CLIMATE CHANGE

Risk and Opportunities for BN Bank

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BN Bank

Content

Task Force on Climate-Related Financial Disclosures (TCFD)

The purpose of **TCFD** is to establish a standardized framework for disclosing climate-related financial risks among financial institutions. The Task Force was introduced in 2015 by the **Financial Stability Board** (FSB) in cooperation with 32 global organizations from different industries such as banking, insurance, pension funds and consulting. The mission of the Task Force is to help businesses to identify and report the information needed by investors and lenders concerning climate-related risks and opportunities.

Intergovernmental Panel on Climate Change (IPCC)

To successfully evaluate climate-related risk and opportunities the TCFD recommends using scenario analysis developed by **IPCC**. These scenarios are widely used by both scientists and policy analysts and can be customized to company-specific situations. The IPCC is the United Nations body for assessing the science related to climate change. It is an organization created by the **World Meteorological Organization** (WMO) and the **United National Environment Programme** (UNEP) and is a global entity with 195 members. IPCC provides governments worldwide with scientific information that can be used to develop sustainable climate policies.

The Scenarios

IPCC operates with four different scenarios based on GHG concentration in the atmosphere. Depending on the emission of CO_2 and other greenhouse gases, the scenarios deduce the likely resulting temperature changes globally. In this report, the consequences for our company will be studied, given the following two scenarios:

Scenario 1: RCP 2.6 – global temperature changes not likely to exceed 2° C
Scenario 2: RCP 6.0 – global temperature changes likely to exceed 2° C

The **Representative Concentration Pathways** (RCP) are defined by their *total radiative forcing level* (measured in Watts per square meter), which is the cumulative measure of human emission of all greenhouse gases in the atmosphere. The pathways are named after the radiative forcing values in 2100 relative to the pre-industrial level.

The scenarios are developed by separate scientific groups and are therefore not unique in terms of the underlying socioeconomics. The differences between the RCP scenarios are not due to differences in climate policy or socioeconomic development but depend on a range of factors in the models. Hence, each RCP could result from different combinations of economic, technological, demographic, policy and institutional futures.

The first scenario, RCP 2.6, implies *"aggressive mitigation"* where the concentration of CO_2 equivalents (ppm) peak in 2050. The emission pathway reaches a value of 3.1 W/m2 in 2050 but returns to 2.6 by 2100. This scenario implies decarbonising the power sector by mid-century and a range of other low-carbon initiatives by the end of the century.

The RCP 6.0 scenario represents a *"stabilization"* scenario where total radiative forcing is stabilized, but not reduced, by 2100. The overall emissions rise until 2080, before stabilizing. This implies that the goals of the Paris agreement are unlikely to be met, and the global temperature probably will increase by 2^{o} C.

Risk Management

The portfolio at BN Bank intends to have a low-risk profile. The bank has a robust and well-established risk management framework that is controlled by the department for Risk Management & Compliance.

The portfolio is invested in both the consumer and business market, geographically centred in the Oslo area. The investments ensure that the portfolio abides by the strategic goals of the bank, while simultaneously ensuring financial stability. To retain the desired risk profile in the future, there must be developed modern processes for identifying, assessing and managing climate-related risks which will include climate risks within the existing risk management framework.

Consequences for our assets and operating profits

Understanding the climate-related risks and opportunities is a complex challenge for everyone in the financial sector. It is especially difficult in Norway, which is a geographically diversified country, with severe regional differences. Hence, climate risks such as sea-level rise and extreme heat will increasingly cause disruptions in the value of individuals investments and assets. The ambition of BN Bank is to avoid climate-related losses and lower returns from their investments, which means that one must assess how exposure to climate-related risk will affect the operation in the short, medium and long term.

Both the **physical** and **transitional risks** from climate change and the IPCC scenarios have financial impacts for the bank. Physical risks arise from increasing intensity and frequency of climate and weather-related events and consist of acute and chronic risks. The acute risk is related to higher frequency and intensity of extreme weather vents (wildfires, typhoons, flooding etc.). These types of extreme weather could decrease the value of investments, due to increasing costs of maintenance, reconstruction and higher insurance premiums. The chronic physical risks appear when changes make traditional production and operations impossible, e.g. when food production becomes impossible due to flooding or drought, or when lack of snow reduces the profits of Norwegian ski-tourism.

The most severe types of physical risks are:

1. **Avalanche and flooding** These types of physical extreme weather are most common in the central parts of Norway, in the areas located in “Innlandet”. Especially the “Gudbrandsdalslågen” is exposed, with severe flooding in both 2011 and 2013. Such events damage the building, roads and other important infrastructure, which causes expensive reparations and insurance pay-outs. The risk of such extreme weather is likely to increase in the future, as unstable air masses can travel unpredictably far carrying a large amount of water, causing heavy downpour in new areas.
2. **Heavy precipitation** When the amount of rain or snow in a location substantially exceeds the normal level, damages to building and infrastructure is likely to be serious. But the reason why precipitation is so costly is that it its injuries are often in densely populated areas, such as Oslo and Akershus. In the most extreme cases, the heavy precipitation causes clogged drains and water overflow in private houses.
3. **Storm and storm surges** Even though storms and storm surges are relatively infrequent and rare, their frequency in the latest years have made them one of the main reasons for insurance claims. Storms are often large incidents and cause significant national media attention. Not surprisingly, the areas that are most threatened by storms are the coastal areas in the West and the North. The damages are also most prominent in the late autumn, early winter season.
4. **Changes in weather patterns and seasonal variations** Beside the acute risks from extreme weather, cronic changes in weather patterns might cause an economic impact on many businesses. For example, reduced snowfall in popular winter-destinations could reduce the profitability of Norwegian ski-tourism. Alternatively, new technology is needed, which could increase operational costs and investments.

Transitional risks, not attributable to certain events, arise from the adjustment towards a carbon-neutral economy. This transition will require significant structural changes and market shifts in the economy. The transitional risks are:

1. **Market** Due to the transitions and regulations to prevent climate-changes, some industries are likely to become less profitable and desirable in the future. For Norway, this especially goes for the Oil & Gas sector. This will cause an important transition for Norway, with reduced occupier demand in areas such as the Stavanger area
2. **Policies and regulations** A tax on carbon, emission caps and changes to subsidies could also influence profitability in many investments. If sales and profit are dependent on subsidies or current regulations, such changes could alter overall profitability and risk in the market.
3. **Resource availability** Norway is to a large extend self-sufficient on key resources such as water and energy, but a new investment, such as the water reservoir in Oslo, could be necessary to maintain the value in certain areas.
4. **Reputation** Stakeholders are likely to be more interested in working with companies that incorporate climate risks into their portfolio and that take more environmentally friendly decisions. This is a risk for companies who do not act early

Likelihood of more extreme weather

As reported by the central organization for finance in Norway, **Finans Norge**, climate change has caused large economic consequences through destructions on constructions and infrastructure in the last ten years. Historical figures show that extreme weather such as heavy storms, torrential rain and flooding appears with higher frequency today than 30 years ago. This tendency has resulted in a combined pay-out from insurance companies of 30 billion NOK (CPI-adjusted) due to damages caused by extreme weather events since 2009.

In Norway, the largest and most frequent incidents are water ingress, storms, frost, flooding and sewer blockage caused by heavy rain. Even though the most prominent natural incidents are storms and flooding, the largest economic damages come from water ingress and sewer blockage. This happens since heavy precipitation strikes hardest in areas that are densely populated, whereas storms are spread out over larger areas. Also, preventive measures against flooding are cheaper to install.

These tendencies might have severe consequences for the risk management in BN Banks portfolio. Even though the physical risks of storms and precipitation can be examined, quantifying the impact in terms of impairment losses is difficult. Still, the exposure for climate-related hazards is likely to cause a significant market shift. In a report from the real estate investment firm Heitman, it was concluded that the value of homes vulnerable to flooding in certain US regions was reduced by $7.4 billion between 2005 and 2017. In general, Norwegians are used to greater weather variations and braced for more extreme weather. Still, Norwegian infrastructures and housing are built for the weather we are used to, not the weather we might experience in the future.

Assessing Physical and Transitional Risk in our portfolio

Climate-related risk is a non-diversifiable risk that will affect all industries and financial portfolios. As a financial intermediary, BN Bank is exposed to the risk caused by climate change through both the consumer and business market.

Risks in the private market (Consumer Banking)

Our portfolio consists of various loans that are secured against collateral in private housing of the borrowers. In these types of loans, BN Bank is exposed to risk if the property values would decrease due to extreme weather or new regulations. Changes in loan-to-value would occur if the value of private housing decreases when exposed to natural disasters such as water ingress and storms. Densely populated areas, such as Oslo and Akershus, are more prone to damages from water ingress, which could severely reduce the value of homes in certain areas. Even though BN Bank has private customers from all over Norway, the majority comes from Eastern Norway and approximately 30% from Oslo.

Risks in the corporate market (Business Banking)

The portfolio in the corporate market is specialised within loans to properties and financing of new dwellings. For most purposes, the bank offers loans to offices, logistic centres and rental apartments. Based on the RCP scenarios, there is likely to be fluctuations in productivity and output from the sector the portfolio covers. Reduction in revenue and cash-flow will also reduce the profitability of BN Banks operation through lower bank deposits. The bank has currently very few defaults, but this could increase if profitability among corporate customers decreases.

There are many reasons why expected loss could increase in the current portfolio. Physical risks through extreme weather events can potentially reduce the value of properties significantly, but this is not the most prominent source of increased risk. In the RCP 2.6 scenario, new regulations and restrictions are likely to affect the productivity in the Norwegian economy. The profits from the oil & gas industry are likely to fall if such measures were taken, which could have severe consequences for many domestic industries. In turn, this is likely to cause a reduction in the demand for offices and rental apartments, which implies lower cash flows from such assets.

Portfolio evaluation

Climate sensitivity captures the degree to which a sector or portfolio is vulnerable to climate changes and corresponding regulations. The impact of increasing frequency and intensity of extreme weather and storms is difficult to measure, but a successful assessment is pivotal for future financial stability. Several factors influence the investment value in a portfolio, and some measures can be taken to avoid unnecessary risks in future investments. To find a strategy that successfully estimates the climate-related risk in our portfolio, a thorough analysis of potential positive and negative climate-related impact must be conducted.

Climate-related disclosures

The Task Force sets out three recommended disclosures for *Metrics and Targets,* which aspire to make it possible for banks explain how both climate change impact and exposure to risks are measured, setting targets and tracking ongoing progress. Currently, we are reporting after the **Global Reporting Initiative** (GRI) standard and cooperating with UNEP Finance Initiative. As we complete consistent, reliable disclosures on climate-related risks and opportunities, we will be better able to evaluate our risks and investors will have more information to make better decisions regarding the allocation of capital.

We started measuring our CO_2 emissions in 2019, our base year from now on. Later, we estimated our Scope 1, 2 and 3 greenhouse gas emissions according to the GHG Protocol. When calculating these emissions, we focused on the direct and indirect emissions from BN Banks operations and financing. By using a global methodology (the GHG protocol), it will be possible to compare our operation towards domestic and international organizations, if the reporting methods are comparable. Over time, the metrics will also allow us to perform trend analysis and evaluate the effectiveness of measures taken in the future.

Our carbon footprint

Based on the GHG Protocol, the direct and indirect emissions of our activities were measured for 2019. Since the bank does not own any company facilities or vehicles, there is no Scope 1 emissions to report. For the indirect scope 2 emissions, the electricity consumption and corresponding emissions were estimated for the offices in Oslo and Trondheim, the apartments in Oslo, Trondheim and Spain and the server park in Trondheim. The total electricity consumption was 0.24 GWh, which produce emission of 10 tCO2e. For the indirect scope 3 emissions, work-travel and electricity consumption from investments were estimated. The emissions from train, taxi, flights etc, were estimated to 182 tCO2e, were as yearly total net energy consumption for tenants were 213 GWh for the private market and 136 GWh for the business market (loan-to-value included).

Based on these estimations, the bank should set itself targets in line with the Paris Agreement and the IPCC scenarios, consistent with limiting global warming to RCP 2.6 above pre-industrial level.

Key metrics for climate-related risks and opportunities

To avoid financial stress, key metrics to measure climate-related risks and opportunities must be developed. These metrics must keep track of the potential losses and gains in the portfolio due to climate changes. The metrics should relate to how losses in financial activity and value for our lenders could result in increased expected loss due to the physical and transition risk.

A. Physical risk, Consumer Market
- Proportion of properties located in 'at-risk' zones for flooding, storms or water ingress
- Changes in the price level of house listings based on exposure to extreme weather
- Number of proactive measures performed to avoid physical damages from weather

B. Transition Risk, Consumer Market
- Changes in consumer preferences towards more energy-efficient properties
- New regulations to mitigate climate change and increase in cost of doing business
- To what extend geographic areas vulnerable to climate change become less desirable over time, and assets located in these areas lose value

C. Physical Risk, Business Market
- Reduced revenue from decreased production capacity or lower sales
- Increased write-offs of existing assets

D. Transition Risk, Business Market
- Operating and capital cost for tenants
- Exposure to reduced profit margins
- Stakeholders and investors preference towards working with companies incorporating climate risk into investment decisions
- Reduced economic activity in the largest domestic sectors, such as oil & gas

Regulatory consequences

Keeping track of these metrics and adapting to potential changes could have severe consequences for our risk management and strategy. E.g., as consumer preferences are likely to turn towards energy-efficient properties, the current portfolio (around domestic average) should be continuously improved with fewer energy-inefficient apartments (rank D-G). Currently, the empirical analysis shows that even though consumers are concerned about energy efficiency, the willingness to pay for upgrades is low. This might change, as higher export of Norwegian electricity is likely to increase electricity prices in the future.

The tendency is likely to be important in the business market as climate risk is integrated into risk management deliberations among tenants. To deal with such issues, our investment decision and risk management must be based on the knowledge gained on climate-related risks and opportunities in line with other types of risks the bank faces. This information must be developed and analysed so that in the future it will be possible to have climate-related requirements on loans, giving preferential treatments to tenants who act early.

By today, climate risk management, sustainability reporting and stress testing are not implemented into the financial regulation framework. But the signals are clear: this will be developed and implemented in the coming years and is seen as an important area for the regulators. Among many initiatives, the Network for Greening the Financial System (NGFS), consisting of central banks and supervisory agencies around the world. The NGFS coordinates collaboration across countries and report on best practices and encourage regulators to increase their focus on sustainable finance.

While the NGFS and its recommendations are purely voluntary, the European Banking Authority (EBA) are already working on how to implement sustainability into European financial regulation. The EBA has published an action plan on sustainable finance, outlining a timeline for the implementation of climate risk into new and existing regulations. Until this is implemented, EBA reveal its expectations and policy messages towards financial institutions. They encourage financial institutions to implement work on sustainability in the following areas:

- Incorporating ESG into their business strategy, risk management and decision-making processes
- Disclosure of how this is done in the institution, by for instance reporting on some simple metrics showing the institutions work with and progress towards sustainable finance.
- Using scenario analysis and stress testing to understand the impacts of climate change on the institutions, its assets and risks.

While this is more or less “voluntary” today, we will see this becoming a part of financial regulation and expectations in the years to come. By starting this work now, we will be able to improve the methodology and sustainability reporting as policy evolves and new requirements and standards are developed.

Plan towards being “data ready”

Climate risk analysis for financial investments such as BN Banks portfolio is still in its infancy. As such, there are currently limitations with data and analysis techniques. To keep track of the development and risk management, there is a lot of data that needs to be collected and analysed. To achieve this, data and tools to analyse climate risks are needed, such as:

- Shifting consumer preferences and willingness to pay for energy-efficient housing
- Return on investment to upgrade energy classification
- Updated mapping of physical risk for the current portfolio
- An integrated model for assessing the consequences of increased regulations
- Data on chronic physical risks such as drought and reduced snowfall
- Tenants exposure to GHG emissions and sensitivity to change in the cost of carbon

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