SUSTAINABLE INVESTMENT REPORT

In line with article 173 from the French Energy Transition for Green Growth Law

With you from A to Z
WE AIM TO SECURE A SUSTAINABLE FUTURE

Dear reader,

The year 2018 brought many important events highlighting efforts to ensure sustainable development, among which, we especially paid attention to two milestones. The first is the publication of the latest report (SR15) from the IPCC (the Intergovernmental Panel on Climate Change) which emphasized the importance of taking urgent climate action collectively to limit global warming to 1.5°C. The second is the set-up of a Technical Expert Group on sustainable finance by the European Commission, whose objectives include, among others, the definition of a green taxonomy and green bond standards.

It is within the above context that we renew our commitment as an investor to sustainable investment. Considering currently insufficient data to perform a scenario analysis for 1.5°C, Allianz joined a group of over 50 organizations signing a letter to the IEA (International Energy Agency) asking for the World Energy Outlook to include the full range of ambitions of the Paris Agreement as its central reference scenario. For the portfolios of Allianz France, we continue to take into account both ESG and climate factors across asset classes and along the investment lifecycle, and to evaluate the impacts for our self-defined green assets. We conduct also for the first time an environmental footprint study to look at environmental issues in a comprehensive manner.

Sustainability is part of our DNA, we aim to secure a sustainable future for our clients and for the society as a whole. You will find more information regarding our governance, strategy, risk management and metrics/targets in this Sustainable Investment Report 2018.

Enjoy your reading!

Greetings from Paris

Sincerely yours

Matthias SEEWALD
Allianz France Board Member
Chief Investment Officer
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At Allianz France, we are convinced that, in the end, portfolio resilience and sustainability overall are two sides of the same coin: it is both our fiduciary duty and corporate responsibility to integrate ESG (environmental, social and governance) criteria into our daily activities, as a long-term institutional investor.

We consider ESG criteria in three forms applicable to our entire investment portfolio; each form is integrated into and builds upon the previous one, there is a gradual shift from short-term towards long-term value creation along the three forms.

The first form is **responsible investment** by exclusion of businesses whose nature is incompatible with our investment convictions and are also considered by us as beyond the possibilities of engaging with to make positive differences. We generally do not invest in coal-based business models and controversial weapons.

The second form is **ESG-compliant investment** where ESG factors are actively addressed to lead to at least no harm regarding environmental and social aspects. We integrate ESG factors across asset classes: ESG scoring for listed assets, ESG referral process for non-listed assets. We consider ESG factors along the investment lifecycle: governance; asset manager selection, monitoring and review; voting and engagement.

The third form is **impact investing** where consideration of ESG criteria leads to measurable positive environmental and/or social impacts along with market-rate returns. We define environmental impact investing as green investment. By end of 2018, Allianz France’s green investments amount to €3.5bn.

Besides our ESG focus, Allianz France has also developed its own climate change strategy named carbon smart. It is a triple-loop around three pillars: **Identification**, **Assessment** and **Management**, each pillar is an input for the next, overall this serves as both a roadmap and a checklist for us to steer our portfolio to align with a 2°C scenario.

We **identify** climate-related risks as transition risk and physical risk; climate-related opportunities as core solutions or satellite solutions.

We **assess** carbon performance, portfolio resilience and alignment using both snapshot metrics and forward-looking metrics. Notably, by calculating Climate Value-at-Risk from a 2°C carbon pricing scenario, we perform climate stress test to better understand the financial implications of the gap between current carbon prices and future carbon price targets varying by sector and geography. Also, by using both the emission-based and technology-based analyses highlighted by the Science Based Targets Initiative (SBTi), we check our portfolio alignment with a 2°C scenario, which confirms the importance to set science-based targets for our multi-asset class portfolios at sector level to align with the Paris Agreement goal.

We **manage** our portfolio on the basis of two main levers: investment and engagement. We make use of issuer and sector level information delivered from our research to take informed decisions on a range of investment activities, such as the setting of portfolio decarbonisation targets, stock selection, or asset allocation decisions, to invest in climate mitigation as well as climate adaptation; we engage with different stakeholders such as asset managers, issuers, policy makers and NGOs to fully assume our role as both solution provider and solution facilitator.

In line with Allianz Group, we keep advancing on the topics of fighting climate change and supporting energy transition: by 2050, all our investment assets will be climate neutral.

We are Allianz, we help to secure a sustainable future.
**TCFD Dimension** | **Recommended disclosures** | **Correspondance**
---|---|---
**Governance** | 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 | Chapter 1.1

**Strategy** | 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 | Chapter 3.1, 3.3, 3.4

**Risk management** | 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 | Chapter 3.1, Chapter 2

**Metrics and targets** | 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 Scope1, Scope2, and, if appropriate, Scope3 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 | Chapter 3.2, 3.3, 3.4, Chapter 4
ESG (environment, social and governance), as a proxy of sustainability, used almost interchangeably with sustainability, is changing the rules of doing business. At Allianz France, we are convinced that, in the end, portfolio resilience and sustainability are two sides of the same coin. It is both our fiduciary duty and corporate responsibility to integrate ESG criteria across asset classes and along investment lifecycle, as a long-term institutional investor.
Over the years, we enhance our governance structure to address the transversal characteristic of ESG topics; we implement ESG-related changes at all steps in our investment value chain; we onboard different stakeholders to help sustainable investment become the standard; we deepen our ESG approach by focusing efforts on material ESG risks and opportunities. Theory guides the practice, and practice enriches the theory. With this principle in mind, we present you below our 4C framework on sustainable investment at Allianz France.

**Conviction – enhanced governance structure for ESG**

As asset-owner, when we review our investees’ ESG performance, we notice that without a satisfactory G (governance) profile, aspects E (environment) and/or S (social) hardly make progress. Over the past years, ESG has become an integral part of our investment processes, largely due to the fact that we make sure a governance structure supportive of ESG integration is in place and evolves in a timely manner.

**Group ESG Board**

Established in 2012, the Group ESG Board is the highest governing body for sustainability-related issues. It consists of three Allianz SE Board members and several department heads. They meet quarterly and are responsible for ensuring ESG integration across all business lines and operational entities (including Allianz in France) and core processes dealing with insurance and investment decisions. It also defines the ESG strategy and ambition of the Group.

The Group ESG Board also takes ownership of corporate responsibility and climate-related topics, and leads on associated stakeholder engagement. Functional departments provide regular updates on sustainability issues directly to the Group ESG Board.

**Group ESG Office**

The Group ESG Board is supported by the Group ESG Office, which is part of the corporate responsibility function at Allianz SE. The role of the Group ESG Office is to:

- support the development and implementation of the ESG strategy according to the decisions of the ESG Board
- engage in dialogues with civil society stakeholders, industry bodies and interest groups

**AIM ESG community**

The Allianz Investment Management (AIM) ESG Community is a project-based community of Allianz in which relevant ESG contacts at multiple levels of participation inside/outside AIM interact regularly. The role of the AIM ESG community is to:

- exchange on investment-specific needs and best practices among operating entities regarding sustainability
- enhance ESG approaches by combining expertise of investment teams and that of the ESG office
- coordinate between the different operating entities in developing ESG related investment projects

**Allianz France ESG, Innovation & Governance**

Adapting to an increasingly dynamic ESG momentum on the French market, Allianz France set up its ESG, Innovation & Governance department on December 1st 2018.

The department consists of the ESG team previously within the Chief Investment Officer’s office, the Compliance team and an Innovation team focusing on investment solutions to put technology at the service of people and planet. The role of this new department is to:

- lead ESG & innovation projects at Allianz France as well as contribute to the AIM ESG community
- screen and analyze investment portfolios from the ESG and innovation perspectives and improve reporting
- ensure compliance with laws, regulations and internal policies
- liaise with any internal/external stakeholders on ESG topics
As ESG-considerations are taken into account to create resilient portfolios, changes are implemented at all steps in our investment value chain.

From a top-down perspective, we have started to analyze how ESG-climate risks may alter the strategic asset allocation, in other words, we search for an improved understanding on the sensitivity of different asset classes towards climate risks in different scenarios. We analyze what are the new ESG-climate opportunity asset classes, and how green assets could contribute to overall portfolio performance.

From a bottom-up perspective, we apply active ESG investment strategies to optimize the risk exposure for our existing assets, including, among others, ESG criteria incorporation in asset manager selection, mandate and review. We work with research organizations and also develop in-house both qualitative and quantitative metrics - to track, report and verify portfolio level ESG performance, as well as positive impacts generated by green assets. We influence issuer's ESG performance by voting and corporate engagement with focus on ESG-climate risks.

**Communication – the way of mainstreaming ESG**

The world-known French philosopher, anthropologist and sociologist, Bruno Latour, pointed out that, “facts remain robust only when they are supported by a common culture, by institutions that can be trusted, by a more or less decent public life, by more or less reliable media.”

To put his observation into the context of mainstreaming sustainable investment, an investor, besides being a solution provider, needs to be a solution facilitator. This can only be achieved by onboarding different stakeholders in order to strengthen the supportive eco-system for ESG integration, from sovereigns, supranationals & agencies, industrial companies, research organizations to NGOs, media, consumers/clients, and last but not least, our employees.

This is why we actively participate in ESG-relevant public policy development (e.g. feedback to the European Commission’s consultation on sustainable finance). We advocate better disclosure among investee companies (one important objective for our engagement taskforce). We discuss with asset managers on their ESG integration approach (e.g. ESG deep dive meeting with selected asset managers). We partner with think tanks on various research themes, we share knowledge with peers and NGOs (e.g. member of the ESG-climate committee at the French Insurance Federation). We exchange with the media on our latest ESG policies and accomplishments, we interact with clients to illustrate our ESG conviction and strategy, and we put forth efforts on internal capacity building (e.g. regular ESG newsletter and workshops).
Credibility – the right things in right ways

Along our journey of sustainable investment, we recognized two main principles of practice:

1) The reconciliation of “S” (social) and “E” (environment) is key for the future: investing for a fair transition to a low-carbon economy is the only viable path.

The need to reconcile “E” and “S” is playing out around the world, especially on one representative ESG issue: climate change. Take the example of France’s Yellow Vests movement. While the unrest initially began as a protest against the rise in fuel taxes, which the government quickly agreed to postpone, a concern brought forward by parts of the movement is social inequality. The demands of parts of the movement go well beyond the suspension of fuel taxes but actually call for more ambitious and fair climate action. The movement is a reminder to all stakeholders that in a context of worsening social disparities, climate action cannot advance without ensuring benefits for all.

For Allianz France, over recent years, investing for social purposes has been more with a qualitative focus rather than to create measureable impact. The reasons are two-fold: while more ESG data becomes available, there remains a lack of material, reliable and comparable data across industries, especially on social aspects. There is no common, proven, industry-wide standard to measure the true social impact of our investments, especially with regards to the UN SDGs (sustainable development goals).

To further make progress on sustainable investment despite the above barriers, Allianz France has drawn on different resources to deepen its expertise and launched its first impact investing fund in the French market.

2) Materiality oriented ESG-management: using a materiality oriented approach to make financial returns and sustainable outcomes mutually supportive.

The financial materiality of ESG issues varies by sector and by asset class. As such, using a materiality-oriented approach means:

Firstly, deep dive into industry specificities to understand the distinct risk factors / value drivers and focus management efforts on these issues which would enhance a company’s intrinsic value. This is the reason that we have a dedicated engagement task force led by Allianz Group.

Secondly, choose indicators, metrics and targets that also reflect the characteristics of different asset classes.

As universal asset owner, managing large & diversified holdings representative of global capital markets, the financial returns of our portfolios depend not only just on the performance of individual investments but also on the stability and health of the socio-economy, manifested by ESG indicators.

As sustainable investor, we believe that living with the constraints defined by ESG boundaries has made us more innovative than those who believe there are no such boundaries. Through the implementation of the 4C framework: conviction, change, communication, and credibility, we want to be both a solution provider and a solution facilitator for a sustainable tomorrow.
We consider ESG criteria in three approaches applicable to our entire investment portfolio. Each form is integrated into and builds upon the previous one, as shown below. There is a gradual shift from short-term towards long-term value creation along the three approaches.
Allianz has not financed coal-based business models since 2015; no new investments have been allowed, equity stakes have been divested and fixed income investments made before 2015 are in run-off.

In May 2018, we announced a further commitment to expand the scope of coal exclusions. The following exclusion criteria are now in place.

Excluded are companies involved, either directly or through entities they control, in coal-based business models, which are defined as follows (data source: International Energy Agency, 2 degrees investing initiative):

Energy generation from coal
- companies deriving 30% or more of their generated electricity from thermal coal, and/or
- planning more than 0.5 gigawatts (GW) of thermal coal capacity additions which are not in line with the 2°C threshold, and/or
- having to retire more than 50% of their generation capacities in the next ten years to be in line with the 2°C ceiling.

Coal mining
- companies deriving 30% or more of their revenues from mining thermal coal.

More importantly, the exclusion thresholds for the energy generation share from coal power plants and the revenue share from coal mining will be tightened over time. We will lower the thresholds from the 30% in place since 2015 to 0% by 2040 the latest.

As of December 31, 2022, we will reduce our thresholds to 25%.

The Allianz Exclusion lists are updated regularly based on data from external service providers and in-house research:

1) We generally do not invest in companies producing or associated with controversial weapons.
2) We generally do not invest in companies involved in coal-based business models, which went into a new phase in May 2018 (see details in Box 2 below).

Box 2 Renewed ambition for portfolio decarbonization
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(4) Weapons that fall under the scope of the following international conventions: Ottawa Convention (anti-personnel landmines); Convention on Cluster Munitions (cluster ammunition/-bombs); Biological and Toxin Weapons Convention (biological weapons); and Chemical Weapons Convention (chemical weapons).
3) Restriction of certain sovereign bonds: we also restrict investments in sovereign bonds from countries associated with severe human rights violations and significant issues managing ESG concerns.

4) Exclusion generated from the engagement workstream:\(^5\) as part of the ESG scoring and engagement processes, single issuers below the ESG threshold and where engagement has not been successful may be excluded if:

- answers to engagement questions are consistently insufficient, or
- the company shows no willingness to improve its ESG performance, or
- the company does not respond to any of Allianz’s engagement communications over the annual cycle.

**ESG compliant investment**

Negative screening is not the only solution. That’s why we take measures embedded in our daily investment activities to actively monitor ESG risks as well as enhance ESG performance. The second form is ESG-compliant investment where ESG factors are addressed across asset classes and along the investment lifecycle.

We integrate ESG factors across asset classes; see figure 3 for a simplified summary.

- **Listed assets - ESG scoring**

ESG scoring at Allianz France is an approach developed by the Allianz Group ESG Office and Allianz Investment Management Group (AIM SE). The methodology is used to systematically evaluate and manage material ESG risks for listed assets (fixed-income and equity).

- **ESG data processing**

The Allianz France ESG scoring is based on ESG ratings and scoring data provided by MSCI ESG Research. Issuers of listed asset classes (fixed income and equity) are assessed along 37 key ESG issues.

- **ESG threshold setting**

To identify companies with a low ESG performance, our ESG scoring uses an ESG threshold. The threshold is set in the following way: All corporate issuers in the MSCI ESG Rating universe are grouped by region (Europe, North America, Asia-Pacific and Emerging Markets). For sovereign issuers no regional categorization is done. The threshold is then set at the bottom 10 percent in ESG performance for each issuer group.

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\(^5\) For more details, please see the section engagement in chapter 2.2.
Action defined
We acknowledge that there is no perfect ESG scoring method, each has its advantages and disadvantages which is the reason why it is important to exchange with different stakeholders on data granularity and credibility, in order to have a more accurate picture of company level ESG performance.

Currently, below threshold issuers are the focus of our discussion with asset managers. Three types of action are generally defined for these issuers following the process:

- **Immediate divestment**
  Immediate divestment is conducted on a limited basis, as we decided to pursue real-world impact by having firstly presence and then influence.

- **Upward revision**
  Upward revision applies to cases where asset managers give sufficient proof to show that some issuer’s specific positive information is not fully/accurately reflected in the scoring tool used by Allianz France.

- **Engagement**
  Indeed, we always prefer to actively engage with companies. For details, see the section engagement on the following page.

**Non-listed assets - ESG referral process**

Screening and assessment

All potentially sensitive businesses are screened, on a transaction-by-transaction basis, either directly or indirectly by Allianz France. We apply Allianz Group Sensitive Business Guidelines to help detect ESG risks and to investigate whether these risks are sufficiently managed and addressed by potential investees.

If necessary, an ESG-critical transaction is referred to Group ESG office for a final ESG assessment.

**Action defined**

Based on the outcome of this assessment, we take the decision either to proceed with a transaction, to proceed and require the mitigation and management of ESG risks, or to decline a transaction on ESG grounds.

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Figure 3 Allianz France ESG integration across asset classes (source: AIM Paris)

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(6) “Sensitive” means within Allianz predefined perimeter (sensitive business areas and sensitive countries list), for more details, see https://www.allianz.com/content/dam/onemarketing/azcom/Allianz_com/sustainability/documents/Allianz_ESG_Integration_Framework.pdf

(7) “Indirectly” means that the ESG analyses are done by asset managers accredited by Allianz Group as having the screening credentials. Allianz France checks these analyses on a regular basis.

(8) For details, see https://www.allianz.com/content/dam/onemarketing/azcom/Allianz_com/sustainability/documents/Allianz_ESG_Integration_Framework.pdf
We integrate ESG factors along investment lifecycle.

• Asset manager selection, monitoring and review

Asset manager selection
Allianz cooperates with asset managers who consider ESG risks and opportunities as core in their investment activities, i.e. all our asset managers adhere to their own ESG policies which fulfill the ESG requirements of Allianz and/or are signatories of PRI (Principles for Responsible Investment).

Asset manager monitoring
For listed assets, we adopt MSCI WAKI (weighted average key issues) score as basis to monitor ESG tail risks. Asset managers have to document explanations for positions/purchases below thresholds and commit to quarterly delivery of explanations for positions & purchases below thresholds to Allianz.

Asset manager review
We hold bi-annual ESG Deep Dive meetings with some of our asset managers to review our stance on ESG topics. Besides following a “comply or explain” reasoning in the review of below thresholds issuers, the ESG Deep Dive meetings serve as an occasion to have a detailed reflection on the most problematic positions within the portfolios and also to review potential discrepancies among different ESG rating/scoring methodologies. Also, for all asset managers, we integrate ESG criteria in the steering KPIs along with financial indicators with a weighting of growing importance. The rationale of this scorecard is to convey the message to our asset managers that ESG is not seen by Allianz as an additional restriction but should be an integral part of the investment process.

• Voting activities – advancing active ownership

ESG criteria are well-integrated into Allianz France’s voting policy, serving as a guideline for our own voting practice and also reference for our asset managers’ proxy voting. The consistency of asset managers’ voting policy with that of Allianz France is guaranteed in the asset manager selection process, and we review the reporting on proxy voting activity performed on Allianz France dedicated funds on a regular basis.

• Engagement

In 2017, Allianz Group introduced a more systematic approach to engage with investee companies based on detailed analysis and the identification of companies falling below our ESG Scoring threshold. Through this process, a number of companies where there are material ESG risks and concerns - ranging from toxic emissions and waste
to child labor and negative impacts on communities - are identified. Allianz Group has entered into collaborative dialogues with these companies to communicate concerns, understand their position and, ultimately, drive positive change, from which Allianz France also benefits. We see this engagement as more impactful and mutually beneficial than automatically withdrawing our investments without first providing an opportunity for change. We are aware that meaningful change can take several years and, if we don’t see improvements over time, we will act accordingly. See below a very simplified illustration on Allianz engagement process step by step.

**Figure 4 Allianz engagement process (simplified) (source: AIM Paris)**

For engagement with sovereign issuers, the leverage of Allianz France is different than with corporate issuers. Nevertheless, Allianz France is seeking ways to engage such issuers by identifying collaborative engagement opportunities.
Client communication

We are aware of a supply-demand mechanism in the ESG field, meaning that on the one hand, we always try to exchange with clients, to understand their expectations for sustainability so as to enhance/adapt our product to their expectations and needs. On the other hand, we actively communicate our ESG approach and efforts to clients during client meetings and plan to add ESG elements in product introduction brochures, as a way to raise the awareness of clients and to stimulate demand for ESG related product.

Impact investing

The third form goes one step further: impact investing, where the consideration of ESG criteria leads to measurable positive environmental and/or social impacts along with market-rate returns. Traditionally, impact investing is predominantly found in illiquid asset classes. At Allianz France, we define impact investing as investment in any opportunities, regardless of liquid or illiquid assets, that seek social and/or environmental benefits along with market rate financial returns. As such, listed equities, and publicly-traded bonds, also form an integral part of impact investing, bringing scalability and simplicity of implementation.

Figure 5 Allianz France impact investing universe(9) (source: AIM Paris)

Under the aspect of environmental impact, which we also call green investment, our total volume invested as of the end of 2018, is EUR 3.5bn.

(9) Our definition of sustainable infrastructure includes both traditional types of infrastructure, such as energy infrastructure, public transport, buildings, water supply & sanitation and also natural infrastructure/capital, such as forest landscapes, wetlands and watershed protection.
ALLIANZ FRANCE GREEN INVESTMENT (TOTAL: €3.5BN)

€477mn renewable energy

€820mn green bond

€2.2bn certified green buildings

We are also advancing our social impact investing efforts: in April 2019, Allianz France, together with Citizen Capital, launched an impact investing fund to finance the early stages of the development of innovative start-ups whose offer responds to major social and environmental challenges.(10)

Using our three-form ESG approach, we mainstream ESG within Allianz France investment management: doing more ESG, doing better ESG. In other words, we deepen understanding of ESG and enhance ESG practices over time.

For more information, please see the press release https://www.allianz.fr/qui-est-allianz/espace-presse/2019/CP_Partenariat_AllianzFranceCitizenCapital/.

(10) For more information, please see the press release https://www.allianz.fr/qui-est-allianz/espace-presse/2019/CP_Partenariat_AllianzFranceCitizenCapital/.
As the prominent environmentalist David Brower put it, “We don’t inherit the earth from our ancestors, we borrow it from our children.” This is especially true within the context of climate change: the more CO2 we emit today, the worse climate impacts will be in the future.
Currently, the climate scenarios roughly fall into three categories:

- low carbon emissions targeting below 2°C
- nationally determined contributions (NDCs) pathway following the pledges under the Paris Agreement
- business-as-usual trajectories

Figure 7 Probability Distribution of Scenarios (source: CICERO)

As shown above, strengthening or weakening of climate policies over time will shift the distribution. We need more ambitious climate policies, not less - regulation is of paramount importance in tackling climate change.

(11) The International Energy Agency (IEA) WEO scenarios are commonly used to understand shifts in the energy system under various climate change targets. WEO 450 is close to a 2°C target, which is replaced by Sustainable Development Scenario (SDS) in the latest publication; WEO New Policies is close to 3°C; and WEO BAU is closer to 4-5°C. The IPCC Representative Concentration Pathways (RCPs) reflect economy-wide climate change: RCP 2.6 follows a path close to a 2°C pathway; a 3°C target falls somewhere between RCP4.5 and RCP 6.0; and RCP8.5 represents the high-end extreme of 4-5°C.
As an institutional investor, we will never replace the role of a regulator, instead, we help enable the climate policies to be more effective and efficient through investment, corporate engagement, investor disclosure and policy advocacy.

**Carbon smart in three steps**

We developed a climate change strategy named *carbon smart*. It is a triple-loop around three pillars: Identification, Assessment and Management, each pillar is an input for the next, overall this serves as both a roadmap and a checklist for us to address both climate risks and opportunities, evolving over time.

![Carbon smart framework](source: AIM Paris)

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**Figure 8 Allianz France carbon smart framework (source: AIM Paris)**

- **Step one: Identification**
  Climate change has two sides: it brings significant risks as well as opportunities. Risks relate to potential costs whereas opportunities are associated with potential benefits. We identify risk as well as opportunity factors.
  It is our conviction that while it will cost a lot of money for the society to respond successfully to climate change, it would be much more expensive not to respond. And the economic benefits of mitigating and adapting to climate change - in terms of damage foregone, extra growth achieved through new investment and infrastructure, prosperity boosted through innovative technology - far outweigh the costs.
  There are two types of climate-related risks:
  - **Transition risk**: risks that investors face as the world economy is changing towards a 2°C or even lower trajectory. These include aspects on policy and legal (e.g. tightening emissions standards, changing subsidies and taxes), market and economic (e.g. increasing cost of raw materials), technology (e.g. advances in energy storage or energy efficiency undermining existing business models), and reputational and social (e.g. shift in consumer preferences).
  - **Physical risk**: risks as a result of exposure to physical impacts directly induced by climate change. These consist of acute risks (e.g. increase severity of extreme weather events: cyclones, floods) and chronic risks (e.g. changes in precipitation patterns, rising sea levels).
  Different sectors have different roles to play in the low-carbon transition, depending on their business characteristics and emissions profiles. As energy production and use make up two-thirds of total GHG emissions globally, we conclude that the energy-related sector holds the key to low-carbon transition. Accordingly, we categorize two types of climate-related opportunities:
  - **Core**: low carbon solutions in the energy-related sector, such as onshore wind, solar PV, LED lights.
  - **Satellite**: low carbon solutions in non-energy-related sectors, such as enhanced waste treatment, sustainable forestation and agriculture.
Step two: Assessment

A useful assessment is both a science and an art: it is quantitative as well as qualitative. Leveraging on our in-house expertise and partnering with external research organizations, we seek to develop two main types of analysis on issuer and portfolio level:

- **Snapshot**: analysis on past and/or current situation, e.g. carbon footprinting, green/brown share.
- **Forward-looking**: scenario-based future estimates, e.g. climate stress test, 2°C alignment check.

Step three: Management

As an investor, investment and engagement are two main management options regarding climate action:

- **Investment**: we aim to invest in both climate change mitigation (emissions reduction) and adaptation (adapt to climate change impacts).
- **Engagement**: we take the broader sense of engagement, i.e. an effective and constructive communication with different stakeholders, including issuers, asset managers, civil society and policy makers.
Carbon footprinting

The total portfolio value covered in our 2018 carbon footprinting is EUR 61 bn\(^{(12)}\). As shown below, compared with the year 2017, the carbon performance of Allianz France aggregate portfolio in 2018 improved on both carbon intensity metrics\(^{(13)}\). We keep track of our portfolio level carbon performance and steer our investment towards carbon neutral.

<table>
<thead>
<tr>
<th>Monetary indicator</th>
<th>Carbon Emissions per EUR mn Invested (tCO2e/ EURm invested)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allianz France aggregate 2018</td>
<td>200</td>
</tr>
<tr>
<td>Allianz France aggregate 2017</td>
<td>312</td>
</tr>
<tr>
<td>Underlying portfolio</td>
<td></td>
</tr>
<tr>
<td>Equity</td>
<td>157</td>
</tr>
<tr>
<td>Comparison with benchmark</td>
<td>Lower than benchmark</td>
</tr>
<tr>
<td>Corporate fixed income</td>
<td>159</td>
</tr>
<tr>
<td>Comparison with benchmark</td>
<td>Lower than benchmark</td>
</tr>
<tr>
<td>Sovereign bonds</td>
<td>401</td>
</tr>
<tr>
<td>Comparison with benchmark</td>
<td>Lower than benchmark</td>
</tr>
<tr>
<td>Infrastructure &amp; renewables</td>
<td>140</td>
</tr>
</tbody>
</table>

Figure 12.1 Allianz France investment portfolio 2018 carbon footprint

Carbon Emissions per EUR mn Invested, is also called “financed emission”. This metric gives a portfolio’s normalized carbon footprint per million euro invested. It answers the question “how much carbon emissions emitted by companies, for every million euro we invest in?”. “Financed emissions” is relevant when we examine the real world impact through our investments.

\(^{(12)}\) The portfolio value of EUR 61bn includes the following asset classes: public equity, corporate fixed income, sovereign bond, infrastructure & renewables and real estate.

\(^{(13)}\) The perimeter of 2017 Allianz France aggregate includes real estate (as disclosed in our last report) whereas it is not the case for the year of 2018. We thus recalculated the 2017 data by excluding real estate, as shown in figure 12.
Monetary indicator | Weighted Average Carbon Intensity (tCO2e/ EURm sales)
--- | ---
Allianz France aggregate 2018 | 350
Allianz France aggregate 2017 | 382

Underlying portfolio

<table>
<thead>
<tr>
<th>Underlying portfolio</th>
<th>Carbon Intensity (tCO2e/ EURm sales)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equity</td>
<td>194</td>
</tr>
<tr>
<td>Corporate fixed income</td>
<td>229</td>
</tr>
<tr>
<td>Sovereign bonds</td>
<td>457</td>
</tr>
<tr>
<td>Infrastructure &amp; renewables</td>
<td>85</td>
</tr>
</tbody>
</table>

Comparison with benchmark

- Equity: Lower than benchmark
- Corporate fixed income: Lower than benchmark
- Sovereign bonds: Lower than benchmark
- Infrastructure & renewables: Lower than benchmark

**Figure 12.2 Allianz France investment portfolio 2018 carbon footprint**

**Weighted Average Carbon Intensity**, also called “carbon exposure”. This metric answers the question “what is the exposure of our portfolio to carbon intensive companies?”. It is the main metric recommended by the TCFD (Task Force on Climate-related Financial Disclosures). “Carbon exposure” provides asset owners with the insight on potential risks related to the transition to a lower-carbon economy (transition risk).

**Physical indicator** | **Carbon intensity (kg CO2e/ m²)**
--- | ---
Real Estate | 61

**Figure 12.3 Allianz France investment portfolio 2018 carbon footprint**

Real estate, encompassing direct investment, funds/joint ventures and mortgages, is reported separately this year. We use a physical indicator to better reflect the characteristic of real estate assets.

Carbon footprinting is the starting point of many more sophisticated analyses, but already by and in itself this is not a simple metric. We have to consider the following when we report the carbon footprinting statistics:

---

(14) Allianz France aggregate includes the following portfolios: public equity, corporate fixed income, sovereign bond and infrastructure & renewables. The benchmarks used for Equity, Corporate fixed income and Sovereign bonds are conventional benchmarks so that to compare portfolio carbon performance with “business-as-usual” situation. For all portfolios except sovereign bonds and real estate, underlying data are scope1+ first tier indirect emissions; for sovereign bonds, the corresponding scopes are domestic consumption, export and import emissions; for real estate, scope1+ scope2 emissions are included.
The choice of emissions scopes: scope 1 + first tier indirect

The GHG protocol (Greenhouse Gas Protocol) supplies the world’s most widely used greenhouse gas accounting standards. According to its definition, there are three emissions scopes:
- **Scope 1**: Direct emissions from sources that are owned or controlled by the reporting entity.
- **Scope 2**: Indirect emissions from consumption of purchased electricity, heat and steam.
- **Scope 3**: Other indirect emissions, that are a consequence of the activities of the reporting company, but occur at sources owned or controlled by another organizations, including both upstream and downstream of companies along the value chain (suppliers, distributors, product use, etc).

Measuring scope 3 emissions is a big undertaking, but it matters: according to the World Resources Institute, for many businesses, scope 3 emissions account for more than 70 percent of their carbon footprint.

In theory, as an investor, knowing portfolio/issuer level emissions of the full scope would be the best choice. However, considering current insufficient data disclosure from the companies as well as varied estimation techniques used on the market (hence inconsistency), we have chosen for our reporting the emissions under scope 1 + first tier indirect, where first tier indirect, including scope 2 and parts of scope 3, refers to emissions from direct suppliers (electricity, airlines, equipments, food, etc).

Precisely, there are three advantages by using first-tier indirect:
- it is the scope for which companies have most transparency in data disclosure.
- it captures the portion of scope 3 over which companies have an influence. Companies can reduce the footprint of their direct suppliers through their purchasing policy (supplier selection criteria).
- it is 100% in line with the Income Statement of the company: all expenses (related to the purchases) are taken into account.

**Figure 13** Emissions scopes (source: Trucost)
• How we deal with double counting?
We don’t correct double counting as a result of the value chain (e.g. the portfolio is invested in both the buyer and supplier company) because:
- in practice it is very hard to identify specific supplier-customer relationships for each company in a portfolio.
- we do double our risk if we invest in a company and its supplier at the same time, even if we double count and overestimate emissions at portfolio level.

Furthermore, we have two types of accompanying analyses.

<table>
<thead>
<tr>
<th>Sector allocation</th>
<th>Company selection</th>
<th>Total effect tCO2e/mEUR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carbon Emissions per EUR mn Invested</td>
<td>+13.74%</td>
<td>+29.31%</td>
</tr>
<tr>
<td>Weighted average carbon intensity</td>
<td>+14.17%</td>
<td>+18.30%</td>
</tr>
<tr>
<td>Corporate fixed income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carbon Emissions per EUR mn Invested</td>
<td>+17.21</td>
<td>+22.85%</td>
</tr>
<tr>
<td>Weighted average carbon intensity</td>
<td>+16.19%</td>
<td>+8.53%</td>
</tr>
</tbody>
</table>

Figure 14 Attribution analysis on portfolio carbon footprint\(^{(15)}\) (source : Trucost)

• Attribution analysis
The two principal reasons for which a portfolio carbon exposure differs from the benchmark, are sector allocation effect and company selection effect.

When a portfolio is overweight in carbon intensive sectors, it is likely to have higher carbon footprint than its benchmark. But, if the companies chosen within a carbon intensive sector are the most carbon efficient companies, it is possible that the portfolio has a lower carbon footprint than the benchmark.

The chart below shows that for the majority of our listed assets (Equity and Corporate fixed income portfolios), both the sector allocation and company selection effects are positive.

(15) The notation used in the attribution analysis defined as: “+” represents a positive contribution to portfolio carbon exposure (i.e. helping to lower portfolio carbon footprint) whereas “-” means a negative contribution (i.e. causing higher portfolio carbon footprint).

• Contribution analysis
Contribution analysis refers to the hypothetical percentage change in the portfolio’s carbon footprint when a specific issuer is taken out from the portfolio. It is a measurement of how much a specific issuer impacts the carbon performance of the portfolio.

The largest negative contributors under different portfolio carbon footprint metrics are not exactly the same, but they all come from three carbon intensive sectors: energy, utilities, and materials.

• Transition risk analysis

  • Climate stress test: climate VaR from 2°C carbon pricing

The context: carbon pricing
Carbon pricing mechanisms can take several forms, including emissions trading schemes, taxes on carbon or fuel, and the removal of fossil fuel subsides. There is a growing consensus that carbon pricing is a very effective mitigation instrument because it provides across-the-board incentives to reduce energy consumption and use cleaner fuels.
Allianz generally welcomes market-based instruments that support transparency on the costs of carbon emissions while internalizing these costs. It is imperative that such instruments lead to real impact in the economy in order to limit global warming to well below 2°C. Hence, we are supportive of carbon pricing in line with scientific evidence and economic policy.

The transition towards a low-carbon economy needs to be shaped in a fair manner. Therefore, social implications must be considered when implementing carbon pricing instruments.

According to the World Bank, as of today, 46 national and 28 subnational jurisdictions are pricing carbon. In 2019, these jurisdictions would cover 11 Gt CO2e, representing 19.6% of global GHG emissions.

**The stressor: carbon pricing in a 2°C scenario**

Increasing carbon pricing ambitions from policy makers puts the resilience of company into spotlight: what will be the changes of companies’ bottom lines against a “new normal” backdrop, where emitting carbon incurs increasing financial penalties? Does the company have sufficient profitability today to absorb the future costs?

There is a gap between current and potential future carbon prices, which is defined as the carbon price risk premium, also named as (unpriced) carbon cost, in this analysis. This risk premium varies by geography due to government policy differences, and by sector due to the different treatment of sectors in many climate change policies, reflecting the additional financial cost per ton of emissions from likely increased carbon pricing regulations under a 2°C transition imperative. Climate VaR (value-at-risk) on company level is calculated by comparing carbon price risk premium with company’s profitability indicators, such as EBITDA.

<table>
<thead>
<tr>
<th>2025</th>
<th>2030</th>
<th>2050</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unpriced carbon cost (EUR mn)</td>
<td>% of the portfolio with EBITDA at risk &gt; 10%</td>
</tr>
<tr>
<td>Equity</td>
<td>3.6</td>
<td>8.53%</td>
</tr>
<tr>
<td>Equity benchmark</td>
<td>7.0</td>
<td>10.24%</td>
</tr>
<tr>
<td>Corporate fixed income</td>
<td>136.9</td>
<td>9.85%</td>
</tr>
<tr>
<td>Corporate fixed income benchmark</td>
<td>212.1</td>
<td>13.37%</td>
</tr>
</tbody>
</table>

**Figure 15 Allianz France climate VaR from 2°C carbon pricing**<sup>(16)</sup> (source: Trucost)

The figures show that, as expected, in a 2°C scenario, both unpriced carbon cost and its impact on EBITDA are increasing, as time goes by.

**Accompanying analysis**

- **Geographical breakdown of unpriced carbon cost**

Company-level exposure to carbon pricing is contingent on where emissions are released. Therefore, if the portfolio is tilted towards companies whose operations are located in countries with a higher carbon price risk premium in a 2°C scenario, it will result in higher overall financial risks.

The top geographical exposure for our equity portfolio is United States while that of our corporate fixed income portfolio is Germany.

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<sup>(16)</sup> The notation used in the attribution analysis defined as: “+” represents a positive contribution to portfolio carbon exposure (i.e. helping to lower portfolio carbon footprint) whereas “-” means a negative contribution (i.e. causing higher portfolio carbon footprint).
- Sectoral breakdown of unpriced carbon cost

Low margin companies may need to reassess their business models in light of future carbon cost increases. The market conditions of the sector play a significant role. If the portfolio is tilted towards companies operating in sectors with a higher carbon price risk premium in a 2°C scenario, it will result in higher overall financial risks.

Many carbon pricing mechanisms start with or focus on carbon-intensive sectors. It is not a surprise that across our equity and corporate fixed income portfolios, the most exposed sectors are energy, utilities, and materials.

• Portfolio alignment analysis

Metric imperative

If we want to steer our portfolio to be in line with a low carbon scenario, we first need to know which temperature trajectory are our investment portfolios currently on. In other words, portfolio alignment analysis is the starting point of decarbonizing our portfolio to below 2°C.

Two types of methods: emission-based versus technology-based

There is no universally-agreed method yet on the market to analyze the alignment level of portfolios with low carbon scenarios. As such, we have chosen two different types of methods to better illustrate the overall picture.

1) Emissions-based alignment assessment

For equity and corporate fixed income, SDA and GEVA are used, both of which are highlighted by the Science Based Targets Initiative (SBTI)(17):

SDA (sectoral decarbonization approach) is applied to companies in homogenous sectors, where a physical indicator (e.g., metric tons of product) can represent the sectoral activity. The analytical steps can be summarized as:

a) What will be: calculate CO2 emissions and CO2 emissions intensity using company target and asset-level data.

b) What should be: consider IEA sector trajectory as well as company specifics (initial performance, market share) to determine the proportionate target for this company (that's also the company-specific carbon budget)

c) What is the gap: compare the two sets of data to find whether the company is above/below the carbon budget and assess the underlying temperature range trajectory.

GEVA (greenhouse gas emissions per unit of value added) is applied to companies in heterogeneous sectors, where outputs are so varied that no single physical indicator can represent the complete sectoral activity. The analytical steps are very similar to that of SDA, the major differences are, GEVA compares an individual company’s transition pathway (emissions per unit of inflation-adjusted gross profit, also called “value added”) with an economy-wide (non-sector specific) 2°C scenario, which is expressed as emissions per unit of GDP. For example, for an economy that needs to reduce its GHG emissions per unit of GDP by 5% per year, this translates into a corporate duty to reduce GHG emissions per unit of value added by 5% per year.

For sovereign bonds, we build upon the country rating by Climate Action Tracker, which rates NDCs (National determined contributions), 2020 pledges, long-term targets and current policies against whether they are consistent with a country’s fair share to the Paris Agreement goal (holding warming well below 2°C, and pursue efforts to limit warming to 1.5°C above preindustrial levels).

Below an excerpt of the results is shown:

<table>
<thead>
<tr>
<th>Portfolio alignment</th>
<th>Equity</th>
<th>Corporate fixed income</th>
<th>Sovereign bond</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sub sector</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power generation (SDA)</td>
<td>&gt; 3°C</td>
<td>&gt; 3°C</td>
<td>2-3°C</td>
</tr>
<tr>
<td>Cement (SDA)</td>
<td>&lt; 1.75°C</td>
<td>&lt; 1.75°C</td>
<td></td>
</tr>
<tr>
<td>Steel (SDA)</td>
<td>2.7°C</td>
<td>&gt; 2.7°C</td>
<td></td>
</tr>
<tr>
<td>Financials (GEVA)</td>
<td>3.4°C</td>
<td>&lt; 2°C</td>
<td></td>
</tr>
<tr>
<td>Health care (GEVA)</td>
<td>3.4°C</td>
<td>2-3°C</td>
<td></td>
</tr>
</tbody>
</table>

Figure 16 Allianz France emission-based portfolio alignment assessment(18) (source: Trucost for corporate portfolios, Climate Action Tracker & Allianz France internal research for sovereign bonds)

(17) Science Based Targets is a joint initiative by CDP, the UN Global Compact, the World Resources Institute (WRI) and WWF that aims to raise corporate ambition and help businesses pursue bolder solutions to climate change.
2) Technology-based alignment assessment

We refer to PACTA (Paris Agreement Capital Transition Assessment) as the technology-based approach, which is also advocated by SBTi for financial institutions\(^{(19)}\). The analysis compares company’s physical activity (using asset level data and investment plans over the next 5 years) with the technology mix required in climate scenarios\(^{(20)}\). The physical activity indicators used are, for example, installed power capacity by energy types (coal, gas and renewable) in the electricity generation sector; number of vehicles by engine types (electric, hybrid and internal combustion engine) in the automotive sector; barrels produced by fuel types (oil, gas and coal) in the fossil fuel production sector.

Below you find an excerpt of results:

![Graph showing technology-based alignment assessment](source: 2 degrees investing initiative)

The forecasted evolutions of renewable electricity generation and that of electric car production from equity portfolio companies are better than those of companies constituting the benchmark, but they do not appear in line with 2°C trajectories.

**The conclusion**

Both the emission-based and the technology-based alignment assessments show that our investment portfolio is not in line with a 2°C scenario, due to misalignment in several sectors. This highlights the importance to set science-based targets for our multi-asset class portfolios at sector level to align with the Paris Agreement goal. Currently, Allianz France is working on its portfolio decarbonization target-setting under the SBTI project of Allianz Group\(^{(21)}\).

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\(^{(18)}\) Scenarios used in SDA and GEVA assessments are: IEA scenarios from ETP (Energy Technology Perspectives) 2017. These provide SDA assessment parameters consistent with 1.75°C, 2°C, and 2.7°C of warming. RCP (Representative Concentration Pathway) scenarios are used in the AR5 report from the IPCC. These provide GEVA assessment parameters consistent with 2°C, 3°C, 4°C and 5°C of warming.

\(^{(19)}\) SBTi for financial institutions is a workstream within SBTi to define methodologies for financial institutions to set Paris aligned target for the portfolios.

\(^{(20)}\) B2DS (Beyond 2°C Scenario), SDS (Sustainable Development Scenario), NPS (New Policies Scenario), CPS (Current Policies Scenario) refer to 1.5°C, 1.75°C, 3°C, >4°C scenario, respectively.

\(^{(21)}\) Allianz Group joined the Science Based Target Initiative (SBTi) in May 2018. From then on, Allianz has been working actively with the host/partner organizations of SBTi to contribute to the development of target-setting methods for financial institutions. The workstream of SBTi for financial institutions is currently an ongoing process.
Physical risk analysis

Physical climate impacts are already present today, such as intensifying water stress, extreme precipitation and hurricanes. These constitute important risks for companies, not only regarding their physical facilities, but also their production processes, markets and supply chains are at risk. As investor, we need to understand the physical risks that climate change poses to our portfolios.

- Corporate issuers

Risk dimensions

To have a full picture of physical risk, we consider three relevant dimensions.

1) Market risk

It represents the physical risks tied to the demand side of the economic activity. Market risk includes two components: country of sales and weather sensitivity.

2) Supply chain risk

It represents the physical risks tied to the supply side of economic activity. Supply chain risk includes two components: country of origin and resource demand.

3) Operations risk

It represents asset exposure to climate hazards, including heat stress, water stress, extreme rainfall, sea level rise, and hurricanes & typhoons. Besides a main focus on climate hazards, the operations risk score also takes into account the socioeconomic risk, which is a measure of the broader operating environment at the country level, i.e. a country’s ability to withstand, prevent, or otherwise recover from climate impacts based on its political, environmental, social, and economic stability.

On a company level, the three above-mentioned dimensions (ten indicators) are evaluated and scored from 0 to 100, where 0 indicates the lowest risk and 100 is the highest. Then the overall company physical risk score is obtained by adding the three dimensional scores together, with the weightings of 15% for market risk, 15% for supply chain risk and 70% for operations risk.
Physical risk matrix

To build the sector allocation process for our corporate fixed income and equity portfolios regarding physical risks, a 2*2 matrix is designed using portfolio sector weight and the portfolio sector physical risk score (i.e. average score of issuers in the sector).

Figure 20 Allianz France 2*2 physical risk matrix for corporate issuers (source: Four Twenty Seven, Allianz France internal research, CICERO)

(22) This figure shows the breakdown of sub-sector in Allianz France corporate bond portfolio scored for three dimensions of physical risk: the x-axis shows the sub-sector’s market and supply chain risk and the y-axis shows the sub-sector’s operations risk. The color of each point represents the sub-sector score and the size of each point represents the sub-sector’s weight in the portfolio.
This physical risk matrix applies only to the scope of Allianz France corporate investees. The three defined action items are: immediate attention required, attention required over the next few years, caution over the long term.

It is not difficult to notice that a sector’s physical risk level is not always positively linked to its level of transition risk, i.e. being a carbon intensive sector doesn’t necessarily mean it also has higher physical risk.

• Sovereign issuers

For sovereign issuers, we develop a resilience thermometer based on the Global Climate Risk Index 2019 from Germanwatch. The Global Climate Risk Index (CRI) 2019 analyzes to what extent countries and regions have been affected by impacts of weather-related loss events (storms, floods, heat waves etc.). The most recent data available, i.e. for 2017, were taken into account.

We assign the CRI country score to our sovereign bonds portfolio’s risk countries, and then aggregate by the corresponding portfolio weightings to obtain the overall portfolio CRI score, which is a proxy of portfolio resilience. The highest CRI score, in the database of Germanwatch covering 181 countries, represents the lowest physical risk impacts, and is considered as the best scenario / the highest resilience level.

As shown here, the resilience thermometer illustrates the gap between our sovereign bonds portfolio’s resilience level and that of the highest level (indicated as 100%).

Figure 21 Allianz France sovereign bonds’ resilience thermometer
(source: Germanwatch, Allianz France internal research)

(23) For details, see https://www.germanwatch.org/fr/16046.
(24) Risk country, or country of risk, refers to the geographical area where the activities underlying the financial instruments actually happen. The country of risk is sometimes not the same as the country of issuer.
• Real asset: real estate

For real estate, 6 hazards are considered: changes in annual average air temperature, sea level rise, heat waves, droughts, storms bringing flooding and wind. At asset level, for each climate hazard, a risk score is calculated with a scale between 0 and 100 (the higher the score, the higher the risk). Then the overall risk score for a real estate asset is defined as the highest risk score of the 6 different hazards ($RGLO = RMAX$)\(^{(25)}\)

The scope of this assessment includes 145 directly owned real estate assets (EUR 5bn), with the majority in metropolitan France and the rest elsewhere in Germany and Luxembourg. As shown below, the majority of high-risk assets (i.e. asset with a physical risk score higher than 66) are buildings located in major metropolitan areas or on the coast.

\(\text{Figure 22 Geographical location of high-risk real estate assets (source: EcoAct)}\)

\(^{(25)}\) Taking the highest risk hazard rather than a consolidated total was preferred as this is more comparable with other studies which will have included a different number of hazards. Indeed, the more comprehensive the consideration of the hazards, the more the total sum will be influenced by uncertainties that are not very significant, hence the interest of choosing the maximum.
Box 3 One step further: from carbon footprint to environmental footprint

All ecosystems are interdependent. Climate change is but a single axis in the multidimensional space that is environmental sustainability. Climate solutions that threaten other aspects of the environment are not the options which make sense, we need to look at environmental issues in a comprehensive manner.

That is the reason why we apply an environmental footprint analysis to quantify in monetary terms the environmental harm caused by companies in our portfolios. Six environmental aspects are included: GHG (greenhouse gas) emissions, water abstraction, waste generation, land & water pollution, air pollution and the use of natural resources.

The non-carbon components are defined as:

- water abstraction: direct cooling and direct process water, as well as purchased water (i.e. the water acquired from utility companies).
- waste generation: waste incineration, landfill waste, nuclear waste (e.g. from the manufacture of products, the combustion of nuclear fuel or other industrial and medical processes) and recycled waste.
- land & water pollution: pollutants from fertilizer and pesticides, metal emissions to land and water, acid emissions to water, and nutrient as well as acid pollutants.
- air Pollution: all emissions released into the air by the consumption of fossil fuels and production processes which are owned or controlled by the company.
- natural resource use: extraction of minerals, metals, natural gas, oil, coal, forestry, agriculture and aggregates.

<table>
<thead>
<tr>
<th>Portfolio</th>
<th>Apportioned environmental costs (EUR mn)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equity</td>
<td>24</td>
</tr>
<tr>
<td>Equity benchmark</td>
<td>31</td>
</tr>
<tr>
<td>Corporate fixed income</td>
<td>528</td>
</tr>
<tr>
<td>Corporate fixed income benchmark</td>
<td>838</td>
</tr>
</tbody>
</table>

Figure 23 Allianz France environmental footprint (source: Trucost)

The scope used in the above table combines direct costs and indirect costs, where:

- direct costs result from a company's own operations and include emissions from fuel combustion (boilers and company owned vehicles), pollution from water abstracted, natural resource use, and waste generated from industrial production.
- indirect costs are broken down between those in the first tier of the supply chain and those in the remaining tiers.

Our equity and corporate fixed income portfolios have lower environmental costs compared with benchmarks, but the values are still significant. This confirms the importance for us as a sustainable investor to integrate material environmental issues into investment decisions and to encourage companies to use resources efficiently as well as to pollute less before environmental costs rise further.
CONTRIBUTION TO ENERGY AND ECOLOGICAL TRANSITION
Green bond

• How green is green bond?

Green bonds are essentially identical to normal bonds except that - the bonds are labeled as “green” by their issuers, proceeds are earmarked for new and/or existing green projects, and the issuers track and report on the use of proceeds to ensure green compliance.

At least until now, there have been no clear rules on what “green” in this respect actually means. The lack of clarity has led some environmentalists to accuse bond issuers of making misleading claims about supposed environmental benefits.

The European Union has signaled that it will step in to oversee the green bond market, using EU green bond standards to bring greater clarity to investors. However, before the regulation comes out, the concern of “green-washing” is always there.

• Allianz France shades of green

Allianz France’s “shades of green” estimates the likelihood of fulfilling the expected environmental impacts. Green bonds are categorized as light/medium/dark green to indicate low/moderate/high positive impact. The assessment has two core components: the greenness of expected environmental impact and the probability of achieving that impact (due to organizational management capabilities). To do so, we build upon available market information, such as external reviews, ESG scores and green bond certifications.

Out of € 820mn green bond investment of Allianz France by end of 2018, the shades of green result (percentage as of investment amount) is shown below:

Figure 24 Allianz France shades of green bond 2018
(source: Climate Bonds Initiative, MSCI ESG, Allianz France internal research)
Factsheet

• sectoral breakdown: our green bonds portfolio primarily focuses on renewable energy, green transport and green building.
• geographical breakdown: the vast majority of projects are being implemented in Europe.
• avoided emissions (26): due to the lack of transparency of green bond issuers on their impacts or project-specific data, only 51% of our green bonds portfolio carry estimates regarding their corresponding avoided emissions. The final figure stands at 119.39 tCO2e avoided per million invested (source: Trucost).

Renewable energy

Figure 25 Geographical location of Allianz France renewable energy assets (source: AIM Paris)

How much is 112,124 t CO2 emissions avoided in one year? It is equivalent to, when compared with the country level figures of 2017, 2% of Latvia’s total CO2 emissions, 16.02% of Chad’s total CO2 emissions and 37.37% of Central African Republic’s total CO2 emissions.

(26) Green bond avoided emissions = project emissions – baseline emissions, where project emissions are first calculated by taking into account of the entire project lifetime and then annualized to obtain an annual figure; baseline emissions are calculated based on the current technology mix or most representative current technology in the market.

(27) The calculation of avoided emissions assumes the apportion logic (fully corresponding to Allianz France investment ownership share) as recommended by PCAF (platform for carbon accounting financials). The emission factors used are from Convenant of Mayors, an initiative of European Commission; the country level emission figures for comparison are from Global Carbon Atlas.
Green buildings

- Allianz France shades of green

Allianz France has certified green buildings across different types, such as HQE (High Quality Environmental Standard), BREEAM (Building Research Establishment Environmental Assessment Method) and LEED (Leadership in Energy and Environmental Design). Reflecting upon the similarities and differences of certification schemes, taking into account certification levels within each scheme, Allianz France shades of green for real estate is a method to categorize certified green buildings as light/medium/dark green building, to indicate low/moderate/high positive impact.

Out of €2.2bn certified green building investment of Allianz France, the shades of green results (percentage as of investment amount) are shown as below:

![Figure 26 Allianz France shades of green building 2018 (source: AIM Paris)](image)

Green practices

- mandatory environmental certification of any major renovation projects.
- connection of all directly managed buildings to a unique Energy Management Portal to facilitate energy consumption monitoring.
- electricity bought directly by Allianz France is 100% renewable (e.g. wind, solar) since end of 2015. Focusing on corporate real estate, it means that electricity used is 100% renewable; and for real estate invested portfolio, electricity of common parts (managed directly by Allianz France) is 100% renewable.

Our sustainability targets: carbon neutral investor by 2050

*As a leading insurer and investor, we know exactly what the devastating consequences could be when climate policy is exhausted in debates, yet no action follows.* Allianz Group chose to be serious on the topic: by 2023, 100% of our energy needs will be sourced from renewables; by 2050, all Allianz assets will be climate neutral.

Concluding remarks

*A dead world is not our destiny. Yes, the odds are against us as long as we stay on our current path. But we can and must radically change the path. We can do this, and we will.* Through the enhanced governance structure, we renewed our conviction for sustainability. By using effective communication with stakeholders as an engagement tool, we strive to amplify and complement the role of climate policies. With a balanced quantitative and qualitative analysis, we aim to illustrate the mutually supportive nature of financial returns and sustainability in a credible manner.

We are Allianz, we help to secure a sustainable future.
GLOSSARY

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Carbon budget</td>
<td>the estimated amount of carbon dioxide the world can emit while still having a likely chance of limiting global temperature rise to 2 degrees Celsius above pre-industrial levels.</td>
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<tr>
<td>Carbon dioxide equivalent (CO2e)</td>
<td>the unit used to measure the impacts of releasing the different greenhouse gases, such as, carbon dioxide, methane, nitrous oxide.</td>
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<tr>
<td>Carbon footprint</td>
<td>a measure of the carbon emissions that are emitted over the full life cycle of a product or service and usually expressed as grams of CO2e.</td>
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<tr>
<td>Climate stress test</td>
<td>the assessment of how certain climate-related factors (for example, the introduction of a carbon tax) could affect the financial performance of an asset, a company or a portfolio.</td>
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<tr>
<td>Energy efficiency</td>
<td>using less energy to provide the same level of energy service or more.</td>
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<tr>
<td>Intergovernmental Panel on Climate Change (IPCC)</td>
<td>the IPCC was established in 1988 by the World Meteorological Organization and the UN Environment Programme to provide the scientific and technical foundation for the United Nations Framework Convention on Climate Change (UNFCCC), primarily through the publication of periodic assessment reports.</td>
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<tr>
<td>Mitigation and adaptation</td>
<td>two main policy responses to climate change. Mitigation addresses the root causes, by reducing greenhouse gas emissions, while adaptation seeks to lower the risks posed by the consequences of climatic changes.</td>
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<tr>
<td>Nationally Determined Contributions (NDCs)</td>
<td>the national climate pledges submitted by 189 countries in reaching the Paris Agreement.</td>
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<tr>
<td>Non-renewable Energy</td>
<td>energy derived from sources that cannot be replenished in a short period of time relative to a human life span. Non-renewable sources of energy are typically divided into two types, fossil fuels (coal, natural gas and oil) and nuclear fuels.</td>
</tr>
<tr>
<td>Renewable Energy</td>
<td>energy derived from generally renewable resources including hydro, solar, wind and geothermal.</td>
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For more information, your contact person Allianz is at your disposal.