies to provide more accurate and detailed information about their environmental performance. Norwegian companies can take advantage of these technological advances to improve their reporting and meet the requirements of international standards and investors.

Consumers worldwide are becoming increasingly aware of environmental issues and are demanding that companies take responsibility for their environmental impact. This consumer pressure is driving companies to improve their environmental reporting and implement sustainable practices. Norwegian companies operating in international markets must adapt to these requirements in order to maintain their competitiveness and reputation.

My thesis is strongly influenced by these international trends and forces. These trends affect the topic, the research questions, the findings, the units of analysis and the operating environment of the investigated companies in several ways:

Increased global awareness of climate change and the international standards and regulations have a direct impact on the topic of my thesis. The research focuses on which environmental key figures are reported the most, the consistency in the presentation of these key figures, and the differences industries. This is relevant research in light of the international requirements and expectations for environmental reporting.

The units for analysis, which include large Norwegian companies, operate in an environment characterized by international trends such as ESG investments and technological development. These companies must adapt their reporting practices to meet the demands of global investors and consumers, which also affects their competitiveness and market position.

Companies, regulators, investors and other stakeholders must adapt and respond to the international trends and forces at different ways.

Companies should implement robust systems to collect, analyze and report environmental data in accordance with international standards. They should also invest in technology that can improve data quality and reporting accuracy. Furthermore, companies should be proactive in their communication with stakeholders about their environmental performance and sustainability strategies.

Regulators can support companies by providing clear guidelines and requirements for environmental reporting, as well as providing training and resources to help companies meet these requirements. They can also work with international bodies to ensure that national regulations are in line with global standards.

Investors should continue to integrate ESG factors into their investment decisions and demand transparency and accountability from companies they invest in. They can also use their influence to encourage companies to improve their environmental reporting practices.

Consumers can use their purchasing power to support companies that demonstrate strong environmental performance and responsibility. They can also demand more information and transparency from companies about their environmental impact.

In an increasingly globalized world, where economic and social connections extend across national borders, consumers have a unique position to influence companies' sustainable

practices on a global level. By using their purchasing power, choosing green solutions, and making demands on companies, consumers can help meet some of the most pressing environmental challenges such as climate change, waste management, water consumption and loss of biodiversity. International trends and forces reinforce this influence, creating a dynamic where local actions can have global consequences.

Climate change is a global challenge that requires collective action across national borders. Consumers can use their power to reduce global carbon emissions by choosing products and services from companies that are actively working to reduce their climate footprint. This pressure is causing companies globally to invest in renewable energy sources, improve energy efficiency and reduce carbon emissions in their value chains.

For example, the growing demand for electric vehicles (EVs) has not only affected the automotive industry in one country but has driven a global transition towards more sustainable transport. Tesla, a pioneer in the EV market, has not only seen significant growth in the US but also globally (Tesla, 2023). This may push traditional car manufacturers around the world to intensify their investments in electric vehicles and green technology.

Plastic pollution and poor waste management are global problems that require international solutions. Consumers can influence companies to reduce waste by supporting those who use recycled materials, have reuse programs, or minimize packaging. This demand is driving international initiatives to combat plastic pollution and promote the circular economy.

International companies such as Patagonia and IKEA have implemented sustainable practices that have been adopted by their global operations. Patagonia uses recycled materials and offers products that can be recycled or reused, while IKEA has set ambitious goals for waste reduction and resource management that affect their global supply chain. Consumers worldwide who choose these products send a clear signal that sustainable practices are a business priority (Patagonia 2024; Ikea 2023).

Water consumption and pollution are critical environmental issues that affect the entire world, especially in water-scarce regions. Consumers can promote sustainability by choosing products and services from companies that take responsibility for their water consumption and minimize water pollution. This includes supporting brands that use water-saving production methods or have effective systems for water purification.

In the clothing industry, known for its high water consumption, initiatives such as Levi's Waterless program have gained global recognition. By reducing water use in the manufacturing process, Levi's is setting an example that other global brands can follow (Levi Strauss & Co, 2019). Consumers buying such products from different parts of the world show that there is a global demand for goods produced with less water, which could lead to wider industry practice changes.

Biodiversity loss is a global concern that requires the protection of ecosystems worldwide. Consumers can support biodiversity by buying products from companies that take action to preserve ecosystems and use sustainable resources. Certifications can help ensure that the products are produced without harming wildlife or ecosystems. Organic products that do not use harmful chemicals and agricultural practices that promote soil health and biodiversity have received international attention. Companies can set standards for environmentally friendly production and ethically responsible goods. When consumers globally choose these products, an international movement towards sustainable farming and production methods is promoted.

Consumers have the power to make demands on companies for more sustainable practices on a global level. Through social media campaigns, boycotts and cooperation with NGOs, consumers can put pressure on companies to take environmental responsibility. International petitions and actions against companies that do not meet sustainability standards can lead to real changes. A well-known international campaign against palm oil production that destroys rainforests has led to several large companies committing to use certified sustainable palm oil. Consumers from different countries participated in these campaigns, and their collective efforts pushed companies to change their practices to protect rainforests and biodiversity.

Consumers may also demand greater transparency and reporting from companies about their environmental impact. Supporting legislation requiring companies to disclose their environmental practices and performance can create a culture of accountability and transparency globally. This gives investors and other stakeholders the opportunity to make informed decisions based on a company's environmental performance, which can drive international standards for sustainability.

International trends and forces have a significant impact on how Norwegian companies report environmental targets. Increased global awareness of climate change, international standards and regulations, ESG requirements, technological development and consumer pressure are all

factors that shape the topic, the research questions, the findings, the units of analysis and the operating environment of the investigated companies in my thesis. By understanding and adapting to these trends and forces, Norwegian companies can improve their environmental reporting and meet the expectations of global stakeholders. This will not only strengthen their competitiveness and reputation, but also contribute to a greener future.

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