2021 Climate Report

DWS

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This report follows the structure of the TCFD recommendations, with two new additional sections outlining our approach to net zero and scenario analysis.

A new level of awareness

Q: What is your take on climate-related developments in 2021, also considering COP26?

Asoka Woehrmann: 2021 and COP26 specifically marked a new level of awareness that timely action to mitigate climate change is required. However, to turn ambition into real world outcomes requires all stakeholders to step up their efforts. When measured by assets under management, half of the global asset management industry has now signed up to the Net Zero Asset Manager initiative.

I also welcome the progress around sustainability disclosure standards following the announcement by the International Financial Reporting Standards Foundation to create a new International Sustainability Standards Board. This is an important milestone as it will help to deliver to investors the financial information they require.

>> As a global asset manager, we need harmonised and internationally compatible standards around taxonomies, disclosures, and benchmarks. <<

Dr. Asoka Woehrmann | CEO

Q: What impact do you see in this shift to a net zero society?

Stefan Kreuzkamp: The shift will lead to an economic transformation comparable to previous waves of industrialization. This fundamental green industrialization will likely accelerate, driven by new technologies and digitalization. Working towards net zero carbon emissions will probably render many old business models obsolete as the global economy moves away from a linear growth model – dominated by carbon-intensive companies – towards a more circular economic model, which considers all the costs of the production cycle. One of the major challenges besides the cultural and technological innovation required, is the availability of both financial and extra-financial data.

Q: What is the major challenge when it comes to reporting and data?

Stefan Kreuzkamp: DWS, among other global investors, is demanding increasing disclosure around the climate impact that invested capital is having. Current disclosure requirements simply do not go far enough. For example, requirements have typically been largely focused on climate-related risks, however, as risks are interdependent, broader sustainability issues such as inequality, violation of human rights and water risks also need to be addressed.

Q: How can net zero targets become more tangible?

Stefan Kreuzkamp: It is crucial that sustainability information and reporting are science-based. I therefore welcome the work of the Science Based Targets initiative, whose framework we utilize for our own emission reduction targets. It is widely recognised that this forms the basis of a credible and robust foundation providing clear guidance on expected assets in scope and target ambition levels. We very much welcome when investee companies also align their net zero targets with the Science-Based Targets initiative methodology.

>> Working towards net zero will lead to an economic transformation comparable to previous waves of industrialization.<<

Stefan Kreuzkamp | CIO

Q: How does DWS implement the net zero strategy?

Stefan Kreuzkamp: As Part of Net Zero Asset Manager initiative, we have announced portfolio and operational net zero by 2050 or sooner in line with global efforts to limit warming to 1.5°C. Approximately one year after DWS signed the Net Zero Asset Manager initiative we have developed a robust interim net zero target framework which we announced just ahead of COP26. We put 35.4 % or EUR 281.3 billion of our total global Assets under Management, as of 31 December 2020, in scope to be managed towards net zero by 2030. On these overall in-scope assets, we seek to achieve a 50% reduction in Weighted Average inflation-adjusted financial Carbon Intensity related to Scope 1 + 2 emissions by 2030, compared to base year 2019. While we formulated our net zero approach on a global level, it will require implementation across legal entities, single funds and client mandates, each with potential issues arising from regulatory, legal, and contractual requirements.

Q: How can asset managers best support transition in investee companies?

Stefan Kreuzkamp: One important lever at hand is active ownership. Through exercising our voting rights and through direct, outcome-oriented discussions we can work with our investee companies to support real world change.

In 2021 we again increased this dialogue and engaged with more than 500 companies. For DWS Investment Management Americas, Inc., DWS voted in favor of 94% of climate focused Annual General Meeting resolutions in 2021 according to Ceres' analysis of 18 key votes. For voting by European domiciled funds, ShareAction found DWS voted in favour of 92% of environmental resolutions, exceeding the average amongst Net Zero Asset Manager initiative signatories as well as voting in favour of 80% of social resolutions[1]. Furthermore, we aim to intensify engagement with index providers.

Q: And what are the corporate actions by DWS?

Asoka Woehrmann: Of course, we also want to transition our own operations in the same way that we ask our investee companies to adapt. We are analysing our operational CO2 footprint and will look at all areas of relevance to reduce our emissions. More importantly, it is about changing the way we operate and how we work with vendors and other partners. This means a cultural change within our firm and for all of us.

Q: Which external conditions are needed to perform in this next phase of the net zero transition?

Asoka Woehrmann: As a global asset manager, we need harmonised and internationally compatible standards around taxonomies, disclosures, and benchmarks. The EU has set the path: It has pledged to achieve a net zero economy by 2050. All policy tools and regulations are being adapted to achieve this, including sustainable-finance regulation. We would like to see regulations that align with the idea to support the transformation of businesses by engaging with company boards. We need clarity on the legal rights of shareholders to act together to influence company strategies towards net zero by 2050. Currently, there are anti-trust concerns restricting this activity.

Given all these evolving standards, methodologies and regulatory frameworks, stakeholders must take an iterative approach to ensure timely and targeted actions. We certainly need to navigate through these various levels of uncertainty for some time to come. Yet, this pathway, step-by-step, will lead to more information and more expertise, which will enable all parties to act competently and impactfully on the challenges ahead.

(1) Sources: https://www.ceres.org/news-center/blog/climate-risks-skyrocket-largest-asset-managers-vote-more-climate-related; https://api.shareaction.org/resources/reports/ShareAction-Voting-Matters-2021.pdf, p.15, 22 and 40.

About the Report

Since 2020 we have worked on DWS' Task Force on Climate-related Financial Disclosures (TCFD) Roadmap to better align and incorporate the recommendations of the TCFD. We have added a separate sub-chapter on net zero within the Strategy chapter and on scenario analyses within the Risk Management chapter as well. The structure of the report is aligned to the four TCFD disclosure areas: Governance, Strategy, Risk Management and Metrics and Targets. All information in this report is where feasible aligned to TCFD recommendations. The data and information for the reporting period from 1 January 2021 to 31 December 2021 is sourced from our experts using representative methods. Relevant information is included up to the editorial deadline of 4 March 2022 and the report is published in English. A glossary can be found at the back of the report, summarising all key acronyms, bodies and publications referenced throughout the report.

Our scope of consolidation comprises DWS Group GmbH & Co. KGaA (DWS KGaA) and all its fully consolidated subsidiaries. DWS means DWS KGaA or DWS Group as applicable. DWS Group comprises DWS Group GmbH & Co. KGaA (DWS KGaA) and its subsidiaries according to section 15 et. seq. German Stock Corporation Act (AktG).

Disclosure Focus Area	Recommended Disclosure	Section in this document
Governance	a) Describe the board's oversight of climate-related risks and opportunities.	Governance – Introduction, Group Sustainability Council
	b) Describe management's role in assessing and managing climate-related risks and opportunities.	Governance – Group Sustainability Council, Divisional sustainability governance, Assessing and managing climate-related risks and opportunities
Strategy	a) Describe the climate-related risks and opportunities the organisation has identified over the short, medium and long-term.	Strategy – Introduction, How climate change is embedded in the decisions we take
	b) Describe the impact of climate-related risks and opportunities on the organisation's businesses, strategy and financial planning.	Strategy – How we incorporate climate change within our investment process, Climate considerations associated with the EU Sustainable Finance Platform, The role we play as a steward of assets, Collaboration with other stakeholders and policy advocacy, Our actions towards becoming a net zero asset manager
	c) Describe the potential impact of different scenarios, including a 2°C scenario, on the organisation's businesses, strategy and financial planning.	Risk Management – Our approach to measuring climate-related risks
Risk management	a) Describe the organisation's process for identifying and assessing climate-related risks.	Risk Management – What we mean by sustainability risk, Why we consider climate as a priority within sustainability risk Strategy – How we incorporate climate change within our investment process
	b) Describe the organisation's processes for managing climate-related risks.	Risk Management – How we are integrating sustainability (and therefore climate-related) risks into our investment risk management Strategy – How we incorporate climate change within our investment process
	c) Describe how processes for identifying, assessing and managing climate-related risks are integrated into the organisation's overall risk management.	Risk Management – How we are integrating sustainability (and therefore climate-related) risks into our investment risk management
Metrics and targets	a) Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk-management process.	Metrics and Targets – Background information on KPIs and TCFD aligned metrics
	b) Disclose Scope 1, Scope 2 and, if appropriate, Scope 3 greenhouse gas (GHG) emissions and the related risks.	Metrics and Targets – Climate related metrics
	c) Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets.	Metrics and Targets – Climate related metrics

Executive Summary

Working towards net zero is the next step in achieving our ESG ambition

At our Annual General Meeting (AGM) in November 2020, we expressed our ambition to become climate-neutral in our actions, in line with the Paris Agreement, and well ahead of 2050. As a next step we became a founding member of the Net Zero Asset Managers (NZAM) initiative in December 2020. In November 2021 DWS set its 2030 interim decarbonisation target as part of the NZAM initiative and committing to the Science Based Targets initiative (SBTi) as the underlying reference framework.

Our Climate Report is fundamental to enhancing DWS' non-financial reporting while also ensuring we provide transparent disclosures on climate action on a regular basis. As such, we aim for a strategy which is aligned with the key TCFD recommendations on Governance, Strategy, Risk Management and Metrics and Targets:

- The Governance section outlines how we continued to embed Environmental, Social and Governance (ESG) and therefore climate-related topics, in our management and internal structures.
- The Strategy section describes our progress made in 2021 in further considering climate-related opportunities and risk management in our products and investment strategy. The section highlights our operational and portfolio net zero ambitions and how we intend to drive these going forward.
- The Risk Management section features an update on the integration of climate-related risks in our risk framework. It also includes a new section in which we explore the impact of climate change on our product strategy and by using scenario analyses, on our assets.
- The Metrics and Targets section concludes the report with a progress update on our Sustainability Key Performance Indicators (KPIs), as well as an update on our SBTi and Transition Pathways Initiative (TPI) portfolio alignment.

Governance

Our CEO has the overall responsibility for climate-related risks and opportunities.

The Group Sustainability Council is responsible for driving alignment and assuming oversight of climate-related risks and opportunities.

Our Corporate Risk Appetite Statement includes a specific section on climate and sustainability risk.

01 Status

The execution of our overall sustainability strategy including climate change is supported by the Group Sustainability Council and the Group Sustainability Office.

02 Progress

We have selected Assets under management in scope for our 2030 decarbonisation target as part of the NZAM initiative.

03 Outlook

We intend to continuously work on further refining our sustainability and climate-related governance.

TCFD Recommendations

a) Describe the board's oversight of climate-related risks and opportunities.
b) Describe management's role in assessing and managing climate-related risks and opportunities.

Governance

At DWS we aim to incorporate the management of climate-related risks and opportunities throughout our operations as part of our overall sustainability governance starting with the Executive Board (the Board) which has overall responsibility for managing them. The Group Sustainability Council (GSC) supports the Board by driving group-wide alignment and oversight of climate-related activities. The Board is further supported by additional expertise and an outside-in perspective provided by the ESG Advisory Board (EAB).

We have incorporated the consideration of climate-related risks and opportunities into our broader sustainability governance because of (i) the strong interconnection between climate and other environmental factors (forestry, water, oceans, biodiversity); (ii) the uneven impact that climate may have on certain parts of society; and (iii) the demand from our investors that we engage with various stakeholders on the matter and use our proxy voting as a tool to raise their concerns. While DWS intends to have a global approach on how to incorporate climate and sustainability issues, we are shaped by local regulations in how we can implement our approach in different jurisdictions. The Board is determined to work with the relevant stakeholders and regulators to ensure that climate and sustainability issues are incorporated throughout our value chain.

The member of our Board who has been allocated responsibility for climate-related risks and opportunities management is our Chief Executive Officer (CEO). Material climate-related issues are presented to the Board as necessary and appropriate. Climate-related risks and opportunities affect each of DWS' six divisions[2]. The Board believes that the risks and opportunities associated with climate change are of paramount importance to the long-term commercial and fiduciary interests of the firm and its clients. In 2021 the Board approved the Assets under Management (AuM) in scope for its 2030 decarbonisation target as part of the NZAM initiative and selected SBTi as the framework for doing so. DWS also signed-up to working with SBTi and submitting a SBTi approved decarbonization plan by November 2023. As such, the Board has directed DWS to minimise its exposure to climate-related risks by reducing the carbon exposure of the firm's managed portfolios and corporate operations aligned to a pathway designed to achieve net zero by the year 2050.

Group Sustainability Council

The Board established the GSC in the fourth quarter of 2020 to drive alignment and assume oversight of our cross-divisional sustainability strategy, and climate-related activities. The GSC consists of senior representatives from all DWS divisions and is chaired by our CEO. The GSC meets on average twice a month. It is responsible for driving the execution of key deliverables, and ensuring alignment on cross-divisional ESG initiatives, climate-related risks and opportunities and our Sustainability KPIs. The GSC has been structured and empowered to represent the interests and responsibilities of the Board with authority to raise proposals to the Board and execute on the Board's decisions. In the context of climate-related risks and opportunities, the GSC endorsed DWS' net zero framework, which was developed by representatives of DWS' GSO, Research House, and other parts of the investment platform with support from external consultants and other industry groups. Following GSC endorsement, the Board provided final approval.

Group Sustainability Office

DWS established a dedicated GSO which supports the CEO and the GSC in achieving its objectives, drives the formulation of our sustainability strategy, sets clear strategic priorities and milestones, tracks implementation as well as leading selected group-wide sustainability initiatives. In addition, the GSO manages cross-divisional sustainability, climate-related activities, and partnerships.

ESG Advisory Board

To provide an outside-in perspective and further expertise, DWS established an external advisory board in November 2020 of six highly recognised international sustainability and climate experts from diverse disciplines[3]. The EAB advises the CEO and the Board on our long-term sustainability strategy. The EAB met three times during 2021 on a virtual basis.

(2) DWS is structured into six divisions and each division is led by an DWS Executive Board member. The six DWS divisions are: Investment, Product, Client Coverage, CFO, COO, and Executive.
(3) DWS November 2020, https://www.dws.com/Our-Profile/media/media-releases/dws-establishes-esg-advisory-board/ .

Figure 1. Sustainability-related organisational structure

Divisional sustainability governance

Investment Division (ID)

As a responsible Board member, the DWS Chief Investment Officer (CIO) oversees the integration of climate change risks and opportunities in the Investment Division and is supported by the Global Head of Research, the CIO for Responsible Investments (RI), and the Global Investment Division Leadership Council[4]. At a practical level, the integration of climate considerations takes place through the following formalised channels:

- **Global Investment Division Leadership Meeting.** In this monthly meeting, led by the CIO, relevant strategic issues affecting the future of the Investment Division are discussed. Relevant initiatives and reports associated with climate-related risks and opportunities are discussed by the Global Head of Research.
- **CIO Research.** The CIO Office, in close collaboration with the Economics team, is responsible for delivering market and economic views both to the Investment Division and internal and external stakeholders. Since 2018 we incorporate ESG, including climate aspects, into our quarterly CIO View publications. Furthermore, the CIO Daily Newsletter contains an ESG section comments on all the material information related to ESG and climate-related risk and opportunities. Relevant climate and ESG issues are taken into consideration in defining both the Tactical View (time horizon 0 - 3 months), as well as the Strategic View (12 months).
- **Integration of ESG in the Investment Process.** The process of integration of climate-related risks and opportunities at portfolio level is led by the CIO for RI. The CIO for RI manages the Responsible Investment Center (RIC), ESG Integration and the ESG Engine & Solutions Team, the Corporate Governance Center and investigates ESG matters together with the DWS Research Institute. The CIO for RI provides the toolkit so that ESG and climate-related risks and opportunities can be incorporated in the investment process across asset classes and regions.

(4) Further details on our ID governance structure can be found in our Statement of Compliance with the UK Stewardship Code 2020 (https://download.dws.com/download?elib-assetguid=ba6cab4eb7ec4c8b8d9fa6b2e57444db&&&&&).

Product Division (PD)

Dedicated ESG product specialists and an ESG Advisory team provide ESG insights, analytics, and tailored investment solutions. The Product Division is responsible for assessing climate-related elements for all new product launches and for managing the product portfolio in line with DWS' sustainability strategy.

Client Coverage Division (CCD)

The Global ESG Client Officer leads the delivery of sustainable investment solutions and advice to DWS clients. This role ensures that sustainability remains central to our strategic client relationships. Additionally, over 25 ESG Ambassadors, organized regionally and along distribution/client channels, coordinate regional sustainability solutions for our clients working with investment professionals and product experts.

Executive Division (ED)

The Executive Division oversees the Group Sustainability Office. Within the division, Human Resources is responsible for incorporating sustainability related KPIs in the DWS compensation structure, while Communications & Marketing manages our sustainability related communications and marketing materials.

Chief Financial Office (CFO) Division

The CFO Division assumes responsibility for managing all climate-related disclosures, tracking of Sustainability KPIs and sustainability risks (including climate change), and integrating climate risk in the Risk Management Framework. The integration approach and selected implemented processes are further described within the section 'Risk Management'.

Chief Operating Office (COO) Division

The COO Division leads our objective to reach net zero in our operational emissions as a company. We aim to achieve this by applying the same science-based standards we use for our investment portfolios to our operational emissions as well. Targeted activities include the reduction of emissions from the real estate we occupy and the integration of ESG factors in vendor onboarding and monitoring.

Assessing and managing climate-related risks and opportunities

Our Corporate Risk Appetite Statement includes a specific section on climate and sustainability risk, as those risks are expected to impact various existing risk types. It contains key selected risk types that are impacted on a fiduciary and corporate level, implemented risk mitigation strategies specific to these risk types, as well as quantitative climate and sustainability risk targets.

The integration of climate-related risks in the Risk Management Framework of the Group is covered by our Sustainability Risk Management Policy, which requires sustainability risks to be incorporated into our operating model across impacted risk types, and business functions to provide a cohesive risk governance. This policy outlines ESG- & sustainability risk-related definitions, how sustainability factors interact with the risk taxonomy, as well as roles and responsibilities regarding the management of sustainability risk factors, which includes climate-related risk factors.

Strategy

To advance climate action, we accelerated our constructive dialogue directly with members of the Boards of Directors via direct participation in more than 40 virtual shareholder meetings.

A new feature for proxy voting in 2021 was a `say-on-climate proposals' from management, which offers shareholders an advisory vote on companies' carbon reduction and transition strategies. DWS voted on a total of 22 say-on-climate proposals.

DWS entered into an agreement with the UN Green Climate Fund during COP26, to seed the Universal Green Energy Access Programme, an investment fund which aims to supply clean electricity to businesses and households in select African countries.

01 Status

Progress in global climate action with governments and businesses around the globe having set ambitious net zero targets.

02 Progress

- We implemented a corporate and portfolio scenario analysis.
- Our proprietary ESG Engine included data alignments to both the Transition Pathway Initiative (TPI) and Science Based Target initiative (SBTi).
- We have launched new climate products and enhanced our engagement framework for European based portfolios.

03 Outlook

- Target setting with investees.
- Drive innovation in products.

TCFD Recommendations

a) Describe the climate related risks and opportunities the organization has identified over the short, medium, and long term.
b) Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning.
c) Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.

Strategy

In 2021 we saw an increased focus on ESG by investors, policy-makers, corporations, and society in general, especially around climate change. During this time, there has been a material increase in net inflows into sustainable investments globally. We expect sustainable investments to be a key part of the future of the asset investment industry.

We have also seen a strong momentum in global climate action. Increasingly, governments and businesses around the globe have set ambitious net zero targets. DWS aims to become climate-neutral in its actions, in line with the Paris Agreement, by 2050 or sooner. Building on this long-term ambition and as a founding signatory of the NZAM, climate action is a key focus of our global sustainability strategy[5].

Reflecting on these trends, our core strategic priorities relating to sustainability have become more ambitious:

- **Corporate transformation:** We seek to increase the level of sustainable activities across our organisation.
- **ESG in the investment process:** Whilst having already built up strong ESG capabilities, we seek to further embed ESG in our investment process to improve the assessment of the future expected risk / returns of a security.
- **Innovative and sustainable investment solutions:** We seek to launch new and innovative ESG products and solutions to meet the requirements of our clients and to increase the number of funds classified as Article 8 and Article 9 Sustainable Finance Disclosure Regulation (SFDR)[6] by converting numerous existing funds in Europe.
- **Stakeholder engagement:** We seek to take a holistic approach to engagement as we consider issuer and non-issuer engagement as a key driver for the transition to a net zero global economy.

How climate change is embedded in the decisions we take

DWS has a long heritage in ESG investing. In 2005 we identified climate change as the 'defining issue of our time' as well as a major potential economic and financial risk. Achieving the 'net zero target by 2050' will have implications across the global economy, changes to business models, and significant new investment opportunities. The global economy may shift away from the linear growth model of "Take-Make-Waste" to a more circular economic model that harnesses the technologies of the green industrial revolution. The road ahead may be challenging, but all stakeholders – governments, regulators, financial institutions, businesses, and broader civil society – need to play their part. As a global asset manager, we have a pivotal role to play in facilitating and financing this transformation.

In November 2020 we announced our aim to transition our own operations and portfolios to become climate neutral well ahead of 2050. In the chapter 'Our actions towards becoming a net zero asset manager - Bringing portfolio emissions down to net zero by 2050 or sooner', we go into more detail on our commitments with NZAM and SBTi.

We recognise the challenges associated with the implementation of a strategy where the benefits will be seen in the long-term (2050), but where most of the action needs to be taken in the coming decade. These issues were best described in a research article published in 2021[7], which talks of the challenges in translating climate change risk where the highest level of certainty relates to what happens in the very long-term (which is the focus of the scientific community) into climate-related risks and opportunities for investors where the primary focus is the next thirty years.

We acknowledge that there is not yet a perfect framework to enable the conversion of long-term climate-related risks into medium term financial risks. Furthermore, there are challenges and limitations in the context of data, regulation, reporting and resources. What we do know are the long-term effects associated with climate change and that the world is best served by an agreed decarbonisation strategy as soon as possible. We are aware that there are several paths to a decarbonised economy. We are also aware that we do require the emergence and commercialisation of technologies that have yet to be developed, and/or much higher carbon prices.

(5) For further information on our sustainability strategy that addresses climate change alongside other sustainability factors, please refer to our Annual Report (see DWS Annual Report 2021, 'Our Strategy - Progress Review in 2021 - LEAD: Differentiated Leadership across ESG, Passive, and High Margin Strategies').
(6) Details on the SFDR and how it is implemented at DWS can be found in the Annual Report (see DWS Annual Report 2021, 'Our Responsibilities' in chapter 'ESG Products, Sustainable Finance and Responsible Investing').
(7) Paul Griffin & Amy Myers Jaffe, "Challenges for a climate risk disclosure mandate", Nature Energy 2021.

We believe that long-term resilience is built by recognising the systemic risk and adapting through it.

In 2021 we implemented a corporate ESG scenario analysis that aimed to quantify strategic risk and opportunities related to environmental, social and governance matters impacting our business model. The analysis identified and assessed key outside-in as well as inside-out factors that may have an impact on revenue generation – as further described in the section 'Our approach to measuring climate-related risks'. In addition, we approached the portfolio climate scenario analysis from the point of view of strategic asset allocations (SAA) which are driven by asset class return expectations in conjunction with client risk profiles. Here we have drawn upon the Bank of England's (BoE) 2021 Climate Biennial Exploratory Scenario (CBES) and focussed on physical and transition risk implications. The analysis reveals that failure to take appropriate action to mitigate climate change will have significant economic and financial cost. In the absence of robust data availability, our portfolio scenario analysis approach is a top-down approach to asset classes which does not translate directly to bottom-up analysis of industries or even individual securities (for further information refer to 'Our approach to measuring climate-related risks').

Reflecting on these considerations, we believe that DWS is well positioned given (i) our financial strength enabling us to invest in research and resources that will help us cope with various climate scenarios; (ii) our diversified business model across asset classes and regions; (iii) our ambition to address climate matters for our own operations, clients and portfolios; and (iv) our intellectual capital and experience enabling us to gain important insights on the matters and ability to connect with relevant stakeholders.

How we incorporate climate change within our investment process

Active

All Active investment professionals, globally, fall under the scope of the ESG Integration Policy for Active Investment Management, which was implemented in 2010 and is reviewed on an annual basis. The policy contains special emphasis for climate-related risks, measured by DWS' Climate and Transition Risk Ratings (CTRR). DWS designed and implemented its proprietary CTRR in 2019 with an initial focus on carbon emissions. Today, CTRR highlights potential risks and opportunities associated with carbon emissions and water. DWS is also currently exploring how to incorporate other environmental factors into its investment process such as forestry and biodiversity.

The CTRR and other climate relevant information (for example, absolute emissions level or type of fuel used) are made available to all Active investment professionals through the ESG Engine, our proprietary database, which covers most listed asset classes and uses five external ESG data providers. In 2021 we added CTRR data for sovereigns to the ESG Engine. The climate assessment of issuers in the ESG Engine also includes alignments to both the TPI and SBTi. In preparation for new requirements under SFDR, EU Taxonomy Regulation, and MiFID II, we added information on the Principal Adverse Impacts (PAI) for all issuers, developing a methodology for measuring compliance with the EU Taxonomy regulation and definition of "sustainable investments" under SFDR. All our investment professionals are expected to be aware of any exposure to critical ESG issues, including climate change, and act in line with internal processes and legal and contractual obligations. Through regular reviews, we assess our exposure to ESG laggards and take appropriate action.

The proprietary CTRR is a building block for managing climate-related risks and opportunities in our investments. It is used to:

1. Consider climate change in the investment process for liquid asset classes.
2. Create dedicated ESG investment strategies.
3. Assist the Committee for Responsible Investments (CRI), that underpinned our management of mutual funds following the Smart Integration approach to review holdings with the lowest CTRR.
4. Assist the Corporate Governance Center in its Proxy Voting.
5. Inform our Engagement Framework.

The CRI covers our Smart Integration strategies for certain actively managed mutual funds that are domiciled in Germany and Luxembourg. The CRI is responsible for managing certain investment restrictions or triggering binding exclusion decisions. In 2021 the CRI reviewed 15 issuers from high carbon emitting sectors and decided to exclude some of them from funds operating under the DWS Smart Integration approach due to limited engagement potential and high climate risks.

In 2021 it had oversight over 167 actively managed mutual funds[8] domiciled in Germany and Luxembourg with combined AuM of € 148 billion at year end[9]. The Smart Integration approach and the CRI will cease to exist in 2022 for funds that have previously applied the Smart Integration approach as a result of the enhanced ESG Framework[10]. The creation of a new Engagement Council ensures that important ESG and non-ESG matters are discussed and drive engagement with issuers of a wider scope of assets.

We raised internal and external awareness of CTRR for sovereign issuers through ESG trainings for investment professionals and presentations during the CIO Days[11], which, as discussed in the earlier 'Governance' section, is a key transmission channel for discussing ESG and Climate risk and opportunities. Specific attention was given to topics such as PAI, the dynamics in the carbon markets, and how changes in the demand and supply in the oil sector may affect asset classes.

DWS' Corporate Governance Center may use the CTRR as part of the annual proxy voting process in determining our votes for climate-related resolutions for investee companies. Our Engagement Framework with investee companies was further enhanced in 2021 to incorporate companies' decarbonisation plans and net zero strategies.

Information on imminent regulatory requirements impacting sustainability disclosures, for example, regulatory requirements aiming at climate-related entity level disclosures, is also regularly shared and discussed through the Investment Division's various governance channels.

Passive

DWS' Passive fund business in Europe, Middle East and Africa (EMEA) is bound by its "ESG Integration Policy for Passive Investment Management"[12], which specifies minimum standards for indices that DWS' Exchange Traded Funds (ETFs) should track. These minimum standards include a requirement to exclude issuers with material involvement in thermal coal mining and power generation, while dedicated ESG ETFs apply stricter exclusion criteria.

Alternatives

The incorporation of ESG and climate-related risks into the investment process of illiquid Alternatives, for example, unlisted real estate and infrastructure, takes place during investment due diligence and portfolio management. The inherent differences between the liquid and illiquid asset classes require that the approach to incorporating ESG for Alternatives be tailored specifically to the relevant Alternatives asset classes as outlined later in 'ESG in Alternatives'.

Climate considerations associated with the EU Sustainable Finance Platform

In 2018 the European Commission adopted the EU Action Plan on Sustainable Finance, aiming at improving the flow of investments towards financing the transition to a sustainable economy. As a member of the German Investment Fund Association (Bundesverband Investment und Asset Management - BVI) and European Fund and Asset Management Association (EFAMA), DWS takes an active role in contributing its experiences and insights in sustainable finance. DWS is focused on the implementation of the following regulations:

- the SFDR;
- the EU Taxonomy Regulation;
- the planned changes in MiFID II, Undertakings for Collective Investments in Transferable Securities (UCITS) and Alternative Investment Fund Managers Directive (AIFMD); and
- the Guidance Notice on Dealing with Sustainability Risks.

During 2021 DWS continued working to respond to upcoming EU regulatory requirements with a focus on product classification and ESG reporting requirements. Under the EU Taxonomy, DWS is obliged to disclose, how and the extent to which, our activities are associated with economic activities that qualify as environmentally sustainable under Articles 3 and 9 of the Taxonomy Regulation. The reporting obligations are required for the first time for the financial year 2021. A total of five KPIs are set in relation to AuM and are prepared based on the figures as of 31 December 2021[13], which have been reported in our Annual Report 2021.

(8) During 2021 we began to increase the number of our European domiciled actively managed mutual funds which promote environmental or social characteristics within the meaning of Article 8, or which have sustainable investments as its objective within the meaning of Article 9.
(9) Assets under Management as of 31 December 2021.
(10) See DWS Annual Report 2021, chapter 'Our Product Suite'.
(11) Either available under the ESG CIO View section (https://www.dws.com/insights/cio-view/esg/) or relevant publications by the DWS Research Institute (https://www.dws.com/insights/global-research-institute/).
(12) Available under the following link: https://etf.dws.com/en-lu/AssetDownload/Index/c90c541f-b3d0-45ee-964f-3fd6e97b5da0/ESG-Integration-Policy-for-Passive-Investment-Management.pdf/.
(13) See DWS Annual Report 2021, chapter 'Operating and Financial Review – DWS Performance – Results of Operations'.

These show how and to what extent our AuM are associated with economic activities that qualify as environmentally sustainable under Articles 3 and 9 of the Taxonomy Regulation.

SFDR Level 1 came into effect on 10 March 2021. It introduces specific disclosure requirements for products that promote social or environmental characteristics (Article 8) or have sustainable investment as their objective (Article 9), as well as a general disclosure requirement in relation to the integration of sustainability risks with other products (Article 6). The SFDR together with the EU Taxonomy Regulation, the proposed Corporate Sustainability Reporting Directive (CSRD) and the amended MiFiD II and Insurance Distribution Directive, are expected to create a coherent sustainable finance framework that will translate the EU climate and environmental objectives into transparent criteria for specific economic activities for investment purposes.

ESG in Liquid products

During 2021 we have been aligning certain funds in our portfolio to the requirements of SFDR Article 8 or Article 9. For our European-domiciled actively managed mutual funds classified as an Article 8 SFDR product, we will apply two ESG filters going forward:

- The "DWS Basic Exclusions" filter represents our basic approach to incorporating certain exclusions in the investment policy of the relevant fund.
- The "DWS ESG Investment Standard" filter enhances the exclusions and adds an ESG quality assessment approach[14] encompassing investments in issuers selected for positive ESG performance relative to industry peers.

By aligning funds to SFDR Article 8 or 9 and by applying the beforementioned ESG filters, climate and transition risks are mitigated. Both filters exclude issuers with excessive climate risk profiles as investments. The "DWS ESG Investment Standard" filter goes beyond the "DWS Basic Exclusions" filter by limiting the investment in issuers with high climate risk profile to 5% of the fund's assets.

Over the course of the year, we also changed the reference index for numerous Passive products to indices consistent with the Passive specific minimum ESG standards. These funds now track indices that promote sustainability factors (environmental and social characteristics), while applying ESG safeguards, and moved from an Article 6 to Article 8 classification following the change in index.

Examples of new Climate products launched[15] in 2021 include the following:

1. The DWS Concept ESG Blue Economy fund is a thematic equity ESG-strategy that invests in the sustainable Blue Economy. It focuses on investments in ocean dependent sectors as well as in contributors to the health of oceans.
2. The Xtrackers USD Corporate Green Bond UCITS ETFs and Xtrackers EUR Corporate Green Bond UCITS ETFs are DWS´ first ETFs in the corporate green bond category. By including corporates and selected agencies while excluding sovereign issuers, the fund complements traditional and ESG offerings by providing investors with impact-aligned investment grade corporate exposure.
3. The ESG Infrastructure Debt Fund in Alternatives invests in European sustainable infrastructure, including renewable energy, digital, energy efficiency/utilities, clean mobility/transport, and social infrastructure.

ESG in Alternatives

In 2021 DWS entered into an agreement with the UN Green Climate Fund during the UN's 26th Climate Change Conference 2021 (COP26), to seed the Universal Green Energy Access Programme, an investment fund that aims to supply clean electricity to businesses and households in selected African countries. The investment fund will be managed by the DWS Sustainable Investments (SI) team as part of its African private debt business.

Sustainable Investments

The SI business' ESG assessment aims to integrate ESG considerations in the investment process and is guided by general accepted frameworks including the Sustainability Accounting Standards Board (SASB) standards.

(14) The "DWS ESG Investment Standard" filter enhances the exclusions in comparison to the "DWS Basic Exclusion" filter and adds an "ESG quality assessment" approach encompassing investments in issuers selected for positive ESG performance relative to industry peers (so-called "Best-In-Class approach") (see DWS Annual Report 2021, chapter 'Our Product Suite').
(15) Within illiquid Alternatives, the incorporation of ESG into the investment process takes place during investment due diligence and active portfolio management. The inherent differences between the liquid and illiquid asset classes require that the approach to incorporating physical climate risk or climate transition risk for Alternatives be tailored specifically to the relevant Alternatives asset classes as outlined in the sections below. The scope of illiquid in the sections below comprise direct investments into unlisted real estate, infrastructure (both via debt or equity) or private equity.

During the due diligence process, the manager seeks to engage professional third-party advisors to examine the financial, technical, and legal aspects of the projects, especially those that would translate into ESG risks. Potential risks and mitigation measures are presented to the Investment Committee and rectification work is carried out to reduce such risks. The SI team monitors the operation of the portfolio companies and seeks to ensure they operate in compliance with environmental standards and regulations. Some of SI' funds engage a third-party consultancy to conduct quarterly ESG reporting for the Fund. The quarterly reports include risk analyses and records the waste generation and air pollutant emissions.

For some funds we use a proprietary tool to measure and monitor impact. DWS' impact funds are:

1. The European Energy Efficiency Fund (eeef) and the African Agriculture and Trade Investment Fund (AATIF) are long-standing private debt strategies with 10 years of investment history. eeef seeks to address climate change in the EU 27 through a European energy efficiency strategy.
2. AATIF seeks to promote sustainable agriculture in Africa. In line with its mandate of aiming to positively impact agricultural production with particular focus on smallholders in Africa, AATIF assesses its progress and impact on seven key outcome areas including employment, primary agricultural production, local processing, trade, outreach to agricultural producers, environment, and the Environmental and Social Management System (ESMS) at the level of the investee company.
3. The China Renewable Energy Fund (CREF) supports Net Zero aligned corporates and suppliers in China. It seeks to reduce and ultimately negate their local CO2 footprint through developing renewable energy sites in China.
4. The Clean Energy and Environment Fund (CEEF) seeks directly to address pollution in China by investing in environmental solution providers. Example portfolio companies include cleantech firms specializing in greenhouse gas (GHG) emission reductions and industrial solid waste recycling.

Infrastructure

We seek to consider ESG factors as part of the investment framework of the Infrastructure Equity business at all stages of the investment lifecycle. During the holding period we monitor ESG KPIs through quarterly reporting from the portfolio companies, through discussion at board meetings, and creation of action plans to improve ESG considerations where necessary. Our due diligence is designed to include consideration of environmental and climate-related topics. These due diligence findings are presented to the Investment Committee (IC) for consideration prior to making an investment decision.

The Infrastructure business places emphasis on reporting, producing an annual Sustainable and Responsible Investment (SRI) report for investors. This report addresses environmental issues at the fund's underlying investments. To understand the ongoing performance, including climate data of our funds and assets against peers, we take part in the Global Real Estate Sustainability Benchmark (GRESB) infrastructure assessment at both fund and asset level. In 2021 we continued to operate in line with the ESMS, which applies to all potential and existing portfolio investments in infrastructure equity. This is designed to ensure regular reporting from the portfolio and compliance with applicable ESG regulations.

The Infrastructure Debt business, in collaboration with DWS Research, developed a bespoke proprietary ESG scoring methodology, rolled out to new investments in 2021. The methodology supports the overall investment process and ongoing monitoring of environmental risks. This methodology is designed to guide the ESG due diligence process and to assign an ESG rating to each potential investment, based on a pre-defined set of ESG KPIs, which are sourced by the borrower/sponsors. As of 31 December 2021 the Infrastructure Debt business is managing EUR 210 million of climate change mitigation assets in the form of private financings to renewable energy assets located in Europe.

Real Estate

DWS recognises the importance of identifying, assessing, and managing material ESG and climate issues as an integral part of its direct real estate business. Accordingly, DWS Real Estate incorporates ESG in the investment process inspired by the Spectrum of Capital authored by the G8 Impact Measurement Working Group[16].

To provide transparency to our investors, we report into GRESB, which provides an independent assessment of portfolios and funds using a peer-based approach and scoring based on several ESG metrics, including carbon emissions and water use.

(16) "Spectrum of capital, Maduro, M., Pasi, G. and Misuraca, G., Social Impact Investment in the EU. Financing strategies and outcome-oriented approaches for social policy innovation: narratives, experiences, and recommendations; G8 Impact Measurement Working Group, 2014. JRC Publications Repository - Social Impact Investment in the EU. Financing strategies and outcome oriented approaches for social policy innovation: narratives, experiences, and recommendations (europa.eu).

With respect to emission reduction targets and measurement across our real estate portfolio, we committed to the following:

- A 2030 carbon reduction goal (European offices): In October 2019 we announced a commitment to achieve a 50% reduction in carbon emissions intensity by 2030 across our entire portfolio of European office properties against a baseline year of 2017.
- A 2050 Net Zero carbon goal (European-managed portfolio): In October 2019, we became one of the founding signatories of the Better Buildings Partnership (BBP) Climate Change Commitment, and recently published our first net zero carbon pathway on their website[17].
- A 2030 energy reduction goal (US offices): We renewed our commitment to the challenge to achieve another 20% energy intensity reduction by 2030 across our entire US office portfolio. We report our targets and progress publicly[18].
- A 2030 water reduction goal (US offices): As part of our renewed commitment to the Better Buildings Challenge, in 2017, we added a water reduction goal of 20% by 2030 for our US office portfolio and have already reduced water intensity by 21%[19].

Our role as a steward of investments

We believe that we best achieve positive change when we exert influence, and we exert influence most effectively when we are invested. We evaluate each company individually and try to generate sustainability outcomes via direct dialogue. Issuers with insufficient climate change oversight, for example, which we or ESG data vendors identify as severely inflicting environmental damage and/or which have a high climate change transition and/or physical risk, may become a focus of our engagement activities.

DWS introduced an enhanced Engagement Framework for its European based portfolios during 2021 ("Engagement Framework") and is considering a similar framework for the US relevant subject to relevant approvals. Our Engagement Framework sets targets towards sustainability outcomes that are, among others, mapped to the PAI and Sustainable Development Goals (SDGs). In addition, our engagement reports aim to map an SDG and PAI to the targeted KPIs, if applicable. Progress is tracked with clearly defined KPIs for follow-up and escalation, as required. Engagement may lead to a review of ESG ratings that could have an impact on the ability of our portfolio managers to invest in the security. We also plan to increasingly focus on engagement with non-issuers, such as index providers and credit rating agencies, given the limited ability that a passive product has to divest from specific securities.

The enhanced Engagement Framework establishes three clusters of engagement for issuers depending on the degree of interaction with the investee company:

- **Core List:** the focus will be on core corporate governance values and broader environmental and social issues.
- **Focus Engagement List:** Different approaches will be defined on an ad-hoc basis. For certain investees, the focus will be on climate and norm violations as well as on governance related issues. For others it could be about specific sustainability themes or financial issues.
- **Strategic Engagement List:** The objective is to work with companies on several clear ESG and non-ESG targets. By working with companies that are important to DWS and its clients, there is a potential to improve the companies' ESG quality.

With our engagement activities, we also support the Climate Action 100+ initiative, where we engage with a European utility company on behalf of the initiative with the aim of enhancing the governance of climate change risk and opportunities, curbing emissions, and strengthening climate-related financial disclosures.

Stewardship to advance climate action in our investments

Boards are responsible for a proper oversight of material ESG matters and should be held accountable if they fail to do so. In 2021 we accelerated our constructive dialogue directly with members of the Boards of Directors of investee companies via direct participation in more than 40 virtual shareholder meetings. This was a significant increase from 20 companies in 2020. We screen all our holdings against multiple criteria to identify which companies we will take voting action on. For 20 out of those 40 companies, we focused in part on decarbonisation plans, with a particular scrutiny on scope 3 emissions and target setting.

(17) Available under: https://www.betterbuildingspartnership.co.uk/sites/default/files/DWS%20Net%20Zero%20Carbon%20Pathway%20FV1.pdf.
(18) https://betterbuildingssolutioncenter.energy.gov/partners/dws.
(19) https://betterbuildingssolutioncenter.energy.gov/partners/dws.

Considering climate risk within DWS Proxy Voting and Engagement Activity

Although the degree of exposure to climate-related risks may vary across sectors and assets, we expect the Board of an investee company to develop a robust understanding of company-specific risks and how to mitigate them. Companies that face substantial climate-related risks, should accelerate their efforts in setting ambitious targets and providing enhanced transparency on their long-term climate strategy.

We expect companies to follow broadly established standards for disclosure and transparency such as the SASB sector-specific disclosure standards and to comply with and report on frameworks such as the UN Global Compact Principles, the Carbon Disclosure Project (CDP), the Principles for Responsible Investment (PRI), and the SDGs.

DWS has separate corporate governance and proxy voting policies and processes for EMEA and the US due to different market practices. For DWS equity holdings in the scope of our Corporate Governance and Proxy Voting Policy (for funds domiciled in EMEA/Asia) targets towards sustainability outcomes are set. The holdings are screened according to agreed criteria, which make up the voting Core List. This list also covers holdings in Passive portfolios.

Our voting approach on climate issues includes:

- Voting on shareholder proposals that are explicitly climate focused, such as GHG reduction targets or reporting.
- Holding Boards of Directors accountable in case we believe they do not adequately manage climate risks.
- Voting on executive remuneration policies and reports, which do not incentivize addressing climate risks and opportunities.
- Participating in AGMs, virtual or in person, with a statement or questions addressed to the Boards of Directors.

In the US, DWS has adopted policies and guidelines to ensure that proxies are voted in accordance with the best economic interest of its clients, as determined by DWS, in good faith after appropriate review. We believe that profitability and responsible management of ESG factors complement each other in many ways, leading us to apply ESG criteria when evaluating shareholder proposals. Moreover, DWS' policy considers the Coalition for Environmentally Responsible Economies (CERES) recommendation on environmental matters contained in the CERES Roadmap for Sustainability as well as the recommendations of ISS Socially Responsible Investment (SRI) Policy on sustainability issues. DWS supports CERES and as such generally considers the CERES recommendation(s). This led to strong support of climate-related shareholder proposals.

In 2021 we prioritised climate topics in our engagement activities, comprising 198 of 581 engagements globally. DWS also maintains constructive dialogues with credit rating agencies on relevant ESG topics including climate change, and our Passive teams regularly engage index providers.

Case study:

Example of an engagement process with a French utility aimed at reducing environmental footprint and improving disclosure

This case study refers to a French utility company operating in a carbon-intensive sector, which is why we initially sent our net zero thematic engagement letter. We received a comprehensive reply to our questions and we further engaged with the company to discuss the most important issues bilaterally. The key Engagement Targets/KPIs were:

- Receiving SBTi certification of "well below 2°C" targets as well as net zero commitment.
- Rolling-out of a coal exit plan by 2027 globally (Europe by 2025).
- Reducing the carbon intensity of energy production, as well as the emissions linked to the use of sold products drastically by 2045.

The follow-up engagement is ongoing, with good responsiveness from the company's management. Progress thus far include:

- The set-up of a dedicated internal committee to oversee the group's decarbonisation objectives as well as a committee and working group for the implementation of TCFD recommendations.
- A commitment to exit coal, in Europe by 2025 and globally by 2027. The company committed to become net zero by 2045 across all scopes 1,2 and 3 and following a "well below 2°C" trajectory.
- All 2030 targets were certified by SBTi for a 2°C scenario and the Group is already working with SBTi to certify the new "well below 2°C" targets and net zero commitment.

The next steps are to continue our constructive dialogue in 2022 and monitor progress on engagement targets.

Since 2021 we seek to hold boards accountable by voting against directors for failure to address and/or mitigate a climate-related controversy. We voted against the re-election or discharge of at least 374 directors who failed to provide an adequate oversight of ESG controversies in 2021.

Below are some examples where we held directors accountable for the failure to address and/or mitigate climate change in 2021:

- **Company A:** We voted against the two incumbent directors who sit on the sustainability committee at a US oil and gas refining and marketing company for failing to adequately address and manage climate change risk. It was noted that the company had not made any net zero commitments, set any GHG reduction targets, and not yet reallocated capital to meet the goals set out by the Paris Agreement.
- **Company B:** We voted against the Chair/CEO and the lead director at another oil and gas refining and marketing company. The company has committed to provide TCFD disclosure on emissions, however, the lack of net zero targets by 2050 and the absence of interim targets, signify a lack of effective oversight and management of climate-related risks.
- **Company C:** We voted against all incumbent directors at the AGM of a Brazilian food packaging and meat company for failing to address multiple ESG failures, one of which related to sourcing cattle based in illegally deforested lands and having ties to Amazon deforestation.

A new feature for proxy voting in 2021 was a 'say-on-climate proposals' from management, which offers shareholders an advisory vote on companies' carbon reduction and transition strategies. DWS voted on a total of 22 say-on-climate proposals, paying particular attention to emissions measuring (scopes 1-3), target setting, and reporting aligned to the TCFD.

We support reasonable climate-related shareholder proposals, such as enhanced disclosures, setting meaningful decarbonisation targets and reporting on capital expenditure within the context of climate risk and decarbonisation. In assessing such cases, we aim to follow internationally recognised standards.

In 2021 we continued to support social and environmental shareholder proposals.[20] Furthermore, we initiated a process that went live in March 2021 to internally flag any investee company holding that has environmental shareholder proposals on the agenda. In 2021 we voted on 70 environmental shareholder proposals at 53 companies, the vast majority of which was directly related to climate change and GHG emission reductions.

For example:

- **Company D:** On one agenda, we were presented with two proposals. On the first, we abstained from voting on a management transition proposal on their transition strategy. However, we commended the management on their work to date and on putting the strategy to a shareholder vote for the transition proposal. On the second we voted in favour of the shareholder proposal to set and publish targets for GHG emissions. We believed the shareholder proposal was more ambitious in asking the company to set absolute GHG reduction targets and it would put the company on track to meet the goals of the Paris Agreement.
- **Company E:** At a shareholder proposal we voted in favour of the company to amend its articles of incorporation. This was implemented by adding provisions requiring it to disclose its business strategy to align its investments with the goals of the Paris Agreement and to support TCFD. As the company's insufficient policies and practices posed significant financial risks in the context of a transition to a decarbonised economy, the shareholder proposal informed shareholders about how the company was managing these risks.
- **Company F:** We supported a shareholder proposal requesting the company to include an annual advisory vote and report on climate change in line with the TCFD. We welcomed the development to make climate impact and action an agenda item subject to shareholder approval. We firmly believe that to allocate resources to TCFD reporting, companies' disclosure and strategies will in turn evolve to become more sophisticated and realistic.

The Alternatives business may need to engage with third parties affiliated with portfolio assets, i. e. company management, service providers, and/or tenants, to collect ESG data. This includes but is not limited to tenant engagement programs within real estate on energy efficiency and utility consumption. Where required, we may help develop action plans to enable the company to close gaps and ensure they can improve in the following year by, for example, reporting fully to GRESB. A consultant may be used to assist with this process. Once defined, the action plan will be discussed with the management team with assigned actions subject to ongoing monitoring.

(20) The vote results are made available on the Corporate Governance page of the DWS website: https://www.dws.com/solutions/esg/corporate-governance/.

Collaboration with other stakeholders and policy advocacy

We are collaborating with other stakeholders and investor initiatives where relevant and legally feasible on further advancing climate-related matters, such as, net zero investment methodologies, climate-related initiatives and stakeholder education. The table below highlights our most recent activities throughout 2021.

Table 1. Climate Collaboration

CDP (former Carbon Disclosure Project)	Signatory, Member, Commitment, Reporter	DWS is an investor signatory of CDP. As a CDP reporter, DWS received a CDP score of B in 2021, reaching CDP "Management level". In addition, DWS is once again a signatory to the CDP Science-Based Targets (SBTs) campaign with the purpose to accelerate the adoption of science-based climate targets in the corporate sector, by collaboratively engaging companies on this matter.
Ceres Investor Network on Climate Risk and Sustainability	Member	DWS employees participated in working group update sessions including on net zero in private equity, attended presentations, and signed on to Ceres letter responding to the Securities and Exchange Commission (SEC) request for input on climate-related disclosures. Furthermore, DWS research employees collaborated with Ceres to publish reports on water risk.
Climate Action 100+	Signatory	DWS has continued the engagement with an Italian utilities company via Climate Action 100+.
Climate Policy Initiative's (CPI) Global Innovation Lab for Climate Finance	Founding Member	DWS is a member in the Climate Lab cycle and participated in conferences and workshops held by the Climate Policy Initiative.
Coalition for Climate Resilient Investments (CCRI)	Founding Member	DWS is a founding member of the Coalition for Climate Resilient Investment (CCRI) which aims to incorporate physical climate risk into infrastructure investment decisions. DWS spoke at CCRI's COP26 event and contributed to CCRI's first report as well as to the valuation working group.
EU Energy Efficiency Financial Institutions Group (EEFIG)	Founder and Steering Committee Member	A DWS employee is a member of the EEFIG steering committee. As such, our activities include providing advice to the EU Commission on energy efficiency policy and participating in a working group on financial risk in energy efficient loans.
Global Investor Statement on Climate Change	Signatory	DWS renewed its signatory for the Global Investor Statement on Climate Change and is one of the longest standing supporters since the statement was initiated in 2009.
Global Off-Grid Lighting Association (GOGLA)	Member	DWS participated in work streams which contributed to a briefing note on best practice for transparency in off-grid solar and to the launch of KPIs to increase transparency of pay-as-you-go companies towards investors and stakeholders.
Green Climate Fund (GCF)	Accredited Entity Status	At COP26, it was announced that DWS - through Deutsche Bank AG's Accredited Entity Status - entered into an agreement with the UN Green Climate Fund, to seed the Universal Green Energy Access Programme, an investment fund aimed at supplying clean electricity to businesses and households in selected African countries. The UN Green Climate Fund agreed to contribute USD78.4m in capital as an anchor investor, while DWS aims to raise private sector capital.
Institutional Investors Group on Climate Change (IIGCC)	Board Member	A DWS employee is a board member of the IIGCC. DWS experts contributed to working groups covering net zero, accounting for climate risks, physical climate risk and defining a net zero framework for banks with the help of investors. Further, DWS was invited to give input to IIGCC's policy advocacy and signed the annual Global Investor Statement to Governments on the Climate Crisis.
Investment Adviser Association (IAA)	Member	DWS has continued to participate in the ESG Committee focused on ESG investing in the context of SEC-registered investment advisors.
Net Zero Asset Manager Initiative (NZAM)	Signatory	DWS joined the NZAM initiative in December 2020 as a founding signatory. A DWS employee serves in the NZAM Advisory Group.
Science Based Targets Initiative (SBTi)	Commitment	DWS has committed to the SBTi and to align its ambition with keeping warming to 1.5°C and reaching science-based net zero emissions by 2050. DWS's Research Institute responded to SBTi's consultation on a net zero standard.
Taskforce on Climate-related Financial Disclosure (TCFD)	Supporter	DWS issued its first TCFD guided Climate Report 2020.

Our actions towards becoming a net zero asset manager

As a founding signatory of the Net Zero Asset Managers (NZAM) initiative, we are committed to becoming climate neutral, in line with the Paris Agreement, and well ahead of 2050. That applies to both our corporate and portfolio GHG emissions.

Becoming and maintaining operational net zero

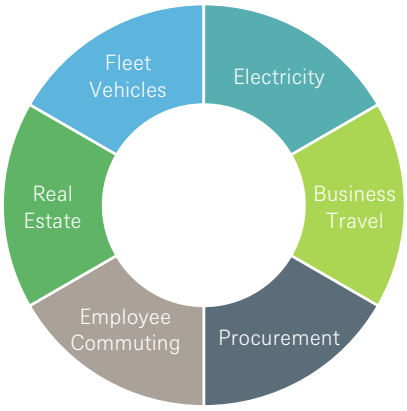
DWS is conscious of its responsibility for corporate operational emissions and has previously communicated its operational Sustainability KPIs in 2020. We continue to monitor and remain on track to deliver against these KPIs (please refer to the 'Metrics and Targets' chapter).

Moving into 2021 and aligned to our net zero commitment, we took the decision to actively work to reduce and avoid emissions generated from our operational activities.

DWS has conducted a rigorous review of its operational emissions against a 2019 baseline and we are formulating a methodology to substantiate our operational emissions by 2030 that is consistent with established scientific methodologies.

Leveraging the assessment of our 2019 baseline, the main categories of our operational emissions are detailed below[21].

Figure 2. Operational emission categories



Our corporate real estate consists primarily of offices leased from Deutsche Bank Group (DB Group), with DWS only holding head leases with third party landlords for a small number of buildings. We expect this to change over the coming years as leases come up for renewal, but at present, DWS has limited operational control of its corporate real estate, with the management of all locations currently outsourced to DB Group. While this remains the case, associated DWS emission targets for energy consumption and renewable electricity are aligned to those of DB Group.

Our internal guiding principle is to avoid all non-essential, business travel. The COVID-19 pandemic has altered the way we work as a firm, and with our clients and other external stakeholders. During the pandemic travel to meet external parties was replaced by technology. We expect a significant portion of the reduction in our emissions from travel during 2020 and 2021 to be sustained into the future, as videoconferencing will likely remain a widely accepted alternative. We continue to review all travel related policies across DWS and recognise there are clear decarbonisation opportunities from reducing employee travel, including the burden that commuting places on travel infrastructure. Linked to this, DWS offers in certain locations a "bike2work" scheme and fuel-efficient vehicles, e-cars, and hybrid cars as part of the corporate fleet scheme.

(21) Individual buckets show operational emissions categories but are not indicative of emissions distribution.

We already require third party suppliers competing for high-value contracts to be rated using sustainability rating agencies and we are looking to embed climate considerations within all third-party procurement. Our future-state model aims to feature ESG control standards as part of the risk assessment process as we consider how we can take responsible procurement decisions that properly account for the emissions impact of the associated services.

At the same time, we seek to embed climate-related awareness into our corporate DNA by integrating relevant ESG KPIs into all our people management practices, including training, performance, and compensation. Linked to this, we intend to begin an internal assessment in the first quarter of 2022 of corporate initiatives and incentives that we may offer to employees to help them to reduce their carbon footprint in the wider community.

Bringing portfolio emissions down to net zero by 2050 or sooner

Interim net zero target for 2030

In compliance with our obligations as a founding signatory of NZAM, we disclosed our interim net zero target framework for 2030 ahead of the COP26 on 1 November 2021:

- We put 35.4 % (or EUR 281.3 billion) of our total global AuM (as of 31 December 2020) in scope to be managed towards net zero[22] by 2030.
- On these overall in-scope assets, we seek to achieve a 50% reduction in **W**eighted **A**verage inflation-adjusted financial **C**arbon **I**ntensity (WACI adj.) related to Scope 1 + 2 emissions[23] by 2030, compared to base year 2019.

In this first step, DWS puts assets in scope for which credible decarbonisation methods and data exist. It is our priority to work closely with clients, fund boards and legal entities on our decarbonisation goals and to put more assets in scope overtime, step-by-step and in line with further regulation and evolving methodologies.

The SBTi provides the reference for DWS on our path to net zero. We use the SBTi framework which is considered a credible and robust foundation providing clear guidance on expected assets in scope and target ambition levels. In addition, we aim to work with new - and will continue to work with existing - standards, specifically with the Paris Aligned Investment Initiative (PAII) and the Net Zero Asset Owner Alliance (NZAO).

Assets in scope to be managed towards net zero

The initial asset scope to be managed towards net zero was defined based on SBTi guidance, including the required activities / asset classes, as well as many of those guidelines which are still 'optional' under SBTi guidance. This includes certain financial instruments (equities, corporate bonds, Liquid Real Assets (LRA) and many direct real estate and infrastructure investments) primarily in mutual funds, but also in selected individually managed institutional accounts. As new methodologies and emission data become available, additional financial instruments may be included and we aim to further increase the initial asset scope of 35.4% over time.

Two categories of our assets are currently out of scope but soon in focus within our efforts to extend the initial asset scope in the future:

- Mandates from institutional clients[24], who have not yet themselves committed to net zero. We are continuing our client outreach efforts to encourage clients to commit to net zero.
- Asset classes managed in DWS legal entities in geographic locations that have known regulatory or legal requirements regarding any change to investment processes, including approval from independent fund boards. We aim to work towards receiving this approval. These are in geographies where emissions accounting and decarbonisation methodologies do exist in principle. We note that regulatory clarification of fiduciary duty, ESG and net zero will help secure this approval.

It is important to note that approximately 40% of our total global AuM (as of 31 December 2020) is invested in asset classes where no agreed net zero or emissions accounting methodology exists, including cash, derivatives, sovereign and government bonds, supranational bonds, municipal bonds, agency bonds, asset-backed securities (ABS), mortgage-backed securities (MBS), covered bonds and commercial paper/bonds with a maturity of less than one year. We aim to continue to work actively with SBTi, NZAM and other standards and organisations to develop measurement methods for these asset classes.

(22) Subject to the consent of clients, legal entities, and fund boards.
(23) Standard for measuring GHG emissions: scope 1 includes all direct emissions from the company's own operations; scope 2 includes all indirect emissions associated with purchased energy.
(24) Across those asset classes where emissions accounting and decarbonisation methodologies do exist in principle.

Net zero target metric

We have chosen WACI adj. as metric for our headline 2030 NZAM target to enable aggregation across sectors and asset classes so progress towards decarbonising our overall portfolio of in-scope assets can be tracked.

Weighted Average Carbon Intensity (WACI) is an intensity metric. It seeks to measure the rate of emissions of the assets we invest in, relative to the revenues they generate, rather than depending on their absolute size or our total AuM. We recognise certain limitations in a WACI metric. For instance, inflation and exchange rate changes may impact the denominator (revenues of the companies and assets we invest in) and could therefore result in a misleading improvement in the target indicator that does not correspond to any reductions in carbon emissions. To mitigate this, we have chosen to set our target based on WACI adj.[25].

We set our headline target based on scope 1 and 2 emissions, given that data quality and measurement definitions of scope 3 emissions remain a work in progress, including the risk of double counting. However, we recognise the importance of scope 3 emissions, particularly in many high-emission sectors. We, therefore, aim to track and disclose scope 3 emissions of our net zero asset scope separately and we aim to set targets for scope 3 emissions on a more granular basis following SBTi methodologies.

Net zero in reporting requirements

DWS plans to regularly report on its progress to net zero through annual PRI and CDP disclosures and our annual Climate Report.

Measures to deliver our net zero target by 2030

Having set our net zero targets in the fourth quarter of 2021, DWS is now moving into the implementation phase. The guiding principle of our actions towards portfolio net zero is to help transition the real economy and contribute to real-world reductions in carbon emissions. Divestment remains the measure of last resort in cases where other options, particularly engagement with investee companies, have not succeeded in delivering real-world emission reductions. While we see divestment as a last resort, it is required as an escalation mechanism and needs to be a credible and clearly defined option in order to make all other levers, such as engagement, effective.

As we enter into a cross-divisional implementation phase, DWS will aim to:

I. **Work with institutional clients towards developing their net zero and portfolio targets**
   The engagement with our clients on net zero is very important and should gain even more traction in the future. One example of how we are embedding net zero in our client interaction, is our ESG Corporate Day which was held in November 2021 for institutional corporate clients in Germany. The event was hosted in a hybrid format, with approximately 60 company representatives participating. The day opened with a keynote address on “the road to net zero” and included a panel discussion on how to implement sustainability reporting.
II. **Engage with investee companies and index providers on their net zero target setting**
   In support of our net zero ambition, we sent a letter to more than 220 companies across Asia and EMEA domiciled funds. These companies were selected out of our Active and Passive investments, based on (i) the absolute level of Scope 1 and 2 emissions; (ii) climate transition risk ratings; and (iii) Climate Action 100+ Net Zero Benchmark constituents. In our Net Zero engagement letter we set-out our expectations, informed the companies of our voting strategy and requested clarity on individual company net zero plans. We identified a clear follow-up plan to ensure all questions raised received appropriate consideration by investees in alignment with our Engagement Policy and our Corporate Governance and Proxy Voting Policy. We prepared a detailed net zero engagement questionnaire to track company responses and conducted dedicated follow-up engagements.
III. **Align assets-in-scope target to portfolio-based actions**
IV. **Drive the development of innovative products and services in support of net zero ambitions**

(25) Based on proposals by the Dutch central bank *De Nederlandsche Bank (DNB)*; source: https://www.dnb.nl/media/3n1mbtnj/os-misleading-footprints.pdf.

Risk Management

We recognize that sustainability risks, including climate risks are inherent to the overall business activity of DWS Group and are considered integral to our strategy.

Scenario analyses help us understand the relationship between risk and return.

Climate Transition Risk Rating (CTRR) and a rating assessing Norm Controversies were selected to assess the sustainability risk profile of a fund.

01 Status

Climate-related risks at DWS are separated into two groups: “outside-in” or “inside-out”.

02 Progress

Introduction of corporate and asset class scenario analyses to stress test and understand the impact of climate change on our business activities.

03 Outlook

Long-Term Capital Market Assumptions white paper soon to be published (“DWS Long View”).

TCFD Recommendations

a) Describe the organization’s processes for identifying and assessing climate-related risks.
b) Describe the organization’s processes for managing climate-related risks.
c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization’s overall risk management.

Risk Management

What we mean by sustainability risk

Sustainability risk, including climate-related risk, is defined as the potential negative impact to the value of an investment from sustainability factors. Sustainability factors include environmental, social and governance events or conditions that could either be of an "outside-in" nature, such as physical climate risk or transition risk issues, but can also be in direct relation to the impact or "inside-out" effects caused by DWS or any investment, such as environmental impacts from the company's activity.

Though this is a DWS specific definition, it aligns with our understanding of regulatory expectations. The Group-wide Sustainability Risk Management Policy describes how sustainability risks, including climate risks, are integrated into our Risk Management Framework.

Climate-related factors may be separated into the following two groups:

Figure 3. "Outside-in"

Impact of climate on DWS or any investee company

- Physical climate factors include extreme weather events such as heat waves, floods an forest fires as well as long-term climate change leading for example to rising sea levels or unstable weather conditions.
- Climate transition factors include policy measures, technological changes and changes in customer preferences associated with the transition to a low-carbon economy.

Figure 4. "Inside-out"

Impact of DWS or any investee company on climate

- Environmental factors include various matters, including but not limited to greenhouse gas emissions, impacts on biodiversity, unsustainable use of water and maritime resources, failure in avoiding waste or unsustainable land use.

We recognise that sustainability risks, including climate risks are inherent to the overall business activity of DWS Group and are considered integral to our strategy. To better understand how climate risks may be impacting the Risk Management Framework, we need to assess the impact on the different risk dimensions to be considered:

- **Financial risk** on the corporate level: credit, non-trading market, liquidity and strategic.
- **Non-financial risk** on the corporate level: operational and reputational.
- **Investment risk** at the portfolio level: market, liquidity, counterparty, alongside any specific portfolio risks for our clients.

From our point of view, climate risk and the underlying climate factors cannot simply be considered to be a new and independent additional risk type; rather climate factors are considered risk factors within existing risk types:

Non-Trading Market Risks: Shares in real estate investment funds that are part of our co-investment portfolio may be exposed to physical climate change or climate transition risks.

Strategic Risk: Following the regulatory changes related to the EU Action Plan, the product suite offered by DWS may potentially no longer meet client expectations regarding to a diverse and appropriate offering of sustainable investment products. The resulting redemptions as well as missing subscriptions, linked to this situation expose DWS to a strategic sustainability risk.

Operational and Reputational Risk: The ESG classification of products created by DWS may be challenged with respect to the quality of sustainability factors considered (also called "greenwashing"). Besides potential regulatory fines and litigation linked to such incident, ESG aware investors could withdraw their money from ESG labelled products or even other DWS products.

Investment risk: Companies contained within the portfolio of a DWS fund operate their business in a non-sustainable way or might be exposed to significant climate change factors. An abrupt change in the market view or the materialisation of climate change events might lead to a devaluation of these shares that eventually leads to losses for fund investors.

Why we consider climate as a priority within sustainability risk

In recent years we have been monitoring the increased regulatory and market focus on the integration of sustainability risk in risk management frameworks. The Federal Financial Supervisory Authority (BaFin – Bundesanstalt für Finanzdienstleistungsaufsicht) Guidance Notice on Dealing with Sustainability Risks published in December 2019 explains supervisory expectations for the integration of sustainability risk in the identification, assessment, monitoring, and management of all (material) risks. In response to this guidance, we continued the sustainability risk integration process in 2021 and considered additional requirements, such as Level I of the SFDR coming into force and publications addressing the integration of sustainability risk in the risk management policies for Undertakings for UCITS and Alternative Investment Funds (AIFs). Under SFDR sustainability risks need to be integrated into the investment decision-making process for investment products to which SFDR applies. We outline more of our position on SFDR in the section 'How we incorporate climate change within our investment process'.

With the increased attention from policy makers, our customers, and the wider industry and combining this effect with the internal impact assessments performed on various risks types made, DWS considered that climate risk management has to be a cornerstone of ESG integration within DWS.

How we are integrating sustainability (including climate-related) risks into our corporate risk management

Several corporate financial and non-financial risk types are impacted by sustainability factors as noted above. Based on the impact assessment and ESG integration program defined in 2020, the following activities took place in 2021:

- **Risk Management Framework:** Following the implementation of the Sustainability Risk Management Policy, sustainability risks were integrated into the risk management framework. This included the integration into the risk inventory analysis as well as our risk appetite definition and monitoring process, within which quantitative indicators have been tracked.
- **Strategic Risk:** We implemented a corporate ESG scenario analysis that aimed to quantify strategic risk and opportunities related to environmental, social and governance matters impacting our business model. The analysis identified and assessed key outside-in as well as inside-out factors that may have an impact on revenue generation. This is further described in the section 'Corporate Scenario Analysis'.
- **Non-Financial Risk:** The introduction of sustainability factors was integrated in the 2021 Risk and Control Assessment.

How we are integrating sustainability (including climate-related) risks into our investment risk management

Climate risk and sustainability factors may have impacts on the portfolio risk profiles, across all asset classes. The number of sustainability factors potentially impacting the valuation of assets contained in a managed portfolio requires comprehensive measurement and management of sustainability risk, as well as a diverse set of risk indicators and measures.

For this purpose, the CTRR as well as a rating assessing Norm Controversies were selected to assess the sustainability risk profile of a fund. In 2021 we implemented a portfolio sustainability risk governance process for European domiciled funds pursuing actively managed equity and fixed income strategies. This process includes a portfolio risk appetite setting as well as the measurement, monitoring and reporting of such indicators. In addition, selected ESG ratings were considered within existing counterparty risk processes and concentration risk processes.

As part of the sustainability risk integration into illiquid alternative asset classes we developed an assessment process for physical climate risk and climate transition risks at the portfolio level in our real estate funds. For more information on the CTRR, please refer to the section 'How we incorporate climate change in our investment processes'.

Our approach to measuring climate-related risks

Climate change is undoubtedly changing the relationship between risk and return. However, projecting the parameters we need to meaningfully calculate adaptation to, and mitigation of, climate change impacts remain challenging.
We differentiate between corporate and portfolio scenario analysis:
– **Corporate scenario analysis:** where we seek to quantify the risks and opportunities for DWS;
– **Portfolio scenario analysis:** where we assess the potential impact on expected returns and risks of the investments which we make on behalf of our clients.

Corporate scenario analysis

As a corporate, we need to consider the implications of physical and transition risks facing our business. In 2021 we devised three climate scenarios.

1 – Decisive action scenario	2 – Significant action scenario	3 – Insufficient action scenario
Global policy making is decisive and coordinated, reaching net zero GHG emissions by 2050.	Global policy making is coordinated but lacks momentum, resulting in a slower pace of net zero emissions reduction than in scenario 1.	Global policy making is uncoordinated and results in insufficient GHG emissions reduction to halt global temperature rise.

These scenarios would have implications for our Group, particularly in the following areas:
– **Legal and Regulatory Environment:** Legal and regulatory frameworks will be more or less demanding for asset managers in terms of product requirements, transparency, reporting, and engagement, causing changes for the investment industry or clients such as pension funds, banks, public institutions, or private customers.
– **Client Demand:** Client preferences would vary considerably, for example concerning investment products and their sustainability characteristics, or importance of asset managers' ESG credentials.
– **Capital Market Valuation and Sector Decarbonisation:** The degree of climate change and transition of GHG emissions within carbon intensive sectors will likely have implications for capital market valuations and investment strategies. For example, asset allocation or the identification of replacements for divested entities to meet investment criteria of ESG products may differ under the scenarios.
– **Operations and Infrastructure:** Exposure to physical climate risks and their impacts on staff and infrastructure would be markedly different under the scenarios, pertaining to rising sea levels, storms, floods, wildfires or heat waves.

Climate-related regulatory change is already underway in certain key markets where we operate and has the potential to re-shape the competitive landscape depending on how market participants react to the changing circumstances. Similarly, we see client demand already shifting from traditional to sustainable investment strategies or products. The implications on client demand and the legal and regulatory environment described above have the potential to create material and lasting impact on DWS' financial development. We expect the share of different ESG product categories in the market to change materially, depending on the corresponding scenario.

In the "Decisive" and "Significant" Action Scenarios we anticipate rising market share for sustainable investment products in the coming years, driven by increased client demand and changing regulatory policies. In an "Insufficient" Action Scenario there will likely be significant divergence across countries and markets, as clients and regulators may pursue paths consistent with scenarios 2 and 3 in some markets, while in others there would be limited or no action.

A key indicator for assessing our financial success is Net New Assets (NNAs). To simulate the impact on our NNAs depending on the outlined climate transition scenarios, the following key factors were considered:
– **Product Categorisation:** A framework categorising investment products by varying degree of ESG product characteristics (referred to below as "ESG Product Categories").

- **Market Share Projections:** The shares and growth rates of "ESG Product Categories" in the asset management sector in Europe.
- **Client Attraction to "ESG Product Categories":** Market NNA flow projections between traditional and different ESG Product Categories.
- **DWS Product Conversion:** Development and conversion plan for European domiciled mutual funds and ETFs into specific ESG Product Categories.
- **Quality of the DWS ESG Product Offering:** Differentiation of the quality of our ESG product suite factoring in potential positive or negative effects compared to the market average.

The above factors were modelled over a multi-year horizon linked to the described scenarios using a combination of external reference data as well as expert estimates. The outcome of the scenario analysis supported the following key insights:

Different scenarios combined with DWS actions provide risks as well as opportunities: Depending on the scenario, providing the right mix of products and services to the market can have a significant positive financial impact on DWS. Meeting market demand and providing sustainable investment products at the right point in time may generate temporary competitive advantages over the next years. DWS inaction or delayed action related to product conversion within scenarios 1 and 2 may result in foregone revenues.

DWS' Sustainability strategy needs to evolve in line with the regulatory and market environment: Continued changes in the regulatory environment and industry development requires DWS to review and adjust its product and service offering frequently over the coming years.

Long-term success factors: Expertise, brand and credibility will be key to leverage opportunities and mitigate transition risks. The market for different ESG Product Categories is likely to become deeper and more sophisticated, particularly in scenarios 1 and 2. While offering the right mix of products and services is important, DWS needs to be able to provide the right level of ESG expertise, brand and credibility to differentiate from competitors to attract sustainable investment inflows in the mid- to long-term.

Portfolio scenario analysis

We need to identify and understand, measure, monitor, report and respond to the climate-related risks and opportunities facing our investments.

We approach portfolio climate scenario analysis from the point of view of strategic asset allocations (SAA), which are driven by asset class (segment and region) return expectations in conjunction with client risk profiles. Key building blocks of SAAs are estimates of the long-term returns and risks of individual asset classes.

Through our Long-Term Capital Market Assumptions (LTCMA) Framework, we have been estimating the 10-year return potential for over 600 indices across major asset classes - equities, fixed income, liquid and illiquid alternatives - on a quarterly basis since 2019. This directly feeds into the SAAs, and therefore investment decisions, by our Multi-Asset division and informs many of our institutional clients in the construction of their own SAAs. In 2021 we began considering how to integrate and reflect climate scenarios in our LTCMA Framework.

Many approaches have been proposed over the last few years on how to incorporate climate risk into portfolio analysis. Academic research suggests financial markets do not yet have the necessary tools to translate climate risk into portfolio risk at the company level. This is because of the effectiveness of climate risk disclosure mandates as well as the differences in time frame between climate risk and many investors' horizons[26]. We are avoiding the significant number of bottom-up approaches that also fail to consider changes taking places within an asset class , e.g. stocks are not a perpetuity, only benchmarks are, and that investors will adjust their investment universe.

We have drawn upon the BoE's 2021 CBES, which seeks to assess financial risks from climate change. Accordingly, we use the three scenarios provided by CBES, which themselves are based on a subset of the Network for Greening the Financial System (NGFS) climate scenarios:

(26) See Paul Griffin & Amy Myers Jaffe, "Challenges for a climate risk disclosure mandate", Nature Energy 2021.

1 – Early action (EA) scenario	2 – Late action (LA) scenario	3 – No additional action (NAA) scenario
The global economy decarbonises relatively steadily from 2021 onwards, reaching net zero GHG emissions by 2050 and keeping global warming to within 1.8°C over this timeframe. Both the rises in carbon taxes and the tightening in regulations proceed gradually, resulting in a limited impact on overall economic growth, especially after an initial adjustment period. This broadly corresponds to the NGFS's "Net Zero 2050" scenario, belonging to the group of "orderly transition scenarios".	Far less progress towards net zero GHG emissions is made by the end of the current decade. From 2031 regulation becomes stricter, and this adjustment is more sudden than in scenario 1. This still results in net zero GHG emissions by 2050 and global warming of no more than 1.8°C over this timeframe. Sharper economic adjustments are required for this, resulting in recessions, rising unemployment, more significant and sudden sectoral adjustments of the economy including a higher proportion of stranded assets, and more volatility in financial markets. This broadly corresponds to the NGFS's "Delayed Transition" scenario, belonging to the group of "disorderly transition scenarios".	No new climate policies are implemented in addition to those already under the current Nationally Determined Contributions (NDCs). Pledged policies are disregarded in this scenario if they are not already implemented at this point. Global warming reaches as much as 3.3°C by 2050, resulting in very large physical risks and societal impacts from climate change, including significantly rising sea levels and increasingly extreme weather events. The impact across the world is more uneven than in scenarios 1 and 2 and the effects of climate change worsen over the scenario period, become partly irreversible and continue to pose significant dangers of even more adverse outcomes beyond 2050. This broadly corresponds to the NGFS's "Current Policies" scenario, belonging to the group of "hot house world scenarios".

For these scenarios, the key transmission channels impacting investment portfolios are:

Physical risks: are especially significant in scenarios of increasing global warming. Scenario 3 (No Additional Action) is dominated by physical climate risk; but even in scenario 2 (Late Action), physical risks are heightened compared to scenario 1 (Early Action). Physical risks may affect investments through their direct impact on selected assets, e.g., through extreme weather events disrupting the livelihoods of large populations, necessitating investments to safeguard their well-being; and possibly shifting their consumption patterns and their labour productivity, or through physical damage to company production sites.

Transition risks: stem from the impact of regulation and market pressure on macroeconomic structures and individual business models. They are more pronounced in scenarios where more decisive action is taken to mitigate climate change. These are the main transmission channels for scenarios 1 and 2 (Early Action and Late Action), but they are more sudden, more concentrated, and have a more uneven impact in scenario 2 where policies mitigating climate change step up later and over shorter transition periods, resulting in greater economic dislocations.

The impact of these scenarios on expected returns and risks of major asset classes is broad-based, but uneven - especially geographically - and likely to be non-linear over time, especially in the LA and NAA scenarios. Reading across the results of these three scenarios, it is clear that failure to take appropriate action to mitigate climate change will have significant economic and financial cost. Expected long-term financial returns across asset classes are more adversely impacted in scenario 3 than in scenarios 1 and 2, avoiding the required investments now and in the decades to come will reduce investment returns for long-term investors. Moreover, scenario 1 does result in slightly reduced investment returns in the near term until 2030, but a pathway such as scenario 2 only delays the required adjustments and raises financial risks to markets if action to mitigate climate change is required in a more compressed time frame.

For DWS it is important to appreciate the emphasis on data quality not being at the maturity levels asset managers and therefore our customers require. In the absence of this, our portfolio scenario analysis approach is a top-down approach to global and regional asset classes that does not translate directly to bottom-up analysis of industries or even individual securities. Our LTCMA Framework aims to provide a 10-year view. While some elements of this can be easily extended to longer horizons such as 30 years, the uncertainties in the use of the model rise in this situation. This is due to some assumptions, for example inflation or dividend pay-out ratios across regional equity markets, becoming harder to extrapolate over such horizons.

Metrics and Targets

Measuring our progress by using KPIs that are directly or indirectly linked to climate-related risks and opportunities, helps us to make informed decisions.

In 2021 we improved our CDP rating to a B.

SBTi as well as TPI alignment in our portfolios increased.

01 Status

For Sustainability KPIs, we continued to track the same metrics that we reported in the Climate Report 2020.

02 Progress

We have seen good progress across all our Sustainability KPIs as well as in the development of how our portfolios are aligned to SBTi and TPI.

03 Outlook

We clearly define our progressed ambitions for 2022.

TCFD Recommendations

a) Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.
b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 GHG emissions, and the related risks.
c) Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.

Metrics and targets

Measuring our progress by using KPIs that are directly or indirectly linked to climate-related risks and opportunities, helps us make informed decisions and assesses if we are on track towards our ambitions. In 2021 we have continued to track the same set of Sustainability KPIs that we had already reported on in the Climate Report 2020.

Table 2. Climate-related metrics

Metrics	2020 Result	2021 Result	Change	KPI ambition from 2022
Financials (in €)[27]				
ESG Assets under Management (ESG AuM)	n/a	115.2 bn	n/a	Continue to grow our ESG AuM through a combination of flows into existing products, flows into new products and enabling the transfer of existing client assets from non-ESG products into ESG products
ESG Net Flows[28]	n/a	18.9 bn	n/a	Grow ESG net flows at the same, or at a faster rate, than our overall flow target of >4% of AuM[29]
Engagement (in numbers)				
Corporate engagements	454	581	+28%	Participate in 475 or more corporate engagements per annum by 2024
Voting (in numbers)				
Proxy voting	1,859	2,426	+31%	Increase the number of companies whose shareholder meetings we vote at, for portfolios domiciled in Europe and Asia by >5%
Own Operations[30]				
Global emissions – scope 1, 2 and 3 (in CO_2 tons)[31]	6,572	4,329	-34%	See individual details of operational emissions ambitions per category below
Energy (in % reduction)	-15%	-17%	-2 ppts	Reduce total energy consumption by 20% by 2025 compared to 2019
Electricity from renewable sources (in % reduction)	77%	91%	+14 ppts	Source 100% renewable electricity by 2025, with an interim target of 85% by 2022
Travel (in % reduction)	-79%	-88%	-9 ppts	Reduce Travel Emissions by 25% by 2022 compared to 2019
Ratings (in score)				
Sustainability Rating	C	B		Improve on or maintain our 2021 CDP B rating by 2024

(27) A comparison of the ESG AuM and ESG net flow figures for 2020 and 2021 is not feasible, as the framework for determining the figures has been refined in light of regulatory developments.
(28) Calculation of the ESG net flows is based on the ESG Framework with ESG net flows being included only at the point from which products are classified as ESG under this framework. Any products that are declassified as ESG under this framework will no longer be included from that point in time.
(29) % of Beginning of period ESG AuM on average in the medium-term.
(30) DWS Group energy consumption, electricity from renewable sources and rail emissions are determined on a pro-rata average number of effective staff employed (full-time equivalent) basis from Deutsche Bank Group data. Prior year emissions and energy consumption results have been restated due to updated methodology and historic data.
(31) Base year 2019 absolute emissions 14,335 CO2 tons.

Background information on KPIs

ESG AuM and ESG Net Flows: As of 31 December 2021 we had € 115.2 billion in ESG AuM. We achieved strong ESG net flows of € 18.9 billion in 2021, representing 40% of our total annual net flows.

Corporate Engagement: There were 581 ESG-related engagements with 472 companies which represents a 29% increase versus the previous year. One of our priorities in 2021 was to progress on our net zero commitment made in 2020. In support of our ambition, we sent a letter to more than 220 companies across Asia and EMEA domiciled funds resulting in more than 80 engagements with organisations on this topic.

Proxy Voting: In 2021 for assets domiciled in specific European and Asia-Pacific (APAC) legal entities, DWS voted at 2,426 companies in 63 markets of listing, which represented an increase of 31% compared to last year. The holdings are voted on based on DWS' Proxy Voting Core List, which includes our most relevant holdings screened on assets and relevant ESG ratings.

Operational Emissions: COVID-19 continued to have an impact on our operational emissions, most notably with our staff still working from home and travelling less. Consequently, our emission levels in all categories were below baseline year levels. We remain on track for our ambitions set in 2020. Our travel emissions have been significantly reduced due to COVID-19 and as a result we show a Travel KPI result for 2021 that is materially lower than the 2022 ambition we set for ourselves before the pandemic.

CDP: We are continuously striving to improve our climate-related disclosures. We submitted a response to CDP and received an improved B rating versus a C rating in 2020.

TCFD aligned metrics

In October 2021 TCFD published new guidance on Metrics, Targets and Transition Plans[32]. A DWS expert gave input to the development of this guidance by participating in a consultation webinar with the Institutional Investors Group on Climate Change (IIGCC).

The TCFD recommends that financial institutions make disclosures using some or all of the following metrics, noting that there is no single 'perfect' metric:

- The proportion of investments with declared net zero targets, which the TCFD guidance states could incentivize target setting but does not provide temperature alignment assessment.
- Forward looking performance against normative benchmarks. However, the TCFD guidance states that poorly constructed methods could lead to additional unintended consequences.
- Implied Temperature Rise models to translate portfolios into a temperature score, which the TCFD guidance states is a complex metric and opaque regarding the influence of key assumptions.

We note that there is no market agreement on the 'right' forward looking climate benchmarks. In addition, major asset owners through the TPI[33] stated that using implied temperature rise metrics could make it increasingly difficult to hold a portfolio of carbon intensive companies even if those companies had been responsive to investor engagement and had made credible and independently verified net zero aligned targets.

For these reasons, and as in the 2020 Climate Report, we disclose our portfolio coverage of companies with SBTs and evaluation of our portfolio against the TPI's forward looking carbon performance benchmark.

Portfolio coverage of companies with Science-Based Targets (SBTs)[34]

DWS' liquid asset portfolio coverage of companies with SBTs[35] was assessed across equities and corporate bonds in in Active, Passive and LRA, which together are 56% of DWS' total AuM as of end of 2021. Data on status of companies' SBT has been added to the ESG Engine. As of 31 December 2021, 41% of these assets representing 1,510 companies, had committed to set or had a validated SBT. In 2020 only 25% of our portfolio had committed to set or had a validated SBT.

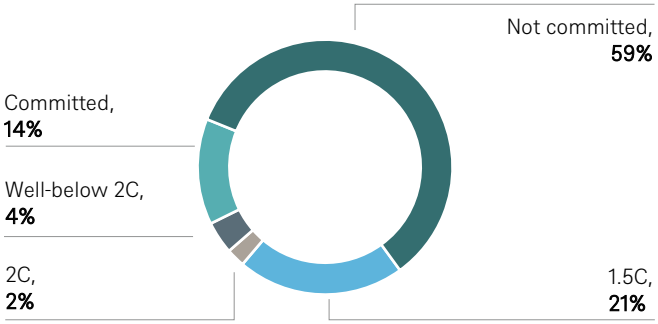
Our investee engagement efforts, described earlier in 'Our actions towards becoming a net zero asset manager', encourage more companies to set SBTs.

The SBTi portfolio coverage analysis is different from our interim net zero target framework, which includes equities, corporate bonds, LRA. This may also include many direct real estate and infrastructure investments, primarily in mutual funds, but also in selected individually managed institutional

(32) TCFD 2021 https://assets.bbhub.io/company/sites/60/2021/07/2021-Metrics_Targets_Guidance-1.pdf
(33) TPI 2021 https://www.transitionpathwayinitiative.org/publications/86.pdf
(34) We acknowledge the fact that in 2022 SBTi will have a change in methodology which includes that SBTi might no longer accept committments or validate targets from fossil fuel companies.
(35) SBTi 2021 https://sciencebasedtargets.org/companies-taking-action.

accounts. The net zero target framework excludes DWS legal entities in geographic locations, that have known regulatory requirements regarding any change to investment processes, including approval from independent fund boards. The SBTi portfolio coverage includes assets held in all equities, corporate bonds, and LRA held in all mutual funds and mandates globally.

Figure 5. Proportion of DWS' liquid asset class committed to set an SBT



Source: DWS AuM as of 31 December 2021, analysed using SBTI 2021

Forward looking benchmark: TPI's Sectoral Decarbonisation Benchmarks

For TCFD's recommendation to disclose performance against a forward-looking benchmark, we use the asset owner led TPI [36]. DWS is a supporter of TPI, and the initiative's data has been added to the ESG Engine. While commitment to TPI is an important step for a company, evaluation is also needed on whether a company is making progress on their target. TPI's carbon performance metric focus on whether companies planned or expected future capital expenditures and operational plans compares to international targets. The evaluation uses International Energy Agency (IEA) modelling to translate international emissions targets into sectoral benchmarks, against which the performance of individual companies can be compared. This methodology is known as the Sectoral Decarbonization Approach (SDA benchmarks). We acknowledge that there are some technical differences between TPI's and SBTi's SDA benchmarks, but TPI states that both models have their merits in terms of broadly assessing the progress of companies' net zero strategy implementation.

TPI analysis currently focuses on the largest companies in the most carbon intensive sectors, with data existing on 492 companies as of end of 2021. TPI is working to expand the number of companies and sectors in scope. As well, TPI is working to develop 1.5°C aligned sectoral benchmarks for more sectors. We disclose the proportion of our holdings:

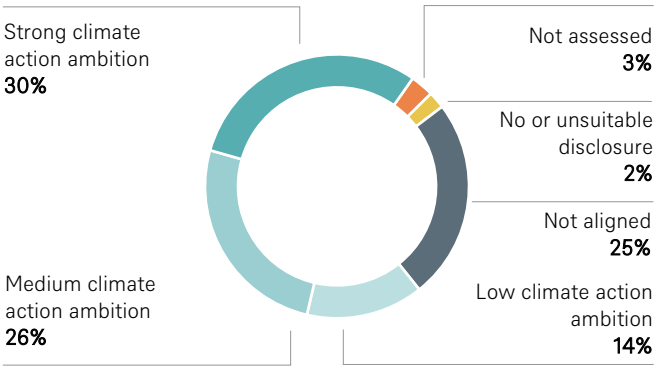
- That are aligned with a low, medium or high climate ambition scenario[37].
- Are not aligned.
- Where companies were not assessed or had unsuitable disclosures to allow a comparison.

Due to some sectors now having 1.5°C aligned benchmarks, the TPI disclosure in DWS' 2020 Climate Report is not directly comparable.

TPI assessed companies in DWS' equities and corporate bonds in Active, Passive and LRA representing just under USD53 bn AuM or 6% of our total AuM. As TPI's analysis of companies and sectors expands, this will cover more of our portfolio over time. Within these holdings, 30% of the investments are in companies with an emissions trajectory that has a strong climate ambition, followed by 25% of assets in companies with unsuitable disclosures.

Our investee engagement efforts, described earlier in the chapter 'Our actions towards becoming a net zero asset manager', encourage companies to strengthen their disclosures and to align their business models and capital expenditure plans with SBTs.

Figure 6. Climate ambitions of carbon intensive DWS holdings



Source: DWS AuM as of 31 December 2021, analysed using TPI 2021

(36) TPI 2021 https://www.transitionpathwayinitiative.org

(37) According to TPI, low climate ambition includes 'national pledges' (for electricity, oil and gas, diversified mining), 'international pledges' (for aviation and shipping) and 'Paris pledges' (for paper, aluminium, steel, cement, automotive manufacturing). Medium climate ambition includes below 2C (for electricity, oil and gas, diversified mining), 2C (for paper, aluminium, steel, cement, shipping), and the 2C 'shift-improve' benchmark for automotive manufacturing and aviation. High climate ambition includes 1.5C (for electricity, oil and gas, diversified mining), Below 2C (for paper, aluminium, steel, cement, shipping) and the 2C 'high efficiency; benchmark for automotive manufacturing and aviation.

Glossary

Term	Meaning
AATIF	Africa Agriculture Trade and Investment Fund
ABS	Asset-backed securities (securitised fixed income)
AGM	Annual General Meeting
AIFMD	Alternative Investment Fund Managers Directive
AktG	German Stock Corporation Act (Aktiengesetz)
APAC	Asia Pacific
AuM	Assets under Management
BaFin	The Federal Financial Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht)
BaFin Guidance Notice on Dealing with Sustainability Risks	This Guidance Notice aims to provide entities supervised by the BaFin with guidance on dealing with the increasingly important issue of sustainability risks. It considers risk identification, management and control processes together with traditional methods and procedures, with specific reference to sustainability risks. It can be found here.
BBP	Better Buildings Partnership
Bn	Billion
BoE	Bank of England
BVI	German Investment Fund Association (Bundesverband Investment und Asset Management e.V.)
CBES	Climate Biennial Exploratory Scenario
CCD	Client Coverage Division
CCRI	Coalition for Climate Resilient Investments
CDP	Carbon Disclosure Project
CEEF	Clean Energy and Environmental Fund
CEO	Chief Executive Officer
CERES	Coalition for Environmentally Responsible Economies
CFO	Chief Financial Officer
CIO	Chief Investment Officer
Climate Action 100+	Investor-led initiative to ensure the world's largest corporate greenhouse gas emitters take necessary action on climate change.
Climate neutral	The concept of climate neutrality refers to a state where human activities result in no net effect on the climate system. To achieve such a state, relevant bio-geophysical changes due to human activities (e.g., changes to the earth's surface reflectivity or a regional water system) would need to be avoided and net zero emissions would need to be achieved. For reference see page 48 of the following paper, https://sciencebasedtargets.org/resources/files/foundations-for-net zero-full-paper.pdf
CO_2	Carbon Dioxide
COO	Chief Operating Officer
COP 26	26th UN Climate Change Conference 2021
CPI	Climate Policy Initiatives
CREF	China Renewable Energy Fund
CRI	Committee for Responsible Investments
CSRD	Corporate Sustainability Reporting Directive
CTRR	Climate and Transition Risk Rating. Our ESG Engine enables a tailored ESG advisory offering to our institutional clients. A key component is the in-house Climate and Transition Risk Rating (CTRR).
DB	Deutsche Bank Group
DNA	Desoxyribo Nucleic Acid - carrier of the genetic information of humans and almost all other organisms
DNB	De Nederlandsche Bank

Term	Meaning
DWS	DWS means DWS KGaA or DWS Group as applicable. DWS Group comprises DWS Group GmbH & Co. KGaA (DWS KGaA) and its subsidiaries according to section 15 et. seq. German Stock Corporation Act (AktG).
DWS Group	DWS Group GmbH & Co. KGaA and its subsidiaries
DWS KGaA	DWS Group GmbH & Co. KGaA
EA	Early Action
E.g.	for example,
EAB	ESG Advisory Board
EC	European Commission, the Executive branch of the European Union
EEEF	European Energy Efficiency Fund
EEFIG	EU Energy Efficiency Financial Institutions Group
EFAMA	European Fund and Asset Management Association
EMEA	Europe, Middle East, and Africa
ESG	Environment, Social and Governance
ESG Engine	The DWS ESG Engine is a proprietary software system that combines the different perspectives and approaches of five leading external data providers; it has become the centrepiece of our commitment to integrating ESG topics into our investment processes in all asset classes across our Active investment Division.
ESMS	Environmental and Social Management System
ETF	Exchange Traded Fund
EU	European Union
EU Taxonomy	The EU taxonomy is a classification system, establishing a list of environmentally sustainable economic activities The Taxonomy Regulation was published on 22 June 2020 establishing the basis for the EU taxonomy by setting out 4 overarching conditions that an economic activity has to meet in order to qualify as environmentally sustainable. Further information can be found on the European Commission website
EUR	Euro
FTE	Full-time equivalent
GHG	Greenhouse Gas
GmbH	Gesellschaft mit beschränkter Haftung, Corporate structure
GRESB	Global Real Estate Sustainability Benchmark
Group	DWS Group GmbH & Co. KGaA and its subsidiaries
GSC	Group Sustainability Council
GSO	Group Sustainability Office
IAA	Investment Adviser Association
IC	Investment Committee
ID	Investment Division
IEA	International Energy Agency
IIGCC	Institutional Investor Group on Climate Change
ISS	Institutional Shareholder Services
KGaA	Kommanditgesellschaft auf Aktien, Corporate structure
KPI	Key Performance Indicator
LA	Late Action
LRA	Liquid Real Assets
LTCMA	Long-Term Capital Market Assumptions
M	Million
MBS	Mortgage-Backed Securities
MiFID II	Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU. MiFID II aims to standardize regulation across EU financial markets, ensuring appropriate levels of investor protection, and supervisory powers
MSCI	Morgan Stanley Capital International

Term	Meaning
NAA	No Additional Action
NDCs	Nationally Determined Contributions
NGFS	Network for Greening the Financial System
NNA	Net New Assets
Net zero	Net zero is when GHGs have been reduced to a minimum and remaining emissions are removed from the atmosphere. To achieve this, companies must reduce and neutralize their upstream, operational and downstream emissions. For reference see page 48 of the following paper: https://sciencebasedtargets.org/resources/files/foundations-for-net zero-full-paper.pdf
NZAM	Net Zero Asset Managers
NZAOA	Net Zero Asset Owner Alliance
OECD	Organisation for Economic Co-operation and Development
Operational Emission	Operational emissions encompass all activities related to the use of our buildings and emissions caused by business activities of our employees.
Outside in	The “outside in” perspective covers financial risks driven by climate change that have a material financial impact on companies and their product portfolios.
PAI	Principal Adverse Impact As part of SFDR legislation, disclosures on PAI are mandated. These are Principal Adverse Impact indicators. In accordance with the regulation, all financial market participants must disclose 14 mandatory indicators and two additional metrics (i.e., from the environmental and social tables) for public equity (PE) investments at an entity level.
PAII	Paris Aligned Investment Initiative
PD	Product Division
PRI	Principles for Responsible Investment (Rating)
SAA	Strategic Asset Allocation
SASB	Sustainability Accounting Standards Board
S&P	Standard & Poor's
SBT	Science Based Targets
SBTi	Science Based Targets initiative
SI	Sustainable Investments
UN SDG	UN Sustainable Development Goals (overview of SDGs: https://sustainabledevelopment.un.org/sdgs)
SEC	Securities and Exchange Commission
SFDR	Sustainable Finance Disclosure Regulation
Smart Integration	DWS introduced Smart Integration in 2020, a process of enhanced due diligence for managing sustainability risks. New investments in “F-rated issuers” (High Norm Violators and CTRR) are only eligible for the mutual funds adopting the Smart Integration approach if the CRI waives the investment (“ban”). The CRI can decide to uphold that “ban”, to waive the restriction (“clear”) or can even decide that existing positions need to be reduced or sold (as a last resort).
SRI	Sustainable and Responsible Investments
TCFD	Task Force on Climate-related Financial Disclosures
Temperature score	Temperature scores are intuitive and enable investors and portfolio managers to easily understand the scale of the challenge that corporates face on the path to net zero.
TPI	Transition Pathway Initiative
UCITS	Undertakings for Collective Investments in Transferable Securities
UN	United Nations
US	United States
USD	United States Dollar
WACI	Weighted Average Carbon Intensity
WACI adj.	Weighted Average inflation-adjusted Carbon Intensity
We	We refers to DWS in the context of this publication

Important information

Cautionary statement regarding forward-looking statements

This report contains forward-looking statements. Forward-looking statements are statements that are not historical facts; they include statements about our beliefs and expectations and the assumptions underlying them. These statements are based on plans, estimates and projections as they are currently available to the management of DWS Group GmbH & Co. KGaA. Forward-looking statements therefore speak only as of the date they are made, and we undertake no obligation to update publicly any of them in light of new information or future events.

By their very nature, forward-looking statements involve risks and uncertainties. A number of important factors could therefore cause actual results to differ materially from those contained in any forward-looking statement. Such factors include the conditions in the financial markets in Germany, in Europe, in the United States and elsewhere from which we derive a substantial portion of our revenues and in which we hold a substantial portion of our assets, the development of asset prices and market volatility, the implementation of our strategic initiatives, the reliability of our risk management policies, procedures and methods, and other risks.

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