TCFD Report 2021

Santander

Looking to the future

Responsible banking at the heart
of a sustainable economy

TCFD Report 2021
table of contents

Introduction

Climate change

Climate change has consequences for the planet and the environment, as well as for the economy and the financial system. In response to these risks and to take the necessary steps to mitigate them, the world's governments have decided to make a concerted effort to limit the progressive rise in temperatures and to mitigate the effects of climate change. As a consequence of these efforts, expectations have risen for the private sector committed to the climate transition through tightening regulation.

In December 2015, 197 countries signed the Paris Agreement, an international agreement that aims to limit the increase in global average temperature to well below 2°C relative to pre-industrial levels and aims to maintain an increase of only 1.5°C. The structure of the Paris Agreement consists of legally binding targets for limiting the increase in the Earth's average temperature, as well as the obligations of the parties to the agreement, of which the contributions of individual countries are the most important. Underpinning the broad climate action is the assumption that halting the rise in global temperatures will require significant reductions in greenhouse gas (GHG) emissions on a global scale. While the responsibility for achieving the agreement's goals rests with national governments and drives changes in the area of development policies (e.g. the European Green Deal package), the Paris Agreement has also become a driver for private sector business initiatives.

These initiatives are particularly important in light of the conclusions of the Sixth Assessment Report of the IPCC – the Intergovernmental Panel on Climate Change. The IPCC leaves no doubt that climate change is likely to affect the stability of the entire economy. The effects of global temperature increases are already more severe and more widespread than expected. Moreover, some further effects of climate change are inevitable in the short term – emission trends and greenhouse gases present in the atmosphere will mean that we will feel some of the effects of climate change by 2040, even in the event of sudden decarbonisation. For this reason, adaptation will play an extremely important role, but this will not solve all challenges in climate-sensitive countries and ecosystems. Efforts to reduce emissions now are therefore crucial.

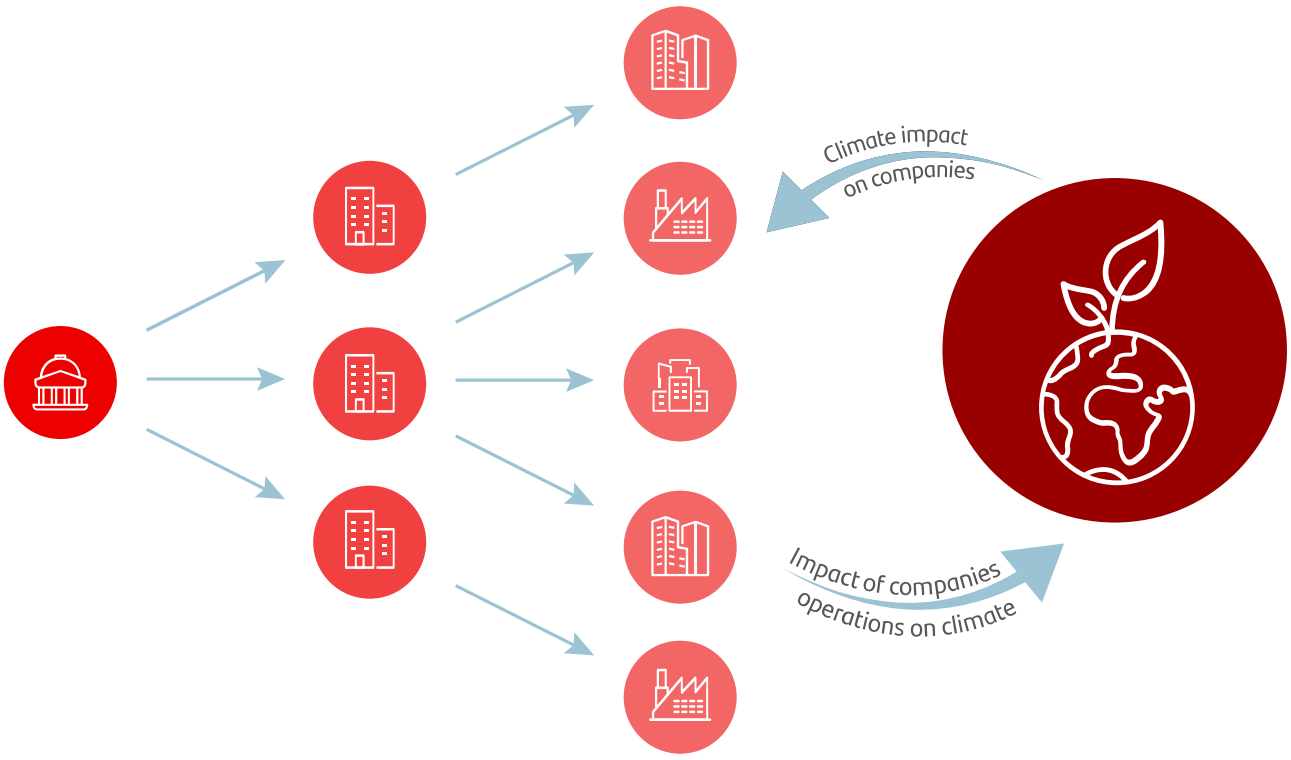
Both the IPCC and the signatories to the Paris Agreement recognise the importance of the measures indicated in terms of economic and financial sector stability. The potential economic losses as a result of rising global temperatures as well as the intensification of severe weather events (e.g. more frequent storms or droughts) must be taken into account. According to the IPCC, droughts, extreme heat and floods threaten water and food security, as well as the livelihoods of millions of people. The materialisation of such risks can furthermore cause volatility in natural resource and property markets and lead to the insolvency of some borrowers. Increasingly ambitious climate policies, regulations, financial market sentiment and social responsibility expectations towards businesses are not negligible and result in a decrease in the profitability of certain investments and an increase in the cost of carbon-intensive activities. In order to maintain financial stability during the transition to a low-carbon economy, it will be crucial in the coming years for climate risks to be properly managed not only by high-carbon companies, but also by financial institutions.

Banks and the climate

Until recently, the main burden of climate action has been placed on, among others, the enterprises that contribute most to the economy's CO_2 emissions. Now, there is increasing pressure from the European Commission, whose ambition is to encourage, through regulatory and non-regulatory measures, the linking of funds for new investments to climate indicators in the concept of so-called Sustainable Finance.

In this context, financial institutions have a uniquely important role to play in the transition to a low-carbon economy because of their systemic importance for the economy as a whole. Indeed, banks contribute to greenhouse gas emissions through their own operations (e.g. energy consumption in buildings) and through the investments and loans they finance.

Although the direct impact of financial institutions' actions in the area of climate change mitigation and adaptation is small, they can have an indirect impact through large capital commitments in sectors particularly exposed to physical and transformational risks.



Banks therefore have the tools at their disposal to both support the transition towards a low-carbon economy and contribute to the European Commission's declared objectives. They can do this by progressively reducing the environmental impact of their funding, including by steadily raising awareness among their customers and the general public of the importance of climate change and its impact on the economy, and gradually reducing their carbon-based portfolios. At the same time, banks can drive decarbonisation investments, particularly in hard-to-decarbonise sectors, supporting their transition to a low-carbon economy.

It is particularly important to integrate existing risk assessment policies and procedures with the climate area in investment and loan financing decisions and to link the bank's strategy to ESG (Environmental, Social, Governance) elements.

This report presents the approach to the area of climate issue management at Santander Bank Polska S.A.. It is made up of four main chapters, presenting the bank's corporate structures and reporting issues, the main assumptions of the strategy and actions in the area of mitigation as well as adaptation to climate change, the management processes together with the results of the climate risks and opportunities analysis carried out this year and information on our carbon footprint. This report is an important step both in terms of its integration with the Santander Group's global strategy and activities, as well as the ongoing transparency regarding our activities in Poland. The report has been prepared in accordance with the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD).

Corporate governance

[GRI: 3-3]
[TCFD: KE/TCFD]

Activities in the area of climate risk management and making appropriate steps to take advantage of opportunities are the responsibility of the Management Board as well as the Supervisory Board. These bodies support the risk management strategies by accepting key policies, participating in supporting committees, reviewing and accepting risks and reports.

The **Management Board** is responsible for setting our mission and long-term action plans, including the climate strategy and its main objectives. In making its decisions, the Management Board takes into account the assessments, information and analyses of the unit responsible for risk management, on the basis of which it adopts the "Risk Appetite Statement". The level of acceptable risk ("risk appetite") is then approved by the Supervisory Board. Based on the defined limits, observation1 limits are set and risk management policies are constructed. In addition, the member of the Management Board responsible for risk management provides the Supervisory Board with relevant risk information in order to create a complete risk profile of the bank and to make appropriate decisions in this respect.

The Supervisory Board's remit is, among other things, to review the bank's overall management strategy and risk management strategy, also with a view to the long-term interests of the bank. In making its decisions, the Management Board also takes into account the assessments, information and analyses of the unit responsible for risk management.

In addition, the bank has a **Responsible Banking and Organisational Culture Committee**, which supports the bank's Management Board in fulfilling its supervisory responsibilities with regard to the responsible business strategy and sustainable development at the company and Santander Bank Polska Group levels. The CEO is also the Committee Chairman and his responsibilities include defining the strategy and annual objectives in the field of responsible banking and corporate culture and ensuring the implementation of the provisions of Santander Bank Polska S.A.'s socio-environmental policies. This Committee is supported by the ESG Forum, which is tasked with planning ESG activities, coordinating their implementation in the bank, and reporting periodically to the Responsible Banking and Corporate Culture Committee and the bank's Management Board. Members of the ESG Forum include senior managers representing all divisions.

One of the bank's most important units in the area of climate risk management is the **Risk Committee**, which is involved in the process of identifying climate risks and opportunities. The process was also carried out for the purpose of this report.

In the Risk Management Division, the function of Environmental &Social Risk Manager (ESRM) was established two years ago. The manager is responsible for carrying out individual risk assessments, in particular for entities operating in sectors such as oil and gas, power generation and transmission, mining and metals, soft commodities, and making ESRM recommendations (positive, conditionally positive or negative) for clients or transactions in the Corporate and Investment Banking (SCIB) segment. Credit partners are required to verify that the socio-environmental risk analysis has been carried out and that the obligatory ESRM recommendation has been included in the credit application.

In addition, an Environmental and Social Risk Analysis procedure was implemented in June 2021 for customers in the Business and Corporate Banking (BCB) segment. As part of this process, an automated algorithm has been applied to a large extent, allowing for the preselection of environmental and social risks, as a result of which customers receive statuses regarding the level of these risks, so-called "environmental flags". "Environmental flags" are assigned to all clients as part of a portfolio pre-selection, carried out on the basis of individual company characteristics (including an assessment of their PAC). There are four types of flags: one is temporary ("For Verification") and three are final ("Positive Verification", "Elevated Risk", "Prohibited Activity").

The first flag means that additional individual analysis by the banker is required, the other three do not require any additional action but affect the loan process:

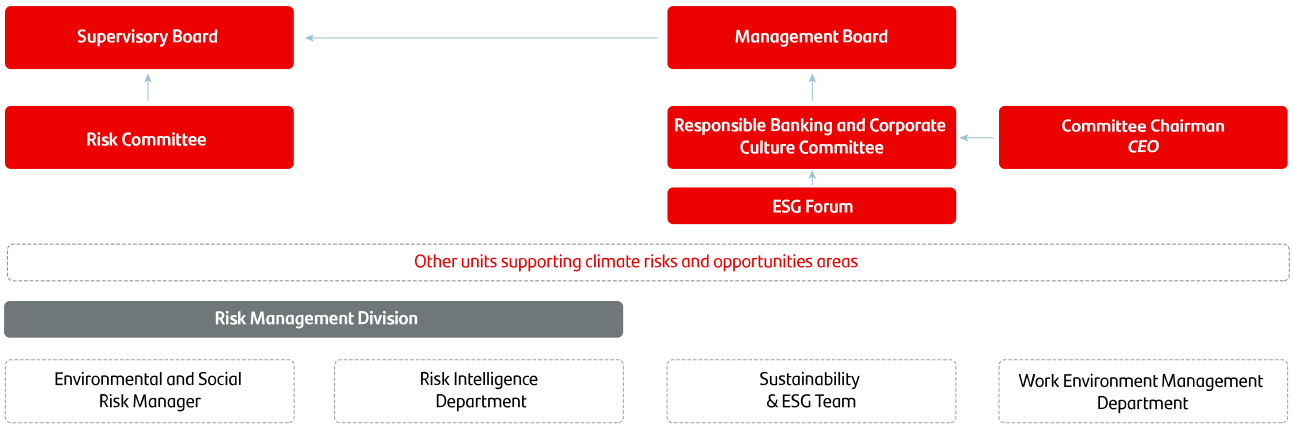
- "Positive Verification" implies a standard credit process;
- "Prohibited Activities" (e.g. coal mines, new coal power customers, wholesale of tropical timber, if not FSC certified) means that financing is not possible; for existing commitments in the portfolio, extension up to 12 months is possible with a gradual exposure reduction schedule;
- "Elevated Risk" – new commitments or upgrades are not recommended; renewals are possible.

The Risk Intelligence Department in the Risk Management Division is responsible for executing this process.

Notwithstanding the above, any issues with the potential to adversely affect reputational risk (including restricted activities) require consultation with the Compliance Area, PR Department and the Sustainability and ESG team.

In addition, the bank has a Work Environment Management Department that coordinates the purchase of certificates as part of carbon offsetting activities.

The following graph shows the Santander Bank Polska S.A.'s units responsible for climate risk management.



Strategy

[GRI: Custom indicator (Description of the bank's approach to integrating the requirements of the ESG regulations into its business strategy)]
[TCFD: KE/TCFD]
[PRB: 1 Alignment, 2 Impact]
[ESG: E – Environment]

Our climate ambitions

As one of the largest banks in Poland, we are aware of our role in the transformation of the Polish economy and the importance that our actions, policies and financing will have on this process. The Santander Group's recently announced global Net Zero strategy is a confirmation of this – we have set ourselves the goal of achieving climate neutrality by 2050. Furthermore, tackling the effects of climate change is an overarching goal of 'green banking', our Responsible Banking strategy pillar.

Globally, the Santander Group is also a founding member of the Net Zero Banking Alliance, a United Nations initiative led by the banking sector that guides our work on qualitative investment portfolio analysis. Through these activities, we aim to contribute to halting the rise in the global average temperature.

Towards a climate-neutral bank

[TCFD: KE/TCFD]

As Santander Bank Polska S.A., we support the objectives of the global Net Zero strategy through a two-pronged approach:

Firstly, we are making efforts to reduce greenhouse gas emissions from our internal emission sources, such as electricity consumption, business travel or fleet operations.

Secondly, in line with the TCFD's recommendations, we are focusing on emissions resulting from our financing, including lending, advisory and investment services provided to customers from all segments. In this way, we want to reduce indirect greenhouse gas emissions in our value chain – from suppliers to end users, i.e. for example the service recipients of our business and corporate clients. The key in this context will be to provide sustainable finance and offer investment advice in line with the Paris Agreement.

Our actions towards clients in the climate area, reducing the bank's exposure to climate risks, have so far been as follows:

In 2019, we waived financing for new thermal coal mines and new thermal coal power units.

As of 2020 onwards, all the bank's contracts with entities that use coal contain clauses prohibiting the application of the financing granted for coal mining and production purposes.

At the same time, we support our clients in achieving their business goals and also help them to meet their environmental and climate change regulatory obligations.

On our way to meeting the goals of the Paris Agreement, we have simultaneously committed to the following steps:

From 2030 onwards, we will cease to fund energy companies with more than 10% of their revenue from coal-fired generation.

By 2030, we plan to completely reduce the bank's exposure to thermal coal producers (expiration of all contracts).

We will achieve climate neutrality by 2050.

Scenario analysis

[TCFD: KE/TCFD];
[ESG: E – Enviroment]
[PRB: 1 Alignment, 2 Impact]

Although the impact of climate change on our activities is already beginning to be observed today, the materialisation of more serious risks is expected around 2040 and in the middle of this century. Therefore, in addition to focusing on current risks, our analysis also covers the medium-term and long- term perspective, which, however, is subject to some forecasting error due to assumptions made about the changing CO_2 content in the atmosphere, the extent of regulatory action and consumer behaviour.

In view of the above, for the purpose of this report and to enhance our company's climate resilience, we conducted an analysis that allowed us to identify climate risks and opportunities in detail on the basis of two climate scenarios, covering three timeframes: short-term (2025), medium-term (2030) and long-term (2050).

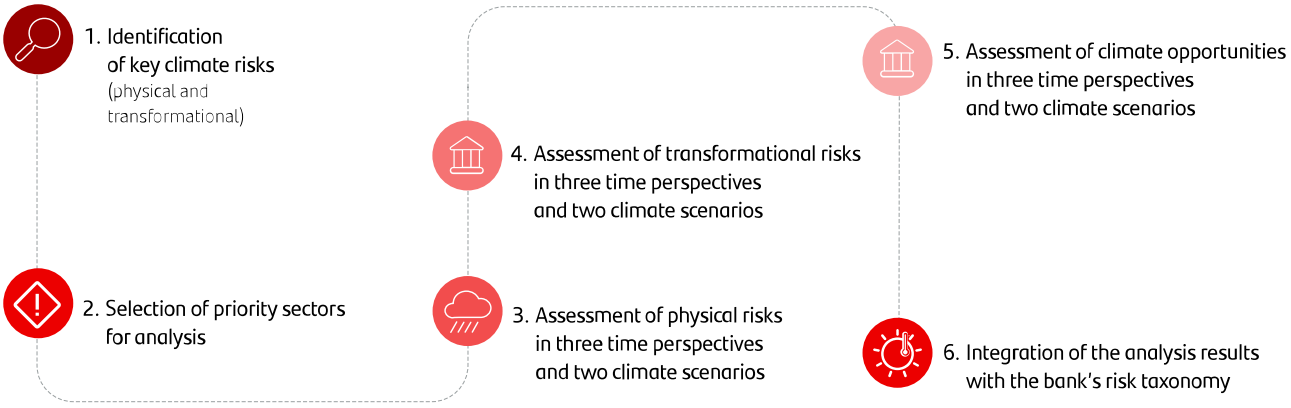
This approach provides a comprehensive understanding of how climate change may affect our operations and those of our customers in different ways. For the analysis of climate-related risks and opportunities, two scenarios were selected in line with TCFD recommendations:

Below 2°C
(in accordance with the Paris Agreement)
4°C

By effectively defining both the threats and opportunities arising from the climate transition, we are able to take actions that, in both scenarios analysed, provide Santander Bank Polska S.A. with resilience in the context of the key threats, as well as the possibility of exploiting them to improve growth dynamics, financial performance and the bank's image.

Climate risks and opportunities

The analysis covers the entire value chain and all markets in which Santander Bank Polska S.A. operates. In the analysis two main types of risk were considered, in line with the TCFD approach: physical and transformational. We carried out an analysis of the main risks in both categories and, by identifying the key risks for our latitude, we assessed the risks in the sectors in which our clients operate (for more information on the risk identification and assessment process, see the Methodology Appendix). We considered the evolution of physical and transformational risks across the 19 sectors in our portfolio in three perspectives: short-term (2025), medium-term (2030) and long-term (2050). We conducted a similar exercise, focusing on climate-related opportunities. The analysis process is shown in the figure below:



Physical risks

We recognise the diverse physical risks associated with the impact of weather conditions on business operations. Our clients are exposed to diminishing returns on inputs caused by circumstances that prevent uninterrupted business operations, which can translate into a reduced ability to repay debt.

Sources of physical risks include extreme weather events, such as violent storms or floods, which in many sectors can cause infrastructure disruption or destruction. Particularly exposed to physical risks, by the very nature of the business, is the agricultural sector, where we have seen an increased risk of land erosion affecting the quality and quantity of yields.

In the medium to long term, we identify physical risks associated with Poland's deteriorating hydrological situation and the threat of drought. The lack of adequate water retention systems and water shortages may have a range of negative effects, affecting other sectors of the economy, including the energy sector. For example, combined heat and power (CHP) plants, which rely on river water for their cooling systems, may have to reduce power generation during periods of drought. We also saw a fire risk in the soft commodities sector, potentially causing losses in timber production, among others.

Transformational risks

Particularly vulnerable in the context of the transition to a low-carbon economy are sectors dependent on coal and other fossil fuels, on which the Polish energy mix is predominantly based. We recognise the regulatory and legal risks associated with higher CO_2 costs, stricter reporting and data collection requirements, and even regulatory changes restricting the operation of some particularly environmentally damaging entities.

Regulatory risks may also arise as a result of revised regulations imposing climate-friendly solutions, which for some companies will mean higher costs of doing business. For example, in the automotive industry, the falling cost of electric vehicles and expected regulations at EU level may lead to stranded assets in the combustion car supply chain. At the same time, market competition may force companies from our portfolio to invest in increasingly innovative machinery.

We also recognise market risks due to the impact of climate change on market variables such as consumer choices, changing interest rates and commodity prices. Worth noting are also reputational risks linked to growing consumer awareness. We understand that all of the above risks can affect the bank both directly and through our customers.

Results of the analysis of the risks' impact on the bank

[TCFD: KE/TCFD]
[ESG: E - Environment]
[PRB: 1 Alignment, 2 Impact]

The approach discussed above allows for the integration of climate risk management as part of a broader, comprehensive risk management process. In line with TCFD recommendations, the outcomes of the analysis of physical and transformational climate risks have been integrated into the taxonomy adopted by the bank. The results of the analysis are presented in the table below.

Banking risk	Impact of physical risks	Impact of transformational risks	Risk management approach

Credit risk	• Climate risks can negatively affect borrowers and reduce their ability to repay their debt, particularly in the agro sector where physical risks can reduce crop income.
	• More frequent and intense sudden weather events and natural disasters may additionally decrease the value of the loan collateral.
		• EU or national regulations may adversely affect the debt sustainability of business borrowers operating in certain sectors, primarily in carbon-intensive sectors such as:
		  • energy sector,
		  • fuel sector,
		  • transport and logistics, and
		  • agro sector.
			• Current risk management activities include assessing the vulnerability of companies in high-emission sectors (e.g. fuel, energy) to transformational risks. In accordance with our internal procedures for Environmental and Social Risk Analysis, we have defined risk categories (understood as individual ESRM recommendations for SCIB clients and 'environmental flags' for BCB clients described in the Corporate Governance chapter). Depending on the level of assessed risk, we have defined a strategy and risk appetite.
			• We also monitor the impact of regulatory changes and technological advances in the automotive sector – companies that do not match the profile defined by us may not be eligible for funding.
			• In future, we plan to significantly increase the frequency of risk assessments in this area and work on model solutions.
			• At the same time, we are considering the introduction of a systemic solution for assessing the impact of CO_2 prices on the financial viability of companies (especially in high-emission sectors). Energy price stress tests will also be an important factor.

Banking risk	Impact of physical risks	Impact of transformational risks	Risk management approach
Market risk	• Risk of losses arising from changes in the value of the bank's assets and liabilities caused by natural disasters, sudden weather events.	• An increase in the costs associated with CO_2 emissions may raise the costs for some companies (particularly in carbon-intensive sectors such as energy and fuel). This may lead to a reduction in revenue for these companies and, consequently, a lower capacity to undertake new investments, which in turn may reduce the number of new loan applications. • Regulatory pressures can indirectly affect the financial market by limiting investments in selected client groups.	• We monitor regulatory changes and take a number of measures to support our customers, e.g. by launching financing for low-carbon solutions that lead to the mitigation of these risks.
Liquidity risk	• Climate change, including natural disasters and sudden weather events, can cause a rapid increase in the demand for cash.	• *No significant impact of transformational risks has been identified.*	• In line with European and national regulations, we have adequate reserves and procedures in place.
Operational risk	• Sudden weather events can affect the conduct of business at bank branches (e.g. flooding, power outages).	• Increased energy costs may raise the expenses incurred by the bank (e.g. increase in the property rental charges).	• In 2020, 100% of the energy purchased by the bank was green energy. • 50% of our branches use energy-efficient lighting.
Model risks	• Business models may underestimate the value of losses caused by sudden weather events, which are increasing in intensity and frequency.	• Business models may underestimate the impact of regulation and market changes due to climate change, especially in the context of supply chain analysis	• We monitor the impact of weather events on the volume of losses and analyse the impact of regulation on all parts of the supply chain. • With the support of an external advisor, we carried out a process of climate risks identification and analysis in the bank's key sectors under two climate scenarios and three time horizons. The results, presented in this report, will allow for better calibration of models and improved management in specific areas.

Banking risk	Impact of physical risks	Impact of transformational risks	Risk management approach
Business risks	• *No significant impact of physical risks has been identified.*	• In the short-term perspective, increased costs associated with the transition to a low-carbon economy are observed. Some of these costs are also passed on to consumers, which may reduce their willingness and/or ability to take out consumer loans (e.g. to finance a purchase of a new car). • Regulation and changes in customer choices can create new product and service opportunities. Failure to address them or addressing them too late can lead to a loss of customers to competitors.	• We continuously analyse the market situation and the actions of competitors, introduce new products to our range and maintain a dialogue with customers.
Reputational risk	• *No significant impact of physical risks has been identified.*	• Continued funding of sectors negatively perceived by regulators, the market and rating agencies (mainly carbon-intensive sectors) could negatively affect the bank's rating.	• We pay particular attention to the transparent communication of sectoral policies. • We are integrating the Santander Group's global reputational risk management policies into our region. • We have a policy of engaging clients in counteracting climate and environmental change in relation to the fuel, energy and soft commodities sectors. We conduct reputational analysis in this context and analyse our clients' climate strategies.
Compliance risk	• *No significant impact of physical risks has been identified.*	• The regulatory pressure is likely to intensify, with a potential impact on increased in-house and/or advisory costs as a result of the obligation to comply with new regulations. • If new regulations are not complied with, there may be a risk of penalties imposed by market regulators.	• We keep our bank's regulations under review and fully comply with the requirements set by EU and national regulators. • As part of the global Santander Group, we are a member of the Net Zero Banking Alliance

The identified key risks, together with the scenario analysis described above, will be used to prepare appropriate risk mitigation initiatives, strengthen the resilience of the bank's strategy and adapt to a changing climate. The process of identifying and assessing climate risks is carried out in accordance with the policies and processes described in the next chapter.

Climate opportunities

[TCFD: KE/TCFD]
[ESG: E - Enviroment]
[PRB: 1 Alignment, 2 Impact]

Although climate change is mainly associated with threats, many of the investments needed to meet energy and climate targets also present opportunities. As the European Commission points out, additional investments of EUR 180 billion per year are already needed to meet the 2030 climate targets. In addition, further measures will be required to achieve full climate neutrality by 20501. This reality is an opportunity to build new infrastructure with zero emissions in mind. In addition, the expected EU regulations in the transport sector provide an opportunity to finance the replacement of company car fleets with zero- or low-emission vehicles.

The transition towards a low-carbon economy therefore presents us with opportunities to support both our current and future customers as well as the economic transition by mobilising appropriate financing mechanisms. We therefore want to develop new products and services, including customer advice, while building a brand as a trusted partner. As part of our analysis, we have identified the following opportunities for Santander Bank Polska S.A. :

Opportunity	Relevant sector/ area	Short term: 1-3 years	Medium term: 2025-2030	Long term: 2030 +
Development of the RES market creating opportunities for investment in projects and companies related to this sector	*energy sector / cross-sector*	√	√	√
Opportunities for involvement in projects and cooperation with companies active in the development and modernisation of pumped-storage power plants	*energy sector*	√	√	
Potential for participation in the financing of decarbonisation projects for the bank's existing clients	*cross-sector*	√	√	
Possibility to be involved in financing projects promoting electric or low-emission cars	*transport / automotive*	√	√	
Financing, especially in the public sector, of low-carbon transport solutions	*transport / automotive*	√	√	
Development of advisory services for the selection of low-carbon solutions for the agro sector and development of financial services in this area	*agro sector*	√	√	

[1] European Commission Communication 20.06.2019, Guidelines for reporting non-financial information: Supplement on reporting climate-related information.

Risk management

[GRI: Custom indicator (Description of policies, procedures and results of climate risk exposure testing)]
[TCFD: KE/TCFD]
[ESG: E - Enviroment]
[PRB: 1 Alignment, 2 Impact]

Analysis of risks by sector

In order to examine the vulnerability of the sectors in our portfolio and to develop an effective approach to managing climate risks, we analysed them in three time horizons: short-term, medium-term and long-term. The physical and transformational risks were rated on a scale of 1 to 5 (where 1 represents the lowest level of risk and 5 the highest).

The table below presents the results of this risk analysis by sector, together with a presentation of the materiality of the sector in the bank's portfolio. A colour legend with an explanation of the assumptions is presented in a separate table in the Methodology Appendix; a summary of the legend is provided below.

1	2	3	4	5

RF - physical risk / **RT** - transformational risk

Sector at risk	2025		2030				2050				The sector's current share in the category		
			Scenario 2°C		Scenario 4°C		Scenario 2°C		Scenario 4°C		SCIB*	Corpo-rates*	SMEs*
	RF	RT	RF	RT	RF	RT	RF	RT	RF	RT			
Fuel sector							+	–	+	–	13%	0.3%	0.03%
Energy sector							+	–	+	–	16%	1%	0.2%
Metals and mining sector							+	+	+	+	11%	1%	0.4%
Soft commodities sector							+	–	+	–	0%	0.1%	1%
Automotive sector							+	+	+	–	3%	3%	0.3%
Real estate sector							–	+	+	–	6%	31%	15%
Materials and chemicals							+	+	+	+	8%	7%	4%
Production of packaging							–	+	–	+	0%	3%	1%
Furniture industry							–	–	+	+	0.2%	2%	1%

*Portfolio structure at the end of 2021

Sector at risk	2025		2030				2050				The sector's current share in the category		
			Scenario 2°C		Scenario 4°C		Scenario 2°C		Scenario 4°C		SCIB*	Corpo-rates*	SMEs*
	RF	RT	RF	RT	RF	RT	RF	RT	RF	RT			
Food industry							+	+	+	+	2%	**8%**	2%
Agro sector							+	+	+	+	0.3%	1%	**28%**
Public sector							+	+	+	+	0%	2%	0.01%
Transport and logistics							+	+	+	+	0%	**9%**	**14%**
Cosmetics industry							+	+	+	+	0.3%	0,3%	0.05%
E-commerce							–	+	–	+	0%	1%	1%
Trade							+	+	+	+	**35%**	**22%**	**27%**
Tourism							+	+	+	+	1%	**6%**	2%
Waste management							–	+	–	+	0.09%	1%	1%
Financial sector							+	+	+	+	**5%**	2%	2%
TOTAL											100%	100%	100%

*Struktura portfela na koniec 2021

On the physical risk dimension, many of the sectors received a 'low' or 'very low risk' rating, but we believe that this risk will increase in the medium term. In the short term, the agro and soft commodities sectors are the most exposed (to a medium degree). We also expect, looking ahead to 2030, an increase in risk in the energy sector from a rating of 2 (low risk) to 3 (medium risk), due to an increase in the likelihood of prolonged drought and a possible reduction in power generation and intensification of extreme weather events.

The results of our analysis are broadly consistent with the conclusion that decarbonisation is necessary primarily in fossil fuel-based sectors. We assessed the fuel and power sectors as exposed to very high transformational risk.

Both sectors represent a significant portion of our Corporate and Investment Banking (SCIB) portfolio (13 and 16% respectively).

In the medium to long term, transformational risk (especially regulatory risk) will increase significantly in the 2°C scenario, due to the anticipated tightening of regulations supporting the green transition. We see such growth in the food industry, transport and logistics, trade, tourism, agro and financial sectors, among others. We recognise the importance of the retail sector in this regard as it accounts for 35% of the SCIB[I] portfolio, 22% of the BCB[II] portfolio and 27% of the SME portfolio. We assume that in a delayed mitigation scenario (4°C), climate policies will tighten more slowly due to less effective cooperation of the international community. Among other reasons, we have assumed that transformational risks in sectors such as automotive and finance will increase in the 2°C scenario, while remaining unchanged in the 4°C scenario.

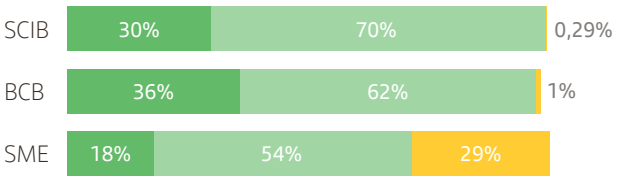
[I] Corporate and Investment Banking Division
[II] Business and Corporate Banking Division

Risk exposure

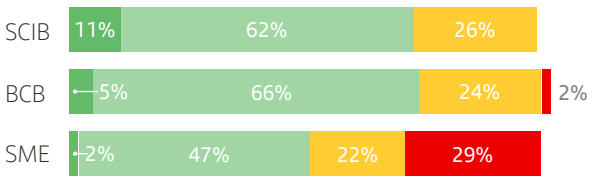
As a next step, our analysis included a calculation of exposure to climate risks. In other words, we asked ourselves a question what proportion of our portfolio in a particular segment (SCIB, BCB, SME) would belong to sectors from a particular risk category.

The charts below show the increase in exposure to physical risks assuming unchanged portfolio structure (at the end of 2021):

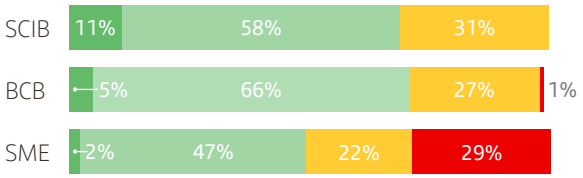
Year 2025 –Physical risks



Year 2030 (2°C scenario) – physical risks



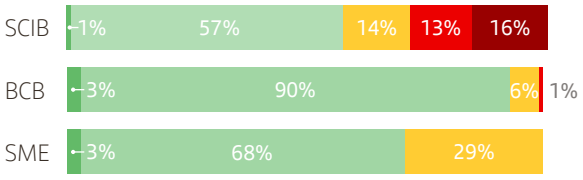
Year 2030 (4°C scenario) – physical risks



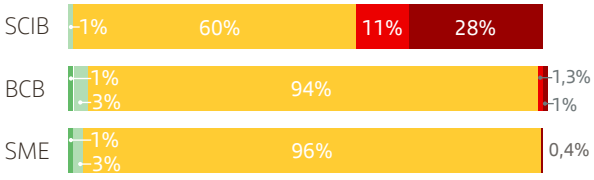
In the short term, the bulk of the portfolio in all areas is made up of sectors rated as exposed to 'very low risk' and 'low risk' (e.g. in the SCIB area, these two categories account for almost 100%). In the SME area, the agro sector was rated as high risk, accounting for 29% of the category portfolio. In the medium term, we see a rising exposure in the 2°C scenario, driven mainly by an increase in the physical risk rating in the energy, materials and chemicals, food, transport and logistics sectors. On the other hand, in the 4°C scenario, the increase in exposure in the medium term is caused by a rating upgrade in the financial sector.

We then carried out a similar analysis for transformational risks. The charts below show the increase in exposure to transformational risks also based on the unchanged portfolio structure (at the end of 2021):

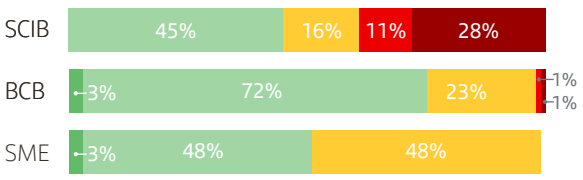
Year 2025 – Transformational risks



Year 2030 (2°C scenario) – transformational risks



Year 2030 (4°C scenario) – transformational risks



The increase in exposure in the medium term in the 2°C scenario is due to a growth in the rating in most of the sectors analysed. While only 16% of the Corporate and Investment Banking portfolio was rated 5 (very high risk) in the 2025 outlook, in the medium term (in both scenarios) this is already 28%. Such an increase in risk in this category must be considered significant.

In the Business and Corporate Banking portfolio, the following sectors have a significant share (above 5%): real estate, materials and chemicals, food, retail and tourism. At the same time, these are the sectors in which transformational risks increases from a rating of 2 (low risk) to 3 (medium risk) in the medium term in the 2°C scenario. In the SME portfolio, agro, real estate and transport and logistics are the sectors with the largest share and their rating in the 2030 horizon in the 2°C scenario is 3, which is why as much as 96% of the SME area is labelled as 'medium risk'.

In the 4°C scenario, regulatory risks are expected to increase at a slower rate, hence the rating relative to the 2°C scenario remains lower. This is particularly true for the real estate sector (rating 2), food (rating 2), trade (rating 2) and tourism (rating 2).

Risk management policies and procedures

It is worth re-emphasising that the above analysis is important because in order to accomplish the transition to a climate-friendly economy we need to see multi-sectoral emission reductions and ultimately the elimination of greenhouse gas emissions in hard-to-abate sectors. These sectors currently account for 30% of all global CO_2 emissions (in particular cement, steel, chemicals and aviation). With this in mind, and given our plans and actions already underway, it will be crucial to support our clients in their transformation, with a particular focus on those sectors facing the greatest challenges. We want to engage our clients in a dialogue about physical and transformational risks, taking into account the diverse realities and level of risk associated with the sector.

Accordingly, in addition to the sectoral climate risk study described above, we also carried out analyses which lay the foundations for our sectoral policies. As stated in the Santander Bank Polska Group's "Sustainability Policy" (which is annexed to the Resolution of the Bank's Management Board of 4 August 2020), in 2019 we introduced environmental (and social) elements as criteria for evaluating projects of the corporate and investment banking segment. We implemented a procedure defining a mandatory process for analysing socio-environmental risks.

[2] Energy Transitions Commission, Mission Possible Report 2018.

In addition, client activities in all segments (SCIB, BCB and SMEs) may be subject to exclusions or limitations defined in the "Social, environmental and climate change risk management policy", which primarily apply to:

- oil and gas sector,
- energy production and transmission sector,
- mining and metals sector, and
- soft commodities sector.

In order to manage climate risks correctly and effectively, we use both a sectoral approach, where a designated unit is responsible for climate risks in a particular sector, and a cross-sectoral approach, where additional oversight is provided by the Risk Committee.

It is important for us to have a full annual analysis of climate-related risks and opportunities and an ongoing review of risks in the most exposed and priority sectors. This approach will allow us to immediately align our assessment of the severity of risks and how we manage climate risks with current development and regulatory policies and actions taken by our portfolio companies.

Metrics and targets

This section of the report contains the emission levels associated with Santander Bank Polska S.A.'s activities in 2021. The methodology and scope of the calculations are provided in the Methodology appendix at the end of the report. Below is a summary of the calculation of CO_2 emissions in Santander Bank S.A.'s own activities (Scope 1) and those directly dependent on Santander Bank S.A.'s operations. (Scope 2), as well as business travel (Scope 3).

Emission category	**Emissions IN 2021 (in tonnes of CO_2 e)**	
	Location-based	*Market-based*
Scope 1	5,957.1	5,957.1
Scope 2	29,175.5	15,513.0
Scope 3	94.7	94.7*
Total: scope 1+2	**35,132.6**	**21,470.2**

* Only location-based DEFRA data was used.

We use a number of metrics to measure our climate impact, including, among others, kilograms of carbon dioxide emissions translated into litres of petrol consumed by the car fleet, emissions from electricity consumption in our offices and district heat consumption. The table below provides a detailed summary of our emissions with a description of the sources we have taken into account, the consumption by source expressed in the relevant unit of measurement, the type of data and the emission indicator together with the source used in the calculation.

SCOPE 1:

Source of emissions	Consumption	Unit	Data type	Emission indicator $kgCO_2e$/unit	Source	Emissions tCO_2e *(location based)*	Emissions tCO_2e *(market based)*
Petrol car fleet	1,446,502.0	litres	actual	2.1935	DEFRA 2021	3,172.9	3,172.9
Diesel car fleet	8,563.5	litres	actual	2.5123	DEFRA 2021	21.5	21.5
Natural gas for central heating and hot water	12,399.4	MWh	actual	0.1832	DEFRA 2022	2,271.1	2,271.1
Heating oil for central heating and hot water	154,973.0	litres	actual	2.5401	DEFRA 2021	393.7	393.7
Diesel for power generators	1,100.0	litres	actual	2.5123	DEFRA 2022	2.8	2.8
Refrigerant R410A	45.6	kg	actual	2,088.0000	DEFRA 2021	95.2	95.2
					TOTAL:	5,957.1	5,957.1

SCOPE 2:

Source of emissions	Consumption	Unit	Data type	Emission indicator	Source	Emissions tCO_2e *(location based)*	Emissions tCO_2e *(market based)*
Electricity – offices	26,449.3	MWh	actual	0.0007	KOBiZE	17,245.8	3,583.3
Electricity – remote work	809.9*	MWh	estimation	0.0007	KOBiZE	528.1	528.1
District heating	118,151.6**	GJ	estimation	0.0965	URE	11,401.6	11,401.6
					TOTAL:	29,175.5	15,513.0

SCOPE 3:

Source of emissions	Consumption	Unit	Data type	Emission indicator	Source	Emissions tCO_2e *(location based)*	Emissions tCO_2e *(market based)*
Car – rental	19,598.0	km	actual	0.1715	DEFRA 2021	3.4	
Bus	14,000.0***	km	estimation	0.0268	DEFRA 2021	0.4	
Train	566,681.4	km	actual	0.0355	DEFRA 2021	20.1	
Aircraft – domestic flights	17,160.4	km	actual	0.2459	DEFRA 2021	4.2	
Aircraft – flights in Europe	383,859.8	km	actual	0.1535	DEFRA 2021	58.9	
Aircraft – flights outside Europe	40,048.4	km	actual	0.1931	DEFRA 2021	7.7	
					TOTAL:	94.7	

* Estimation based on person-days spent working remotely and assuming that a person working remotely consumes 0.12 kWh per working hour.

** Estimation based on benchmarks of annual heat consumption per m2 of area (extracted from the Statutory Energy Audit for 2020) and area of occupied premises (heated with district heating). The calculation takes into account locations abandoned during 2021, but only for the number of days during which they were used by the bank.

*** Due to unavailability of data, a distance of 100 km was assumed for each bus journey purchased.

We monitor resource consumption, own emissions and waste production at the majority of our sites through an internal data collection and processing system, which is audited annually by an independent third party.

In this way, we can identify the key areas that have the greatest impact on the environment – including the climate – and to take more effective countermeasures.

We have already taken ambitious steps to reduce our own emissions by using energy from renewable sources. We have also received an accession certificate for the Tauron Group's ECO Premium product. The document confirms that the electricity sold to us participates fully in the Environmental Energy Sales Guarantee scheme and comes from environmentally friendly energy sources – mainly hydroelectric power plants. We have thus significantly reduced our consumption of energy obtained from non-renewable raw materials. In addition, we are focusing on increasing energy efficiency in our own operations. In 2021, the bank's electricity consumption fell by 8.8 per cent compared to 2020 and we also reduced our diesel consumption by almost four times compared to 2020. Thanks to these measures and the purchase of certified carbon offset credits, we achieved internal CO_2 neutrality in 2020.

In 2021, 81% of the bank's purchased electricity for the property will be from a contract providing energy solely from RES.

In 2022, we purchased electric cars to reduce our transport-related emissions.

The emissivity of our portfolio is also very important to us. At this stage, we focused on the energy portfolio, and we did so by analysing our client companies that generate electricity with conventional generation assets. Looking at the bank's six largest customers in this area, we assumed for the purposes of this study that the equity exposure in these companies represents 100% of the financed portfolio, taking into account the portfolio structure as at 31 December, 2021. In accordance with the adopted assumptions, the weighted average emissivity of our portfolio in 2021 was 0.896 tCO_2 / MWh, where the basis for the calculation was the emission indicators for the surveyed generators (per MWh) and the share of exposure to a given company in the energy portfolio of power generators (percentage of the financed portfolio). Accordingly, the value of the indicator for 2021 decreased by approximately 1% vs. 2020.

Methodology

Task Force on Climate-related Financial Disclosures (TCFD)

Presented in 2017, the TCFD's recommendations are a non-binding guidepost for companies approaching climate issues responsibly. The general recommendations are further supported by detailed guidance published in the Supplemental Guidance for the Financial Sector, reflecting the high importance that the authors of the recommendations place on financial institutions.

The TCFD standards are based on four pillars, around which this report has also been arranged for the sake of clarity:

1. **Governance** – a description of the bank's management of its responsibility in the area of climate change risks and opportunities.
2. **Strategy** – a description of the actual and potential impact of climate-related risks and opportunities on the organisation's operations, strategy and financial planning.
3. **Risk Management** – the processes used by an organisation to identify, assess and manage climate risks.
4. **Metrics & Targets** – disclosures on metrics and targets used to assess risks and opportunities, including information on CO_2 .

The basic premise of the recommendation is that consistent and structured disclosures related to the financial sector climate would contribute to:

- improving the process of responding early to risks and exploiting opportunities associated with climate change;
- improving market communication practices on climate risks;
- improving the availability and transparency of climate-related data that can be systematically analysed to assess the materiality of climate risks facing the financial sector.

Being financial intermediaries, banks are exposed to climate-related risks through lending and other financial intermediation, as well as through their own operations. According to the TCFD, banks may assume exposure to significant climate-related risks from their borrowers, customers or counterparties. Furthermore, banks that lend to companies directly exposed to climate risk (e.g. fossil fuel producers, real estate owners or agri-food companies) or trade in the securities of such companies may accumulate climate risk precisely through the aforementioned loans and holdings in these companies. TCFD stresses that fossil fuel-related credit exposure in particular merits disclosure in bank reports.

In terms of methodology, in order to present the identified climate risks in a consistent and transparent manner, the TCFD recommendations suggest to divide risks into two groups: physical and transformational.

Physical risks related to the climate can be sudden (resulting from specific events) or chronic (intensifying over the medium to long term).

Sudden physical risks are particularly weather-related and include natural disasters, storms, floods, fires or heat waves. They can destroy production facilities and disrupt supply chains.

Chronic physical risks manifest themselves through long-term weather patterns, changes in extreme precipitation, higher average temperatures, sustained heat waves and elevated water levels (seas and oceans).

Transformational risks relate to, among other things, legislative changes induced by climate change, fluctuations in market sentiment and consumer expectations and choices. In other words, it is the risk arising from the transition towards a low-carbon and climate-resilient economy. Within this group, we can distinguish the following risks:

Regulatory and legal – the legislators' response to climate change may reduce or increase the cost of doing business, as well as materialise the risk of litigation for not avoiding or not limiting adverse climate impacts or not adapting to climate change.

Technological – a possible switch to technologies less harmful to the climate involves additional costs.

Market-based – changes in the supply and demand trends, including increased consumer awareness of environmental issues, can reduce the viability of some projects.

Reputational – an irresponsible approach to climate risk can put a company's good name at risk when a company's climate commitments are not too ambitious or are not translated into actions.

It should be borne in mind that both types of risk have the potential to affect the bank and its customers in the short-, medium- and long-term perspective.

At the same time, efforts to mitigate and adapt to climate change present opportunities for businesses and organisations, due to the scale of investment that will need to be made to achieve the goals of the Paris Agreement.

The TCFD identifies the following areas of opportunity:

- efficient management of raw materials,
- new products and services,
- investment in renewable energy sources,
- access to new markets,
- increasing the resilience of the organisation.

These opportunities will vary depending on the company, the industry and region of business activity, as well as the adopted time horizon.

Scenario analysis

Below is an explanation of the assumptions underlying the scenarios of future climate trends we have chosen.

Scenario	Assumptions
Below 2°C *In line with the Paris Agreement*	• A scenario in which global average temperatures stop below 2°C compared to pre-industrial levels. The scenario assumes implementation of the Paris Agreement through **aggressive emissions reductions** driven largely by regulatory change; it is characterised by global cooperation between governments, society and industry to achieve radical decarbonisation. • We assume that transformational risks are predominant, but there are also market opportunities.
Below 4°C	• This scenario assumes global warming of 4°C. We refer to how global emissions would change if governments made no changes to existing policies and agreed to delay accomplishment of the Paris Agreement targets (**delayed mitigation**). • Physical risks (which trigger market risks) are predominant.

Selected sectors and risk assessment method

We analysed the following 19 sectors to identify and assess risks and opportunities

- fuel sector
- energy sector
- metals and mining sector
- soft commodities sector
- automotive sector
- real estate sector
- materials and chemistry
- production of packaging
- furniture industry
- food industry
- agro sector
- public sector
- transport and logistics sector
- cosmetics industry
- e-commerce
- trading
- tourism (mainly hotels)
- waste management, and
- financial sector

In each area, we analysed the physical and transformational risks and rated them on a scale from 1 (lowest risk) to 5 (highest). The method for assessing the level of climate risk in each sector is shown in the table below.

RAG *(red-amber-green)* classification of physical and transformational risk assessments

Physical risks	Result	Transformational risks
The sector has a low sensitivity to physical risks.	**very low risk**	The sector is low carbon and independent of fossil fuels. It is closer to achieving zero carbon than other sectors.
The sector is to some extent sensitive to physical risks, but these can occur infrequently	**low risk**	The sector has lower greenhouse gas emissions than other sectors. It is doubtful that climate policies or changes in consumer preferences will significantly affect the sector.
There will be some kind of climate-induced disruption to the sector's operations which the sector will experience systematically (such disruptions can last for weeks at a time).	**medium risk**	Major investments are needed in the sector to achieve zero-carbon. It is likely that the sector will experience some negative impact from climate policies or changes in consumer preferences.
The sector is highly exposed to physical risks and will have long-term exposure and cost exposure due to climate change events.	**high risk**	The sector has higher emissions compared to others and will experience adverse demand responses. The sector during decarbonisation warrants a low-carbon policy, technological innovation and/or investment to achieve net-zero.
not applicable	**very high risk**	The sector relies heavily on fossil fuels. Significant investment and climate policy interventions are needed for the transformation to take place. Emphasis is on action from a wide range of stakeholders. Increased risk of premature asset write-downs. Uncertainty regarding the ability to participate in the transition and achieve net-zero.

Sectoral risk analysis method

The following explanation refers to the method of risk analysis in our client sectors, which is set out in the table in the Risk Management chapter.

The assessment of each sector was first made in the short term (2025). Given the small time interval, climate scenarios were not included in the short term. The evaluation of physical risks (FR) and transformational risks (TR) includes a rating on a scale of 1-5 (the logic behind the assignment of a rating is explained in the table above).

We conducted the analysis for the medium term (2030) and long term (2050) in two scenarios: under 2°C (aggressive emission reduction) and 4°C (delayed mitigation). Due to the significant uncertainty for the long-term (2050) outlook, we conducted a trend analysis (increasing risk (+), no change (-)).

To show the materiality of the sector, the last three columns of the sector risk analysis table indicate the percentage represented by the sector in the portfolio of the 19 sectors analysed in one of the three categories – Santander Corporate and Investment Banking (SCIB), Corporates and Small and Medium Enterprises (SMEs). The sectors with a greater than 5% share of the category portfolio are highlighted in dark grey.

Method and scope for calculating the carbon footprint

The Greenhouse Gas Protocol and Corporate Value Chain (Scope 3) Accounting and Reporting Standard were used to calculate CO_2 levels from the Metrics and Targets section of this report.

Emission factors developed by the UK Department for Environment Food & Rural Affairs (DEFRA 2021)1 , the National Balancing and Emissions Management Centre2 and the Energy Regulatory Authority3 were used. The table below describes the scope of the emission calculations, the emission sources and the calculation methodology:

[1] https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2021

[2] https://www.kobize.pl/uploads/materialy/materialy_do_pobrania/wskazniki_emisyjnosci/Wskazniki_emisyjnosci_grudzien_2021.pdf

[3] https://www.ure.gov.pl/pl/cieplo/energetyka-cieplna-w-l/9009,2019.html

Scope	Emission sources included in the report		Calculation methodology
SCOPE 1	Leakage of refrigerants	R410A	Emissions calculated on the basis of replenished R410A refrigerant volume data provided by Santander and an emissions indicator from DEFRA 2021.
	Emissions from mobile sources	1. diesel 2. petrol	Emissions calculated using diesel and petrol consumption data for the transport fleet, provided by Santander and an emissions indicator from DEFRA 2021.
	Emissions from stationary sources	3. natural gas 4. fuel oil 5. diesel fuel	Emissions calculated on the basis of heating oil and natural gas consumption data for heating, diesel for emergency generators and the emission factor from DEFRA 2021.

Scope	Emission sources included in the report		Calculation methodology
SCOPE 2	Electricity	Offices	Emissions calculated on the basis of electricity consumption data and an emissions indicator from the KOBiZE. Market Based emissions calculated based on supplier fuel structure data. Due to a lack of information about suppliers in some of the premises used by Santander, the % supplier structure in the bank's branches was used.
		Remote work	No actual data available – estimate based on person-days spent working remotely and assuming that a person working remotely consumes 0.12 KWh per working hour. Emissions calculated on the basis of estimated consumption and the grid emission indicator obtained from the NERC.
	District heating	Offices	No real-life data available – estimation based on benchmarks of annual heat consumption per m2 area (from the 2020 Statutory Energy Audit) and area of premises in use (heated with district heating). Calculations include locations abandoned during 2021, but only for the number of days they were used by the bank. Emissions calculated on the basis of estimated consumption and the emissions indicator from DEFRA 2021.
SCOPE 3	Business trips	Car hire	Emissions calculated on the basis of distance travelled in leased cars, provided by Santander, and an emissions indicator from DEFRA 2021.
		Bus transport	No real-life data available – a distance of 100 km was assumed for each bus journey purchased. Emissions were calculated as the product of the estimated route length multiplied by the number of trips purchased and the emissions indicator from DEFRA 2021.
		Rail transport	Emissions calculated from data on distance travelled by rail, provided by Santander and the emission indicator from DEFRA 2021.
		Air transport	Emissions calculated on the basis of domestic distance travelled (broken down by domestic, European and international flights) provided by Santander and the emissions indicator from DEFRA 2021.

Table with references to TCFD recommendations

Recommended disclosures	Place in the raport
Disclose the organisation's management policies on climate-related risks and opportunities.	Corporate governance
a. Describe the management board's oversight of climate-related risks and opportunities.	Corporate governance
b. Describe the role of management in assessing and managing climate-related risks and opportunities.	Corporate governance
Disclose the actual and potential impact of climate-related risks and opportunities on the organisation's operations, strategy and financial planning, if such information is relevant.	Strategy
a. Describe the climate-related risks and opportunities that the organisation has identified in the short, medium and long term.	Physical risks, Transformational risks, Climate opportunities
b. Describe the impact of climate-related risks and opportunities on the organisation's operations, strategy and financial planning.	Our climate ambitions, Towards a climate-neutral bank, Scenario analysis, Climate risks and opportunities, Results of the analysis of the risks' impact on the bank
c. Describe the resilience of the organisation's strategy, taking into account different climate-related scenarios, including a 2°C or lower scenario.	Scenario analysis, Climate risks and opportunities
Disclose how the organisation identifies, assesses and manages climate-related risks.	Risk management
a. Describe the organisation's processes for identifying and assessing climate-related risks.	Analysis of risks by sector
b. Describe the organisation's processes for managing climate-related risks	Risk management policies and procedures
c. Describe how the processes for identifying, assessing and managing climate-related risks are integrated into the overall risk management of the organisation.	Risk management policies and procedures
Disclose the measures and targets used to assess and manage relevant climate-related risks and opportunities, if such information is relevant.	Metrics and targets
a. Disclose the indicators used by the organisation to assess climate-related risks and opportunities in line with the risk management strategy and process.	Metrics and targets
b. The extent of greenhouse gas emissions and the associated risks must be disclosed.	Metrics and targets
c. Describe the objectives used by the organisation to manage climate-related risks and opportunities and performance against the objectives.	Metrics and targets


Santander