White paper

Good conditions for Nordic companies to embed sustainability and contribute to a low-carbon society

The Nordic region is often perceived as leading in terms of sustainability and sustainable development due to a combination of historical, cultural, economic, and political factors.

The combination of proactive governmental policies, technological innovation, strong environmental standards, public awareness, and regional cooperation all contribute to the picture of the Nordic region being at the forefront of the sustainability agenda.

In a similar fashion, Nordic companies are perceived as leaders in sustainability due to their proactive approach to regulatory compliance, cultural commitment to environmental stewardship, innovative use of technology, transparency, and stakeholder engagement. Together with supportive investment climates and strong corporate governance, it creates good conditions for Nordic companies to integrate sustainability into their business models, including the implementation of carbon reduction strategies. Consequently, Nordic countries and companies often place at the top in international sustainability rankings[1].

In this whitepaper we want to dig deeper into the perceived Nordic sustainability leadership in the context of companies' management quality and carbon performance.

The transition to a more sustainable and low-carbon society is a megatrend that presents substantial investment risks and opportunities, not least within energy transition where the investment needs to reach the Paris agreement are astronomical in a historical perspective. As one of the largest asset managers in the Nordic region, Danske Bank is in a prime position to navigate this landscape for our clients while contributing to the needed transition.

There is an intuitive link between company management quality and achieving long-term carbon reduction.
For companies to decarbonize, setting relevant and indeed ambitious reduction targets, is of fundamental importance. Even more important is obviously to deliver on those targets and here it is our belief that effective management plays a crucial role in company operations and delivering on strategic carbon objectives. Research suggests that there is a link between company management quality and the effectiveness of achieving carbon reduction goals, albeit with some time lag[2]. In other words, while there is not necessarily a clearcut link between company management quality and current emissions, there is evidence to suggest that it leads to lower future emissions, because companies with good carbon management are more likely to set and deliver on stretching emissions targets.

We believe that quality management practices pave the way for effective carbon management in many ways, e.g. by setting clear goals, allocating appropriate resources, engaging with stakeholders, and fostering an organizational culture that supports environmental responsibility. Moreover, strong management commitment can drive innovation, improve operational efficiency, and create long-term value for the company and its stakeholders. Companies in this category typically also regularly report on their progress.

[1] *The View at the Top: Sustainability Performance That Sets Companies in the Nordics Apart (ecovadis.com)*

[2] *(2021-methodology-report-management-quality-and-carbon-performance-version-4-0 (transitionpathwayinitiative.org).*

Allan Emanuelsson
Chief Expert ESG &
Sustainable Investments
Responsible
Investment Team

Shaina Sen
Senior ESG Analyst
Responsible
Investment Team

Peter Lindström
Chief ESG Specialist
Responsible
Investment Team

Danske Bank

The Danske Bank Net Zero Pathway Framework evaluates companies' Management Quality and Carbon Performance
In Danske Bank we apply a proprietary Net Zero Pathway Framework to assess companies' transition towards a low carbon economy[3]. It builds on the methodology and data developed by the Transition Pathway Initiative (TPI)[4]. TPI is an open access global initiative, developed to enable investors to assess companies' preparedness for transition towards a low-carbon economy. Assessments under the initiative are made using best-available data and publicly available company information, and an academically rigorous approach.

TPI assesses companies within two dimensions:

1. **Management Quality** describes companies' carbon management practices and governance, in other words their governance of greenhouse gas emissions and the risks and opportunities arising from the low carbon transition. Management Quality indicators include, for example, whether a company has a climate change policy in place, to what extent it discloses its emissions, and whether the company has allocated board responsibility for climate change.

2. TPI's **Carbon Performance** assessment is based on the Sectoral Decarbonization Approach (SDA)[5]. The SDA translates greenhouse gas emissions targets made at the international level (e.g. under the Paris Agreement to the UN Framework Convention on Climate Change) into appropriate benchmarks, against which the performance of individual companies can be compared.

The TPI framework aims to evaluate what the transition to a low-carbon economy looks like for companies with a high impact on climate change, such as electricity utilities and oil & gas companies. It also aims to assess these companies' progress towards a low-carbon transition.

To illustrate how to operationalize the framework, Danske Bank has announced a new policy for investments in fossil fuel companies to ensure that they have credible transition plans. The policy relies on the Danske Bank proprietary Net Zero Pathway framework, where the combination of Management Quality and Carbon Performance enable us to place fossil fuel companies into categories representing degree and strength of overall net zero alignment. The Net Zero Pathway framework is used as an exclusionary constraint to fossil fuel companies but companies in other sectors are also evaluated using the framework, for example as input for active engagement.

The framework also incorporates additional criteria for specific activities, as well as criteria relating to renewable energy capacity and EU-taxonomy aligned CapEx. Furthermore, extra emphasis is given to companies that meet the highest management quality criteria, as we believe there is an opportunity for meaningful time-bound engagement with such companies.

For the purpose of this whitepaper, we compare aligned vs non-aligned companies where aligned companies correspond to 'Aligned to net zero pathway', and non-aligned companies correspond to the remaining three categories in the Net-Zero Framework table below (i.e. 'Aligning towards net zero pathway', 'Committed towards net zero pathway', and 'Not aligned / not transitioning to net zero'). As a representation of the global markets we are using MSCI World index and MSCI Nordics index for the Nordic market, both commonly used as proxies for the respective markets.

This whitepaper sets out to investigate (a) the correlation between Management Quality and Carbon Performance (scope 1-2 emissions), (b) whether net zero aligned companies have a better carbon performance than non-aligned ones, and (c) the perceived leadership of Nordic companies' net zero alignment across sectors.

Assessment	Action
Aligned to net zero pathway	Progress continuously monitored
Aligning toward net zero pathway	Subject to time-bound engagement
Committed towards net zero pathway	Excluded
Not aligned / not transitioning to net zero	Excluded

A note on absolute vs. intensity-based carbon targets

Companies must navigate the challenging process of establishing impactful emission reduction goals. Absolute targets are in harmony with worldwide climate goals, yet they might not fully capture the unique challenges faced by individual companies.

Intensity-based targets offer a more flexible approach by adjusting to company growth and specific operational needs, thereby promoting sustainable practices while facilitating business progress. Nonetheless, these targets also have inherent limitations. For example, the Science Based Targets initiative (SBTi) advises that "An intensity target should only be pursued if it results in absolute emission reductions in accordance with climate science or is based on a sector-specific decarbonization pathway that ensures reductions in sector emissions."[6] In practice, setting both absolute and intensity targets together can be beneficial.

[3] *[Net-Zero Pathway Framework for investee companies (danskebank.com)].*
[4] *Home - Transition Pathway Initiative*
[5] *Methodologies -Book.indb*
[6] *Getting Started Guide V1.1 (sciencebasedtargets.org)*

A note on omission of scope 3 data

In investigating the correlation between Management Quality and Carbon Performance, this whitepaper focuses on scope 1-2 emissions, defined in the 'emission category table below'. While scope 3 emissions are the largest emissions category for many companies, it is the one that is by far the most difficult to control.Also, measuring scope 3 data comes with certain challenges tied to the complexity and availability of data, and potential misrepresentation due to inconsistent calculation methodologies.

Consequently, we have decided not to include scope 3 emissions in this whitepaper, though a comprehensive assessment ultimately requires including scope 3 data. We expect that the Corporate Sustainability Reporting Directive (CSRD)[7] reporting requirements will support scope 3 data quality improvements and methodological stability.

A note on carbon reporting lag:

This paper explores the correlation between management quality and carbon emissions, both on intensity and in absolute terms. An important aspect when comparing the metrics is the carbon reporting lag. When companies report their carbon emissions, it typically covers a twelve-month period 12-18 months in the past corresponding to their annual reporting cycles, and therefore does not necessarily give an accurate estimate of the carbon emissions of the company at time of reporting.[8]

NACE sectors and hard-to-abate definitions
This paper has utilized the Statistical Classification of Economic Activities in the European Community (NACE)[9] for mapping companies to respective industries in order to enable industrial comparisons. This paper has used the NACE codes to map the companies to industries.

The Hard-to-abate sectors are companies classified into sectors that are still critical to the global economy, and where currently little to no solutions exists for rapid decarbonisation. As such, even if management were to heavily focus on decarbonations we would expect slower progress compared to other sectors.

These include:
Air Freight & Logistics, Aluminum, Building Products, Cargo Ground Transportation, Diversified Chemicals, Fertilizers & Agricultural Chemicals, Highways & Railtracks, Marine, Marine Transportation, Passenger Airlines, Rail Transportation, and Steel.

Scope 1 emissions
are direct emissions from owned or controlled sources by the company, such as emissions from fuel combustion in company vehicles and facilities.

Scope 2 emissions
are indirect emissions from the generation of purchased electricity, steam, heating, and cooling consumed by the company.

Scope 3 emissions
are all other indirect emissions that occur in a company's value chain, including both upstream and downstream emissions. This includes emissions associated with the production of purchased goods and services, business travel, employee commuting, waste disposal, and the use of sold products and services.

[7] Corporate Sustainability Reporting Directive - European Commission
[8] Handle with care: Challenges in company-level emissions data for assessing financial risks from climate change - ScienceDirect
[9] Glossary:Statistical classification of economic activities in the European Community (NACE) - Statistics Explained

Net-zero analysis

Summary of findings:

- We do not see a clear correlation between management quality and carbon performance at a single point in time (2022 data[10]), when reviewing both the whole investment universe and individual sectors. Improved management quality rather seems to be a precursor to reductions in carbon emissions.
- On average, the MSCI World has experienced a drop in carbon intensity in 2018-2023 for aligned companies, while non-aligned companies have seen an increase. For MSCI Nordic, both non-aligned and aligned companies have experienced a drop in carbon intensity during the same period, with aligned companies showing a more substantial drop.
- Companies aligned to net-zero have significant better intensity reduction performance, and less variance year-over-year than non-aligned companies.
- In absolute terms, there has been a 2% carbon increase for aligned companies in 2018-2022 in MSCI World, while there has been a 43% drop in carbon intensity figures, implying significant revenue expansion from aligned companies over the time period. This suggests that it might be difficult to comply with the SBTi recommendation of only setting intensity targets if it leads to associated absolute reduction over long term. As a comparison, non-aligned companies show a 22% increase in absolute carbon emissions, and a 64% increase in carbon intensity figures, over the same period.
- There is a drastic reduction in overall average carbon emissions intensity from 2018 to 2022 among companies in the MSCI Nordic. The overall reduction trend is observed since 2018 with no exceptions up to now. The key difference in the MSCI Nordic is that for aligned companies both absolute (-12%) and intensity (-48%) figures have decreased indicating stronger real-world impact.
- Large sector differences between MSCI Nordic & MSCI World in successful carbon intensity reduction. In terms of MSCI World, the highest reduction in average emissions intensity is in *Communication Services* followed by *Information Technology*. For MSCI Nordic, the highest reduction is in *Health Care* followed by *Industrials* and *Communication Services*.
- Both World and Nordics have seen a drop in absolute emissions from pre-covid to covid, with Nordics managing to maintain covid level absolute emissions, while World had a slight uptick. As such, the absolute carbon performance has been stronger in the Nordics than for MSCI World.
- In examining companies within hard-to-abate sectors specifically, there is a notable correlation between management quality and commitment to Net Zero across various countries and sectors. However, significant variations exist among these sectors, suggesting different challenges in reaching Net Zero. Additionally, companies in the Nordics generally exhibit higher management scores and a greater proportion of full Net Zero alignment compared to the global average.
- There is good reason to assume that Nordic companies will continue to do relatively well in terms of climate leadership and performance, based on historical carbon performance, higher management quality, and slightly higher proportion of aligned companies.
- While this paper is based on data provided by ISS ESG, we have simultaneously looked at data from MSCI in order to validate the findings and contextualise the data within known benchmarks (MSCI Nordic and MSCI World), thereby supporting the hypothesis in the paper. These data points can be found in the appendix.

[10] *2022 data is currently the best available cleaned dataset for emissions data.*

1. Management **quality and decarbonisation (2022)**

Two key variables have been used and converted to useable numeric scales as seen below. We are using data from 2022 as this is the most recent year for which we have all of the underlying datasets updated.

The following scales have been used:

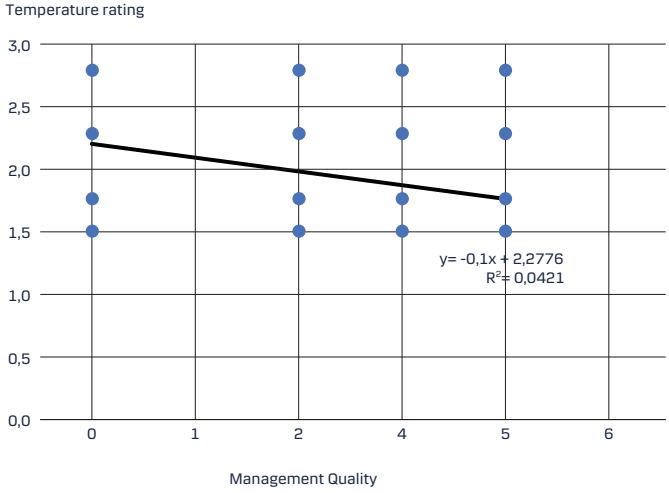
Management Quality	
1	1
2	2
3	3
4	4
4STAR	5

Temperature rating	
Above 2.5	2,75
Below 2.5	2,25
Below 2'C	1,75
1.5'C	1,5

These have then been mapped out to their corresponding NACE sectors, as well as a separate Nordics only and linear trendlines applied.

Results are shown below, all with R2 values far away from acceptable levels implying that no evidence of strong correlation between the two factors. For instance, for Nordic companies a 1 score increase in management quality lowers the temperature rating by 0,1

Nordics only



	Slope	**R^2 Value**
Full universe	y = -0,0325x + 2,3212	R^2 = 0,0047
Nordic	y = -0,1x + 2,2776	R^2 = 0,0421
Transportation	y = -0,0353 + 2,3725	R^2 = 0,0044
Technology	y = -0,0512x + 2,2861	R^2 = 0,0128
Services	y = -0,0153x + 2,3226	R^2 = 0,001
Resource Transformation	y = 0,0052 + 2,276	R^2 = 0,0001
Renewable	y = -0,1466 + 2,594	R^2 = 0,1306
Infrastructure	y = -0,1035x + 2,5095	R^2 = 0,0407
Health Care	y = -0,067x + 2,3601	R^2 = 0,0199
Food	y = 0,0643x + 2,4106	R^2 = 0,015
Financials	y = 0,0284x + 2,113	R^2 = 0,0033
Extraction	y = -0,0435x + 2,6447	R^2 = 0,0091
Consumer	y = -0,041x + 2,1838	R^2 = 0,0063

1.1. Further discussion

Diving further into academic literature on the topic, most papers come to the same conclusion – no strong correlation between Management Quality and Carbon Performance at face value. This is described in the below excerpt from a research paper by the Transition Pathway Initiative (TPI)[11].

One particular thing to note though is that while researchers have not been able to establish the link for current management performance against current emissions performance, data seems to indicate that there may be a correlation with future emissions performance, which also makes sense.

From the TPI paper:
"*One of the reasons why we assess Management Quality and Carbon Performance separately is that research shows the relationship between them is by no means clear cut. The ideal scenario is that companies with robust, well-developed carbon management systems and processes adopt business strategies that are aligned with the low-carbon transition. Conversely companies with weaknesses in their carbon management systems and processes might be less likely to set challenging emissions targets. However, at any particular moment one can find examples of companies with good carbon management systems, who nonetheless have high emissions, and vice versa. This might be because the highest-emitting companies are forced to place the highest priority on reducing those emissions. There is some evidence to suggest that, while good carbon management appears unrelated to current emissions, it leads to lower future emissions, because companies with good carbon management are more likely to set and deliver on stretching emissions targets…*"

[11] *[read: 2021-methodology-report-management-quality-and-carbon-performance-version-4-0 (transitionpathwayinitiative.org)].*

2. Historical **carbon performance** of aligned companies (2018-2023)

In order to evaluate the forward-looking dimension of the net-zero framework, we cannot rely on future corporate targets only but will use past carbon performance as a proxy.

As only looking at 2022 data did not produce any clear correlations, a further analysis using historical data from 2018-2023 was used. The key hypothesis is that by using backwards looking data, we will see a trend of reduced emissions for aligned companies. In other words, we wanted to compare what the historical carbon performance journeys looked like for 2022 aligned vs non-aligned companies. We were not able to tap into historical data on company alignment, so the fact that a company was aligned in 2022 serves as a proxy for the company also being aligned in previous years. So, the analysis uses companies aligned in 2022, and looks at their carbon reduction trend over the data-period, both on an absolute basis, and a carbon intensity basis.

2.1. 2018-2023 figures versus baseline:

Aligned:
- 2% higher absolute emission
- -43% lower carbon intensity

Non-aligned:
- 22% higher absolute emission
- 64% higher carbon intensity

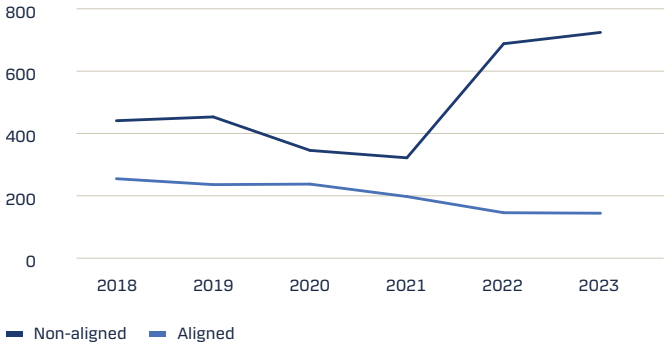
Below in the graph the carbon intensity is mapped out for both 'aligned' and 'non-aligned'. Very noticeable is the consistent carbon intensity reduction for aligned companies, whereas non-aligned companies have an increase in carbon intensity except for the Covid years.

2.2. Utilities

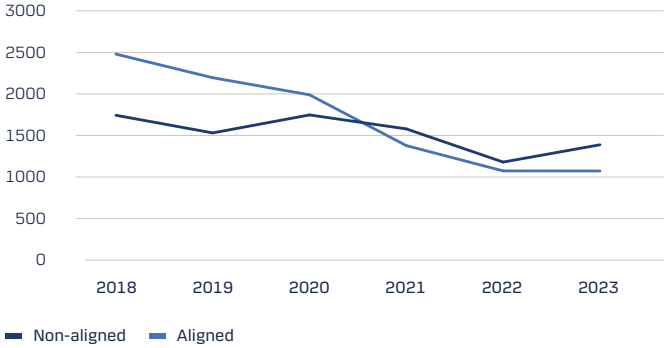
For utilities:
- 57% intensity reduction for aligned utilities
- 20% intensity reduction for non-aligned companies

Below is also an analysis of utilities on the same aligned/non-aligned split. Particularly noticeable here is that 'aligned' started with a significantly higher intensity than 'non-aligned' but end the period with a lower level.

Carbon intensity
Carbon intensity t/MEUR



Carbon intensity for utilities
Carbon intensity t/MEUR



2.1. Absolute carbon emission and carbon intensity data for aligned and non-aligned companies in MSCI World and MSCI Nordic

Global

Intensity (T/MEUR)	Percentage of total	2018	2019	2020	2021	2022	2023	Change
Non-aligned	89.50%	441.0	453.1	345.7	321.9	687.9	724.2	64%
Aligned	10.50%	254.9	235.9	237.6	197.6	145.8	144.2	-43%

Absolute (1000T CO_2e)	Percentage of total	2018	2019	2020	2021	2022	2023	Change
Non-aligned	89.50%	1652	1902	1687	1734	1935	2012	22%
Aligned	10.50%	1231	1531	1747	1579	1238	1260	2%

Nordics

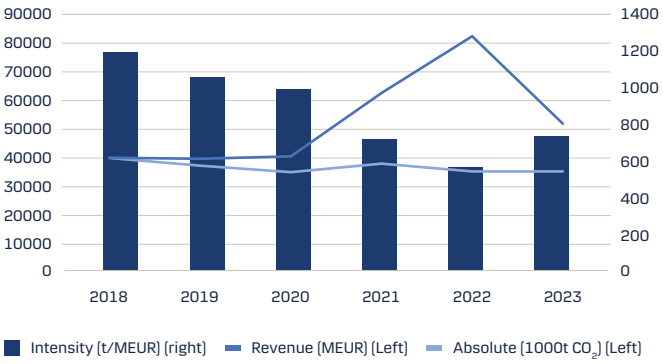
Intensity (T/MEUR)	Percentage of total	2018	2019	2020	2021	2022	2023	Change
Non-aligned	88.00%	214	214	167	160	138	140	-35%
Aligned	12.00%	159	161	134	101	83	83	-48%

Absolute (1000T CO_2e)	Percentage of total	2018	2019	2020	2021	2022	2023	Change
Non-aligned	88.00%	1751	1892	1753	1980	1722	1794	2%
Aligned	12.00%	1359	1304	1574	1343	1155	1190	-12%

3. Case study: **Nordic shipping company**

Key figures:
- Revenue growth: 30%
- Absolute emissions: -12%
- Intensity: -38%

Positive emissions trajectory on all indicators
- The graph below illustrates how total emissions, intensity figures and revenue growth are related. As the company has reduced its carbon emissions at a quicker pace than its revenue growth rate, both carbon intensity and absolute emissions have decreased over time. The company announced its decarbonization targets in 2020 after which accelerated progress can be observed.



4. **Net Zero** Analysis data description and hypotheses

The paper uses ISS ESG data for MSCI benchmarks.

4.1. Data Description:

MSCI World (2014- 2024) - Scope 1 + 2 carbon emissions Intensity both for individual companies and sectors

MSCI Nordics (2014-2024) - Scope 1 + 2 carbon emissions Intensity both for individual companies and sectors

Classification of alignment to net zero as of 2022

4.2. Hypotheses:

All companies and sectors have on average reduced emissions intensity over time.

Companies aligned to net zero display higher emissions intensity reduction over time than companies not aligned to net zero emission.

Companies aligned to net zero report historically lower intensity emissions than companies not aligned to net zero.

Some sectors have persistently high carbon emissions intensity.

4.3. Summary of findings using MSCI data as a back-up:

To further substantiate our hypotheses, we conducted the same analysis for both MSCI World and MSCI Nordics universes also with carbon data from MSCI for both carbon intensity and absolute emissions.

In conclusion, the results are very similar and also confirm that the aligned companies in both indexes show higher emissions intensity reduction than companies not aligned. Further details can be found from the Appendix.

5. Appendix: **Replication of analysis** using MSCI data

5.1. Intensity

Both in MSCI World and in MSCI Nordics, companies aligned to net zero report higher emissions intensity reduction than companies not aligned. In the Nordics, on average aligned companies have reduced emissions intensity by 50% from 2018 to 2022. Among not aligned companies, the average reduction is around 40% in the same interval period. On MSCI world, the average reduction among aligned companies is of 30% from 2018 to 2022 and among not aligned companies is of 20% from 2018 to 2022.

An interesting result emerge when comparing average emissions intensity differences between aligned and not aligned firms in the same year. In the MSCI World, every year the aligned companies have on average lower emissions intensity than not aligned firms. Turning to MSCI Nordics, the same relationship is not found. Again, a potential but not tested explanation is that companies not aligned in the Nordic region have substantially grown in revenues, reducing the ratio of emissions over revenue.

Seen from a sector perspective within MSCI World, the highest reduction in average emissions intensity is in Communication Services followed by Information Technology. As for MSCI Nordics, the highest reduction is in Health Care followed by Industrials and Communication Services.

Carving out companies in hard-to-abate sectors* (Air Freight & Logistics, Aluminum, Building Products, Cargo Ground Transportation, Diversified Chemicals, Fertilizers & Agricultural Chemicals, Highways & Railtracks, Marine, Marine Transportation, Passenger Airlines, Rail Transportation, and Steel), we see strong correlation between management quality and alignment to Net Zero across countries and sectors. At the same time we see large differences between the different hard-to-abate sector, perhaps indicating varying difficulties in achieving Net Zero. Furthermore, we see overall better management scores in the Nordics, and a stronger Nordic share of full Net Zero alignment vs. global, but Nordics have higher share without commitment to align.

5.2. Absolute emissions:

In general, there has been an absolute emission increase in the measurement period, with a significant drop during the covid years, with emissions rebounding in the post-covid years for MSCI world.

For MSCI Nordics, the same rebound post-covid has not materialised to the same degree and the companies in the index have successfully managed to slightly lower the absolute emissions across all years in the measured period.

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Danske Bank A/S
Bernstorffsgade 40
1577 København V.
Company reg. no.: 61 12 62 28
Tel. +45 45 13 96 00
Fax +45 45 14 98 03
www.danskebank.dk