

2023 REPORT



A RESPONSIBLE INVESTOR



2023 HIGHLIGHTS

31% of the portfolio is composed of ESG assets

11% composed of directly held sustainable bonds

95% of the portfolio looked through - 84% of the collective funds

2.4°C: portfolio alignment implied temperature by 2100
(assets under direct and delegated management)

Commitment to protect biodiversity strengthened

CCR joined the French Observatoire de l'Immobilier Durable
[OID - Sustainable Property Observatory]

100% of delegated assets managed by PRI asset managers signatories

55% of office buildings with an environmental certification

100% of residential and office buildings benefit of green energy

EDITORIAL



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Chief Executive Officer



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Deputy CEO

Responsible investment to protect insurability

“Ensuring Your Future: Protecting Insurability for All”: CCR’s *raison d’être* places the company at the forefront of the debate on adapting our insurance systems and regions to extreme and emerging risks, with natural catastrophes being the most evident. Since its creation in 1946, CCR has led the way in preventing and managing these risks through its dual missions of reinsurance and advisory services.

As such, CCR is acutely aware of the effects of global warming, the intensification of risks and their human, material, and financial consequences. As a leader in transformation and adaptation, CCR helps maintain the financial stability of the natural catastrophe compensation scheme. CCR promotes risk prevention, enhances risk knowledge and modelling, and empowers all key stakeholders, both public and private.

CCR is committed to aligning its portfolio with a greenhouse gas emission reduction trajectory compatible with the global warming mitigation objectives of the Paris Agreement. This ambition is underpinned by an ongoing improvement approach. To achieve this, our commitment is based on three pillars: commitment, measurement, and financing for a just energy transition.

CCR’s responsible investment strategy encompasses two interconnected objectives, aligning seamlessly with our mission to protect insurability: to wisely pursue carbon neutrality by 2050, and to finance the resilience assets of tomorrow. This includes supporting the French sector in efforts to reduce, prevent, mitigate, and adapt to primarily natural risks.

CCR’s investment policy is guided by rigorous methodology, compliance with best practice as defined by regulators and scientific recommendations, and the pursuit of the highest standards. Whether it pertains to our direct or delegated management, this report highlights the significant progress CCR made in 2023 regarding the transparency of its asset classes and the proportion of ESG assets.

And at a time when it is becoming increasingly challenging to anticipate tomorrow’s world, CCR is destined to remain a pillar of national resilience in the face of future challenges. Responsible investment is a source of performance for CCR and one of the keys to its long-term strategy of promoting confidence and “building a future”.

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This report presents the information required by French Decree no. 2021-663 of 27 May 2021 pursuant to Article 29 of Act no. 2019-1147 of 8 November 2019 on Energy and Climate for the CCR portfolio as of 31 December 2023. It also presents the information recommended by the Task Force on Climate-related Financial Disclosure (TCFD).

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1. CCR'S OVERALL APPROACH

on the consideration of environmental, social and governance criteria

1.1 CCR's Profile and Activities

As a public reinsurer serving the public interest, the Caisse Centrale de Réassurance provides insurance companies operating in France with state-guaranteed coverage against natural disasters and uninsurable risks.

With over 75 years' experience, CCR is now a key player in the reinsurance industry, recognised for its expertise in risk management and the quality of its research and scientific analysis.

For more than fifteen years, the company has been carrying out research and development work in the field of natural catastrophes. The modelling research carried out in partnership with French scientific organisations is aimed at gaining a detailed understanding of the phenomena and their impact

in terms of insured damage. They help to strengthen risk culture and identify good practice in terms of prevention and crisis management.

CCR shares its knowledge with public authorities and its customers to improve prevention and increase adaptation to climate change. Therefore, in 2023 the company served the public interest by informing the government about the shrinkage and swelling of clay soils, the insurability of climate risks and the insurability of local authorities.

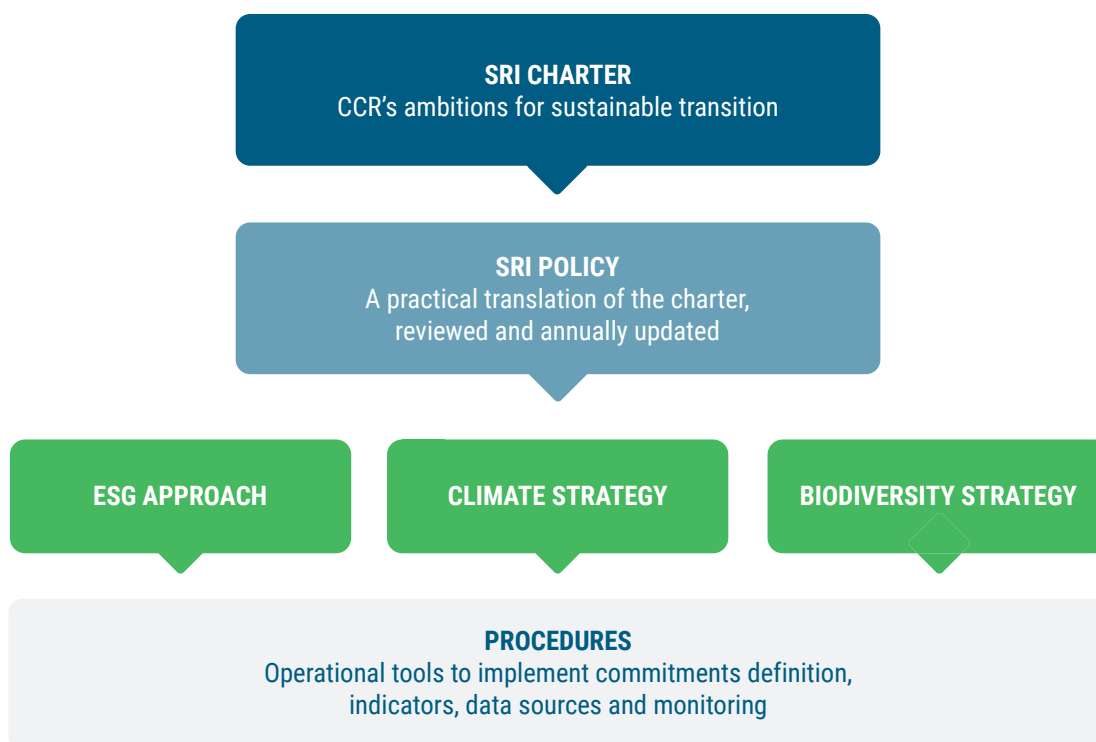
Reinsurance and advisory services are the two strategic pillars of CCR's response to the challenges of climate change.

1.2 Responsible Investment Strategy

Strategy

CCR's SRI Charter defines its responsible investment strategy and policy.

Figure 1: Operational implementation of the SRI Charter



This charter is based on three pillars: the prevention of transition risk, the adaptation to physical risks and the support for social transition.

Through this charter, CCR has chosen to enhance the management of ESG risks by integrating them into its investment policy, assessing their impact on portfolios, and measuring the impact of its portfolios on the environment (double materiality approach), while contributing to the financing of initiatives supporting the environmental and social transition.

CCR's commitment is based on three pillars: commitment, measurement, financing

The Responsible Investment Policy is based on the definition of an ESG risk management framework for each of the three pillars and a targeted responsible investment programme, with the objective of generating long-term financial performance.

Figure 2: Overall target to contribute to the long-term performance of CCR

AMBITION	COMMIT, MEASURE, FINANCE in favour of a just green transition taking into consideration the risks associated with global warming and the erosion of biodiversity		
	SRI CHARTER		
PILLARS	Prevention of transition risk	Adaptation to physical risk	Support for societal transition
RISK MANAGEMENT	Fossil fuel policy <ul style="list-style-type: none"> Phasing out coal and unconventional hydrocarbons by 2030 Exclusion of expansion projects Climate analysis <ul style="list-style-type: none"> Carbon footprint scopes 1, 2 and 3 Temperature alignment by 2100 Taxonomy green share and brown share Biodiversity analysis <ul style="list-style-type: none"> Biodiversity footprint Qualitative impact matrix 	Climate analysis <ul style="list-style-type: none"> Portfolio of financial assets: quantitative measurement using an estimate of Value at Risk (VaR) Directly owned real estate: Exposure, vulnerability and cross-analysis Biodiversity analysis <ul style="list-style-type: none"> Qualitative matrix of dependencies 	ESG analysis <ul style="list-style-type: none"> ESG risk Controversy monitoring Sector-based and normative exclusions
INVESTMENTS	<ul style="list-style-type: none"> Investments in green impact funds Direct investments in green bonds 	<ul style="list-style-type: none"> Financing of assets designed to adapt to climate change 	<ul style="list-style-type: none"> Direct investments in social and sustainable bonds Investments in social impact funds Encouraging management companies to vote at General Meetings

Portfolio Structure and Look-Through

In 2023, CCR continued improving the information provided on its portfolios. CCR indeed considers the use of comprehensive and quality data to be fundamental.

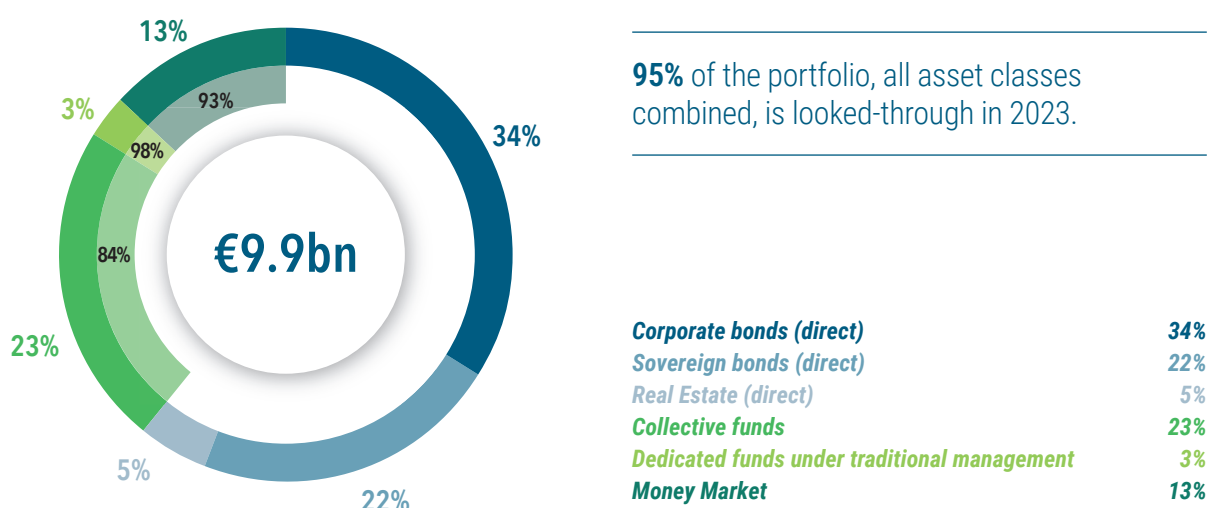
Fine granular understanding is needed on two levels:

- control of investments: which issuers are invested in, including within open-ended collective funds. To this end, the entire portfolio is systematically looked through. This practice goes well beyond the current regulatory requirements,
- expert understanding of the methodologies used by data suppliers and the correct integration of such data into our systems.

CCR is committed to transparency and ongoing improvement.

As of 31 December 2023, CCR had €9.9 billion of assets under management. CCR's management of assets is primarily driven by liability constraints within the framework of prudent management.

Figure 3: CCR portfolio structure as of 31/12/2023 and look-through (in % by investment category; market value)



CCR has chosen to make all its assets under delegated management transparent through look-through analysis¹, to trace the detailed positions of the ultimate issuers. The asset managers can thus monitor issuers of collective and dedicated funds to identify positions that would go against the SRI policy. This look-through analysis and the verification of issuers are carried out at least on a quarterly basis.

Thus, as of December 2023, 95% of the portfolio, all asset classes combined, is looked-through. The remaining 5% are funds of funds or newly invested funds.

This approach ensures that sustainability indicators are consistent across the entire portfolio: collective funds are treated and considered as a sub-fund of directly owned assets, with all investment lines looked-through/known.

This detailed knowledge of the portfolio is deemed essential for risk monitoring.

¹ The look-through achieved is Level 1: a fund is broken down into direct and delegated investment lines. For example, if X% of a fund is invested in another fund (e.g. a money market fund), X% will appear as non-looked through.

The ESG Approach

The management teams apply ESG criteria within their daily investment process. The approaches are differentiated according to the type of management.

Figure 4: Summary table of sustainability analyses by asset class

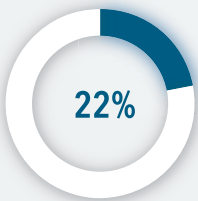
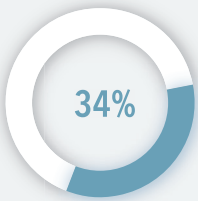
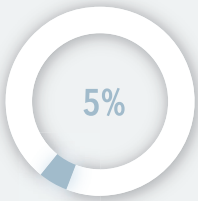
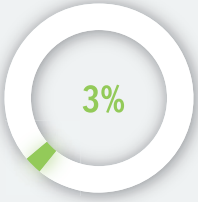

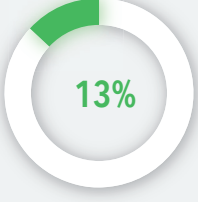
DIRECT MANAGEMENT	ESG	CLIMATE	BIODIVERSITY
SOVEREIGN BONDS 	Coverage by Sustainalytics: 93% ESG score and controversies Proprietary analysis: 100% Sustainable bonds	Coverage by C4F: 91% Transition risk: Carbon Impact Ratio and temperature Coverage by CLIMAFIN: 100% Physical risk: VaR Transition risk: VaR Proprietary analysis: 100% Green bonds	
EQUITIES AND CORPORATE BONDS 	Coverage by Sustainalytics: 100% ESG score and controversies Proprietary analysis: 100% Sustainable bonds	Coverage by C4F: 85% Transition risk: Carbon Impact Ratio and temperature Coverage by CLIMAFIN: 100% Physical risk: VaR Transition risk: VaR Proprietary analysis: 100% Green share and fossil exposure Climate analysis of issuers Green bonds	Coverage by C4F: 93% Transition risk: biodiversity footprint Proprietary analysis: 100% Footprint and qualitative dependencies (ENCORE and Sustainalytics)
REAL ESTATE 	Proprietary analysis: 100% 20 indicators (based on the OI materiality matrix)	Proprietary analysis: 100% Energy consumption: audit and monitoring water consumption Carbon footprint	Development and rehabilitation of green spaces

Figure 4 (cont'd): Summary table of sustainability analyses by asset class

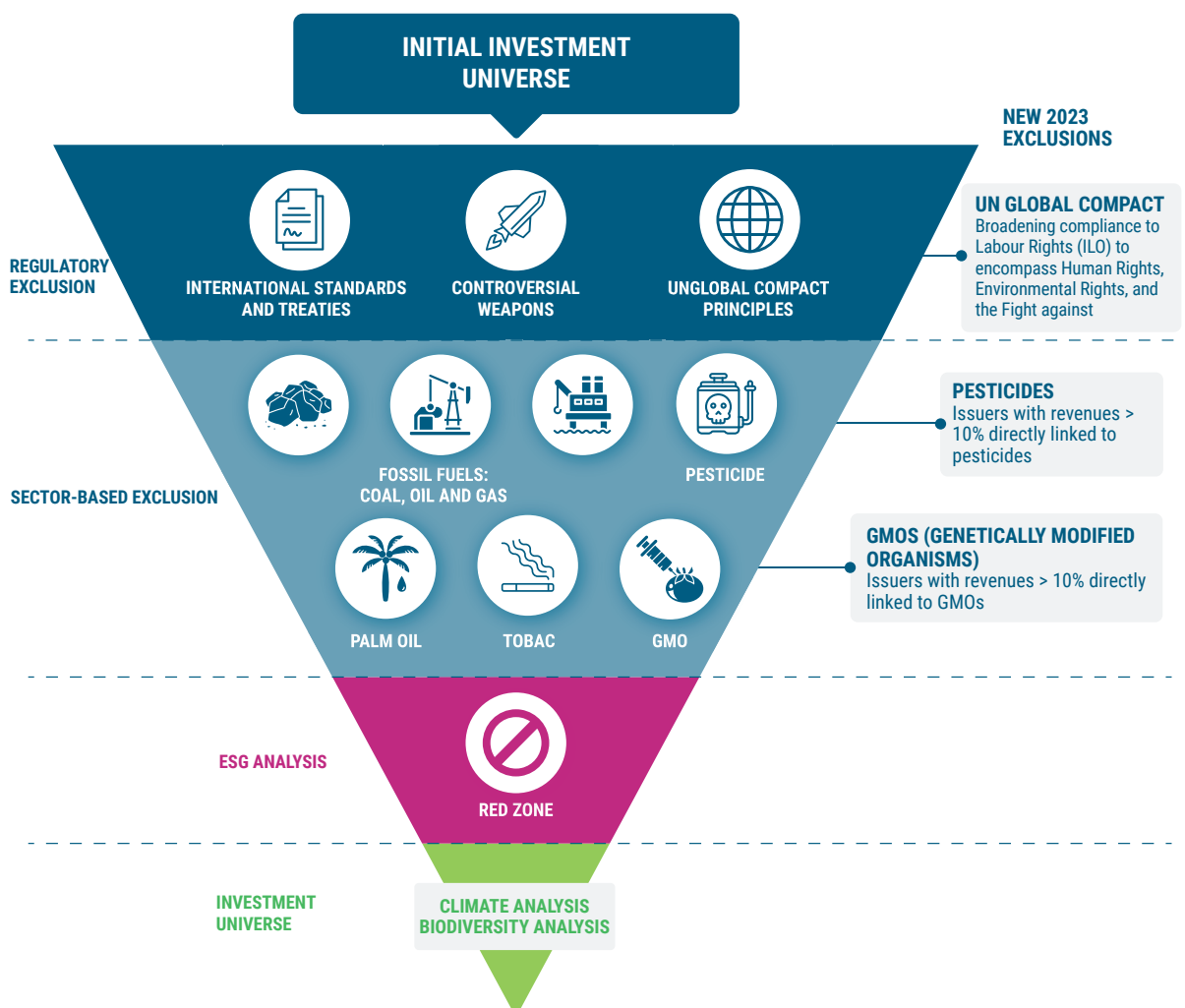
DELEGATED MANAGEMENT	ESG	CLIMATE	BIODIVERSITY
DEDICATED FUNDS Level of look-through: 98% 	Coverage by Sustainalytics: 91% ESG score and controversies Proprietary analysis: 100% integration of ESG criteria into management company policies and those policies applied to funds	Coverage by C4F: 77% Transition risk: Carbon Impact Ratio and temperature Coverage by CLIMAFIN: 100% Physical risk: VaR Transition risk: VaR Proprietary analysis: 100% Green share and fossil exposure Climate analysis of issuers	Coverage by C4F: 82% Transition risk: biodiversity footprint Proprietary analysis: Footprint and qualitative dependencies (Sustainalytics)
COLLECTIVE FUNDS Level of look-through: 84% 	Coverage by Sustainalytics: 74% ESG score and controversies Proprietary analysis: 100% integration of ESG criteria into management company policies and those policies applied to funds	Study integrated into the analysis of the overall portfolio	Study integrated into the analysis of the overall portfolio
MONEY MARKET Level of look-through: 93% 	Study integrated into the analysis of total portfolio	Study integrated into the analysis of total portfolio	Study integrated into the analysis of total portfolio

The coverage rate shown reflects the data provider's coverage of the entire asset class held by CCR.

A. Direct Financial Investments

The responsible investment process for directly held securities combines exclusions and extra-financial analysis².

Figure 5: ESG Approach



² See Appendix on CCR's exclusion policy.

Methodology

Any new investment is subject to ESG analysis. Since 2022, access to Sustainalytics' fundamental research has enabled us to gain a better understanding of the ESG risks of each issuer, thereby improving the quality of the information available to fund managers for their analysis³.

For sovereigns:

- **Country Risk Rating** combines ESG and economic analyses for country-risk assessment.

For private issuers:

- **ESG Risk Rating**: measures the residual risk to which the company is exposed (gross risk - risk management). It ranges from 0 to 100, with 0 meaning no risk and 100 meaning maximum risk.
- **Controversy analysis**: assesses the impact of contentious facts or actions on stakeholders and consequently, on the company's own business. A low controversy score (1 to 2 on a scale of 1 to 5) indicates a limited-impact event.

Analysis of sustainable bonds

When investing in sustainable bonds, as with any investment, the management team optimises the risk/return trade-off. Additionally, the bond must meet "environmental, social, or sustainable" quality standards.

To meet this requirement, the management team is continually refining its analysis methodology specific to sustainable bonds. It is based on analyses conducted at the time of issuance, which include assessments of the issuer and the projects funded, as well as ongoing monitoring of allocation, impact, and look-through indicators for the financed projects until the security matures or is sold.

³ Previously, the asset managers solely had access to ESG risk scores via the Sequantix™ platform.

B. Delegated Management Investments

During the selection process, the delegated management teams pay particular attention to non-financial criteria. Given equivalent performance (risk/return profile) and targets, the fund managers prioritise funds with a robust SRI policy.

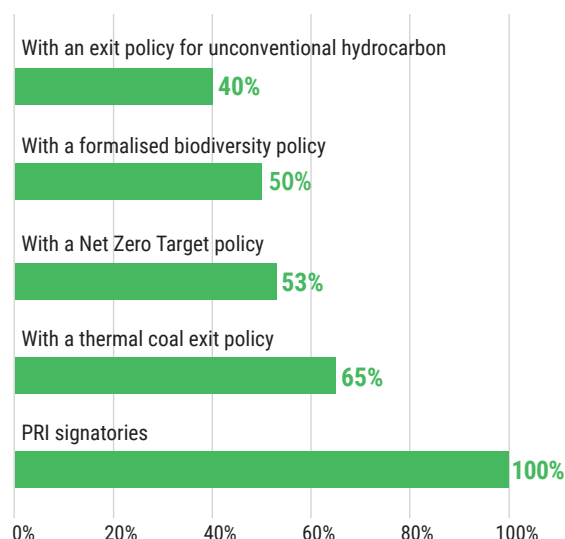
A demanding selection based on best practices

All assets under delegated management are entrusted to asset managers that are signatories to the Principles for Responsible Investment (PRI). Since 2022, this has been a prerequisite for any new investment. This endorsement is a guarantee that ESG criteria are considered within the management process.

Selection strengthened by proprietary analysis

The asset managers carry out their own qualitative analysis on the integration of ESG criteria in each strategy based on different additional sources.

Figure 6: Share of Assets Delegated to Asset Managers (% of delegated AuM)



Source: proprietary questionnaire

Figure 7: Sources of Information



Since 2021, the fund managers have been using two proprietary due diligence questionnaires to pursue their objective of transparency and a better understanding of the ESG practices and policies of the management companies and funds they invest in.

These questionnaires are both a tool for measuring progress (sent annually) and a selection tool (sent before any new investment). Thanks to these

questionnaires, fund managers can also carry out consistency tests between management company practices and what is applied in the funds.

The questions are reviewed on an annual basis to ensure that they are relevant to changes in CCR's commitments, best practice in the industry and scientific and regulatory recommendations.

Figure 8: Themes of the Questionnaires

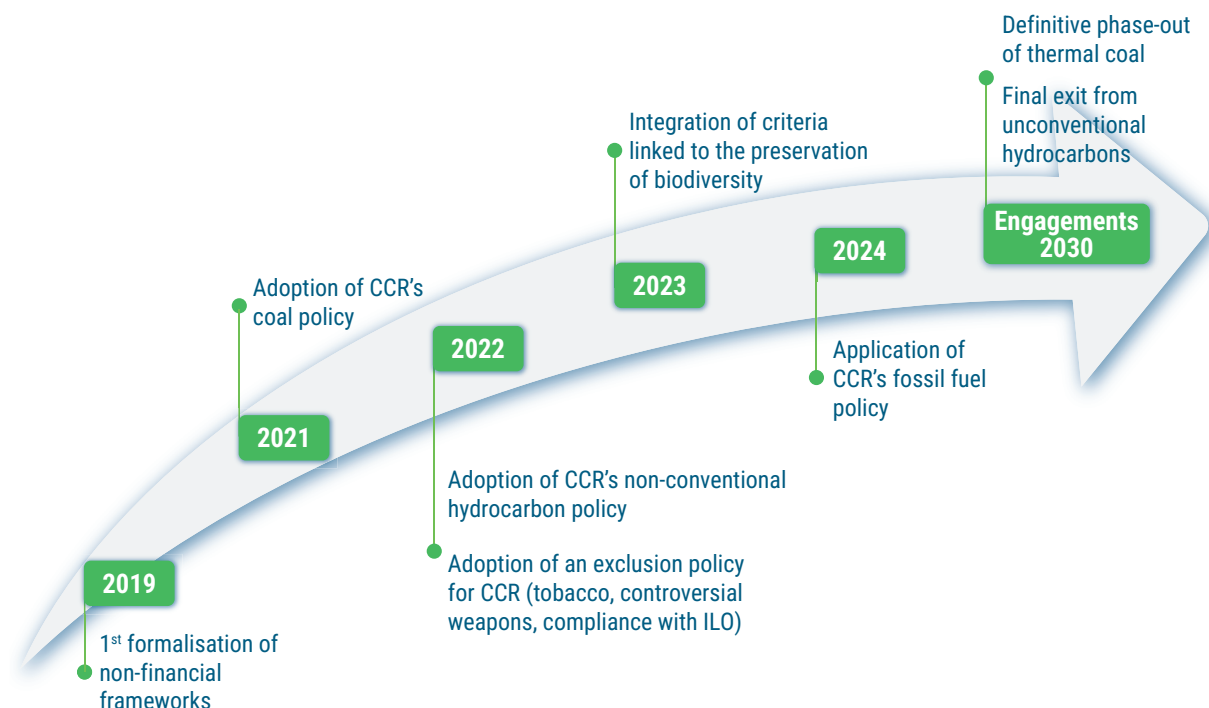
QUESTIONNAIRE-ASSET MANAGER		
ESG ANALYSIS		CLIMATE
<ul style="list-style-type: none"> • Dedicated resources • Management company's SRI policy • SFDR/label/certification breakdown 		<ul style="list-style-type: none"> • Net Zero policy (existence, validation by a third party) • Coal, Oil and Gas policy
BIODIVERSITY		COMMITMENT
<ul style="list-style-type: none"> • Membership initiative • Formalised strategy • Integration into the risk analysis 		<ul style="list-style-type: none"> • Number of commitments and outcomes • AGM attendance rate • Vote Say on Climate
QUESTIONNAIRE-FUNDS		
CLASSIFICATION	STRATEGY	INTEGRATION OF ESG CRITERIA
<ul style="list-style-type: none"> • SFDR • Label/Certification 	<ul style="list-style-type: none"> • Impact strategy? E? S? • SDG reference 	<ul style="list-style-type: none"> • Exclusion policies • Controversy monitoring
FIXED INCOME FUNDS	REAL ESTATE FUNDS	EQUITY FUNDS
<ul style="list-style-type: none"> • Focus on sustainable bonds 	<ul style="list-style-type: none"> • Focus on EPC, energy audit and physical risks 	<ul style="list-style-type: none"> • Focus on commitment

This year, 65 management companies and 136 funds were studied using this tool (for an AUM coverage rate of 100%).

Dedicated funds: a constructive partnership with management companies

Since 2021, CCR encourages asset management companies to translate its commitments in its dedicated funds⁴.

Figure 9: Increased importance of extra-financial policies in dedicated funds under traditional management



By sharing and implementing CCR's fossil fuel policy, which is often more stringent than those of other asset management companies, we promote the dissemination of best practice and alignment with a low-carbon trajectory. In the same way, the expertise of the management companies enables the teams of CCR to develop and extend their knowledge and improve the non-financial profile of the funds.

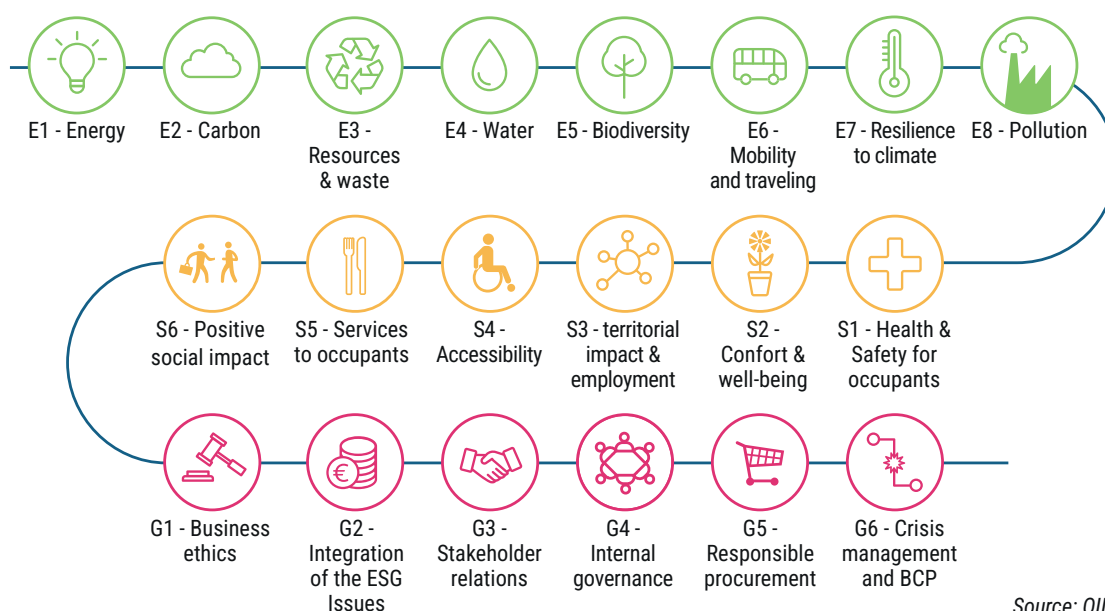
⁴ Five traditional management funds (bond and equity funds).

C. Direct Real Estate Investments

CCR's directly owned real estate portfolio consists of 12 buildings, including 7 residential buildings and 5 office buildings, located mainly in Paris.

Since 2019, CCR has been analysing its real estate assets using the materiality matrix of the *Observatoire de l'Immobilier Durable* (OID)⁵, which integrates the three ESG pillars within 20 metrics.

Figure 10: ESG issues defined in the OID materiality matrix



Purchase phase: ESG criteria are systematically integrated into the ex-ante assessment. CCR set itself the objective that all new acquisitions of new or renovated office buildings should be subject to environmental labelling or certification.

During the management period: action is taken to act on:

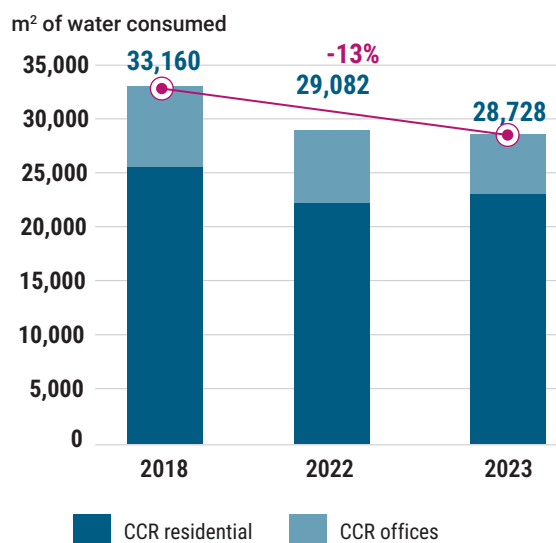
- the quality of the governance of the teams in charge of operating the buildings, by getting them to take ESG issues into account;
- social impact: by measuring and improving occupant comfort (e.g. thermal and acoustic comfort). The social issue also concerns the health and safety of residents within the buildings;
- energy sobriety (through use and refurbishment) but also on the energy mix used by its buildings. This takes the form of green energy contracts (electricity and gas), connection to district heating, the growth in a budget devoted to improving energy performance.

⁵ The materiality matrix of the OID is based on a market study of the materiality matrices published by some thirty real estate players (listed real estate companies, investors, developers, users) between 2013 and 2018 and on a cross-analysis of French and international normative and regulatory standards.

Therefore:

- 100% of office buildings have taken out green energy contracts (electricity and gas).
- 51 % of buildings are connected to district heating (60% of the residential inventory), and the target set in 2020 of having half of its buildings connected to CPCU by 2023 has been achieved.
- Each restructured office building obtains a label or certification. The share of office buildings with an environmental label or certification is 55%, and this number is expected to increase.
- 100% of the energy consumption data is collected (common and private areas).
- In 2023, water consumption decreased by 1.22%YOY, and by 13% over 5 years.

Figure 11: Water consumption in office and residential buildings

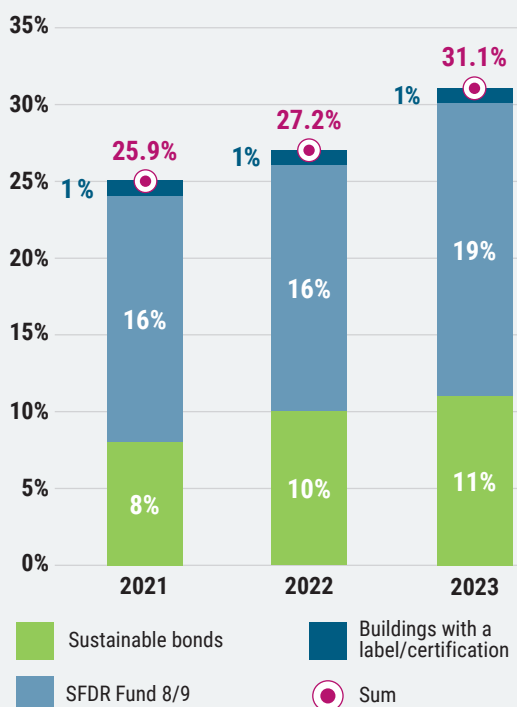


FOCUS: SUSTAINABLE INVESTMENTS

CCR is working to define criteria to qualify its investments as sustainable, as part of a stance to improve transparency and appreciation of its responsible investments. For example, for sustainable bonds, the issue must at least meet the standards of the International Capital Market Association (ICMA) and have received a favourable second-party opinion.

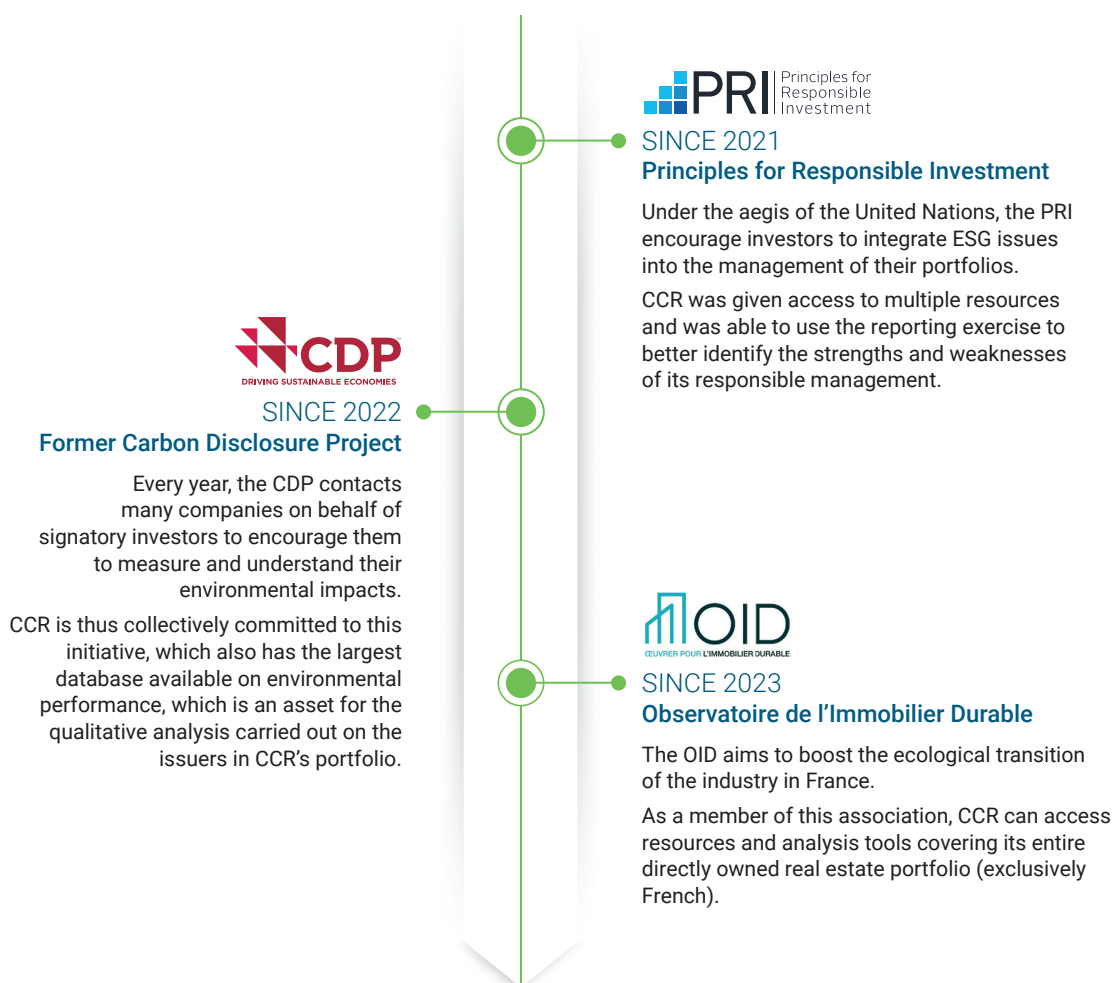
Pending this specific definition, CCR measures its investments that promote ESG characteristics, known as “ESG assets”, on the basis of the SFDR as well as market labels and certifications. As of December 2023, these assets represented more than €3 billion, accounting for approximately 31% of the portfolio.

Figure 12: ESG asset allocation (% of AUM)



1.3 Adherence to a Charter, Code or Initiative

CCR is committed to staying informed and sharing its own best practices in responsible investment. As such, CCR is actively involved in various initiatives and participates in several local working groups.



Contributor to marketplace discussions on the integration of ESG issues as:

- **Member of the France Assureurs Sustainable Development Commission:** this commission is a source of information and regulatory monitoring.
- **Member of the France Assureurs ESG-Climate Working Group:** which monitors regulations and debates interpretations. Being a member of this WG also gives CCF the opportunity to participate in the drafting of guides and/or recommendations and to contribute to the publication '*Chiffres Finance Durable*' [Sustainable Turnover].
- **Participant in the Biodiversity working group of the Sustainable Finance Institute:** a group that monitors the advancement of any work aimed at integrating biodiversity into finance (biodiversity credit themes, data providers, etc.).
- **Participant in the Af2i workshops of the Responsible Investment Commission:** and thus contributing to the elaboration and update of questionnaires for management companies.
- **Participant of ACPR round tables:** including on climate change risk governance.

2. INTERNAL RESOURCES deployed by CCR

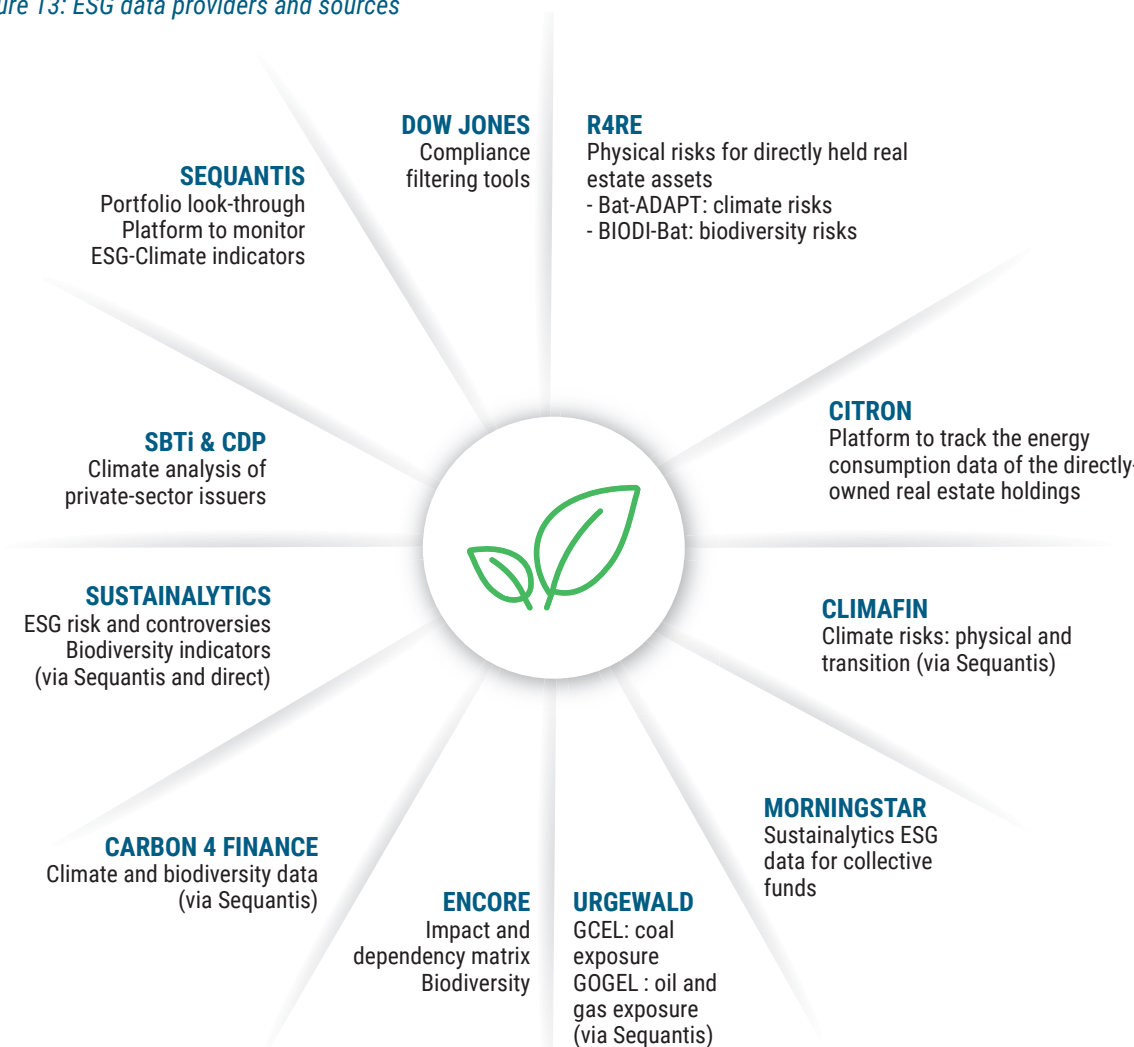
2.1 Description of the Resources Dedicated to Considering ESG Criteria in the Investment Strategy

The integration of extra-financial criteria into the asset management process is carried out by the entire Investment team including the executive managers, fund managers and ESG analyst.

In order to integrate sustainability criteria into the investment process, CCR uses the Sequantis Transition Monitor (STM) platform, which tracks the ESG-Climate-Biodiversity indicators of direct portfolios (not including directly held real estate) and delegated management portfolios that have been looked through.

Alongside data from external service providers, proprietary analyses are developed to enhance the qualitative analysis of issuers.

Figure 13: ESG data providers and sources



2.2 Means rolled out for a better understanding of ESG issues

Since 2019, the management teams have received annual training in sustainable finance from certified institutes on a variety of topics, including a regulatory watch on the European framework (Novethic), and training on impact investment and biodiversity (Moonshot Consulting). The teams were also able to take part in a “Biodiversity Fresco” workshop.

In addition, specific *ad hoc* sessions are organised on a regular basis to:

- increase skills in accessible data (e.g. from Sustainalytics);
- delve deeper into a theme and decide to integrate a new database;
- monitor regulations and the competition.

3. GOVERNANCE: approach for the consideration of ESG criteria

The members of the Board of Directors of CCR are regularly faced with the issue of how to deal with the consequences of global warming in the context of the reinsurance activities.

Several directors are recognised for their expertise in climate issues, including two who work for the French Ministry for Ecological Transition and the General Inspectorate for the Environment and Sustainable Development.

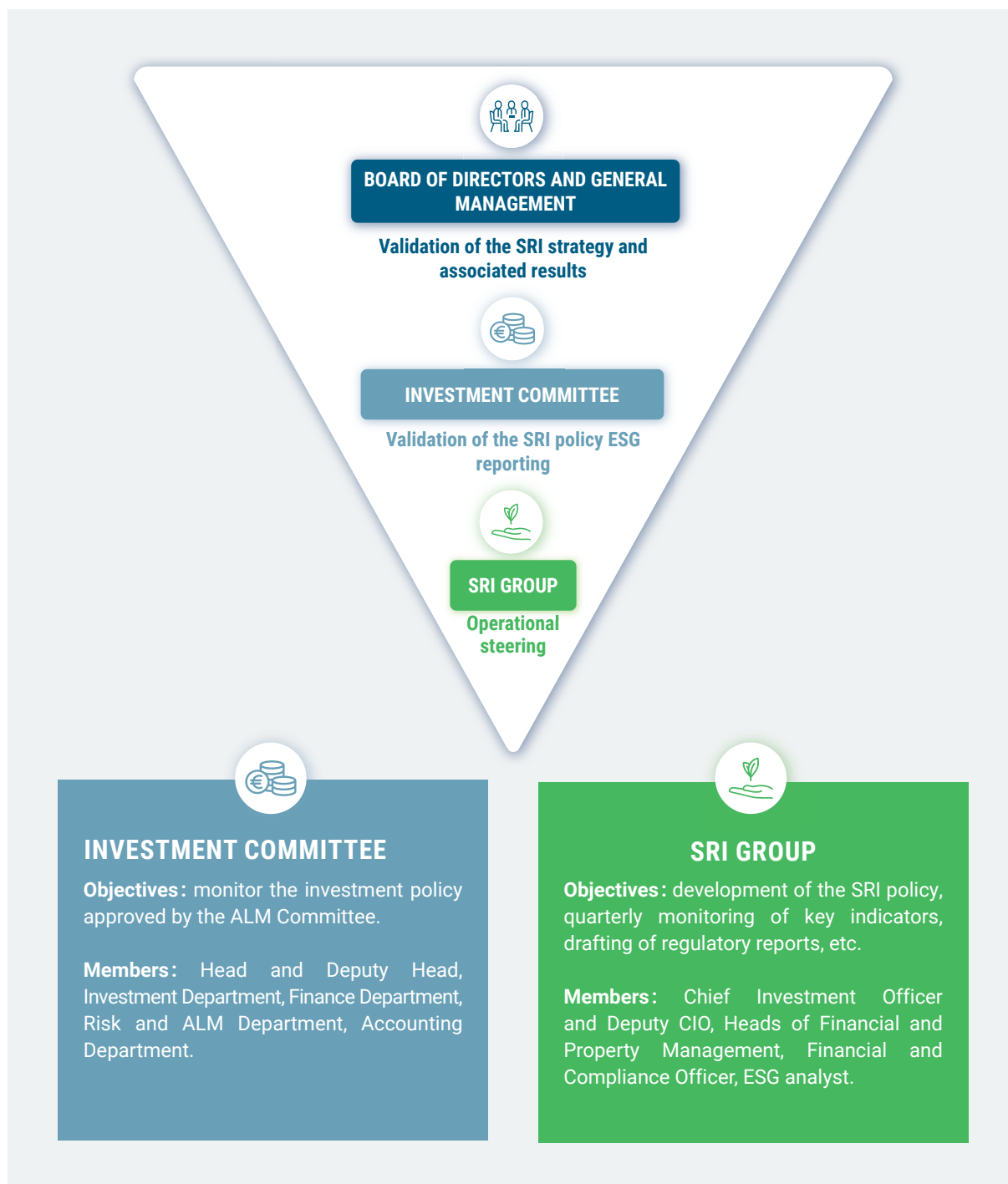
In addition, some members of the Executive Committee participate in the Climate and Sustainable Finance Commission of the French Prudential Supervisory and Resolution Authority (ACPR or *Autorité de contrôle prudentiel et de résolution*) and contribute to monitoring and exchange services on leading ESG and climate issues.

The SRI strategy, its objectives and its implementation are presented to and validated by the Boards of Directors. This body is consulted at least twice a year on ESG-Climate-Biodiversity issues:

- For the ex-ante review and validation of the investment policy upon proposal of the Audit, Risk and Accounts Committees.
- For the ex-post review of the previous year’s SRI report in view of its publication, to reiterate all the issues related to the content of the regulatory report and to exchange on the implementation and the extensions of the mentioned measures.

2024 will be an opportunity for the Board of Directors to continue integrating ESG issues into its operations and compensation policy.

Figure 14 : SRI comitology



4. ENGAGEMENT STRATEGY with issuers or management companies and on its implementation

Shareholder engagement or dialogue is defined as a medium- to long-term process in which investors seek to influence the behaviour of companies in which they invest by interacting with them. Motivated by a sustainability goal, shareholder engagement can help transform the activities of players in the real economy.

CCR does not hold any shares directly⁶ and therefore does not currently have a formal shareholding or voting policy. However, an indirect commitment is made through:

Partner management companies: study of their voting policy, monitoring of annual reports, etc.

Participation in roadshows organised by public and private issuers

Signatory to the CDP

Adhering to and complying with PRI principles

CCR believes that participating in collective initiatives is more effective than sending individual voluntary letters to companies in which it only holds a small proportion of debt.

Furthermore, choosing to finance carbon-intensive issuers that have adopted a transition plan validated by an external third party and/or through green bonds is a way of demonstrating our commitment to a more sustainable economy.

5. EU TAXONOMY and fossil fuels

5.1 Share of AUM relating to activities in compliance with EU Taxonomy

The EU Taxonomy is a classification system that determines eligibility for and alignment with the term 'sustainable'. If an asset is deemed eligible, it can then be qualified as 'aligned' if it complies with a number of cumulative stages:

- make a significant contribution to one of the 6 environmental objectives (and comply with the technical review criteria);
- not have a significant negative impact on the other objectives;
- comply with minimum social standards (human rights, etc.).

Although not subject to the Taxonomy Regulation, CCR has opted to undertake this process in the interest of transparency and continuous improvement, using data reported by companies and compiled by Sustainalytics via the Sequantix™ platform. The limited data reported by companies to date unfortunately restricts the scope of the analysis to climate change mitigation and adaptation goals⁷.

Data on eligibility and alignment with the other four environmental objectives (circular economy, pollution, aquatic and marine resources, biodiversity) will be integrated at a later stage, once published by companies.

The analysis covers assets held under direct management (excluding real estate) and under delegated management (excluding non looked-through funds), i.e. 90% of the portfolio assets.

⁶ Apart from two legacy assets, the exposure is minimal.

⁷ These are activities that can be low-carbon and/or adapted, transitional, enabling or facilitating.

Figure 15: Additional portfolio information and numerator and denominator exclusions

		0010
Share of exposures to financial and non-financial companies not subject to Articles 19a and 29a of Directive 2013/34/EU as a proportion of total assets covered by the KPI	0030	56%
Share of exposure to central governments, central banks or supranational issuers as a % of total assets covered by the KPI	0040	30%
Share of derivatives in total assets covered by the KPI	0050	0%

Figure 16: Share of AUM relating to economic activities eligible or ineligible under EU Taxonomy

Regulatory ratio (mandatory) based on counterparty disclosures		0010
Share of AUM relating to economic activities eligible under EU Taxonomy	0010	5%
Share of AUM relating to economic activities ineligible under EU Taxonomy	0020	95%

Figure 17: Share of investments destined to finance activities aligned with EU Taxonomy

		0010
Weighted average value of all investments that are intended to finance or are associated with economic activities aligned with EU Taxonomy, relative to the total value of assets covered by the KPI, with the following weightings for investments in companies		
Based on turnover	0010	1.4%
Based on investment expenditure	0020	3.2%

These two tables cover CCR's portfolio of private issuers (subject and not subject to CSRD), i.e. 70% of the portfolio considered⁸. Within this scope, CCR has 5% exposure to EU Taxonomy-eligible activities and 1.4% exposure (based on company turnover) to EU Taxonomy-aligned activities.

Figure 18: Breakdown by Environmental Objective

		Climate change mitigation	Adaptation to climate change
		0010	0020
Weighted average value of all investments that are intended to finance or are associated with economic activities that make a significant contribution to achieving the environmental objective in relation to the total value of the assets covered by the KPI			
Based on turnover	0060	1%	0%
Based on investment expenditure	0070	3%	0%

Sources: company data compiled by Sustainalytics, via Sequantis™

To date, this exercise remains incomplete due to insufficient data published by companies. For example, while the percentage of sales from EU Taxonomy-eligible activities is reported, the breakdown by specific environmental objectives is much less frequently disclosed.

⁸ According to Article 7 of the delegated act Article 8, sovereign exposures are excluded from both the numerator and the denominator in the calculation of the investment KPI.

5.2 Share of AUM Exposed to the Fossil Fuel Sector

Knowing our allocation to issuers linked to fossil fuels (coal, gas and oil) enables us to measure our exposure to highly polluting assets that are likely to become 'stranded' as a result of the transition to a low-carbon economy. It is thus a 1st transition climate risk indicator that CCR monitors quarterly to ensure that it is on a downward trajectory.

CCR is indeed committed to phasing out thermal coal and exiting unconventional hydrocarbons by 2030⁹.

To measure its exposure to fossil fuels, CCR uses data from Urgewald, an NGO that provides lists of companies active in the fossil fuel sector. This data is integrated into the SequantTM platform, giving a view across the entire portfolio.

The GCEL, Global Coal Exit List, covers companies involved in the coal value chain (exploration, drilling, mining, transport and logistics, engineering, trading, construction, maintenance, infrastructure, power generation etc.).

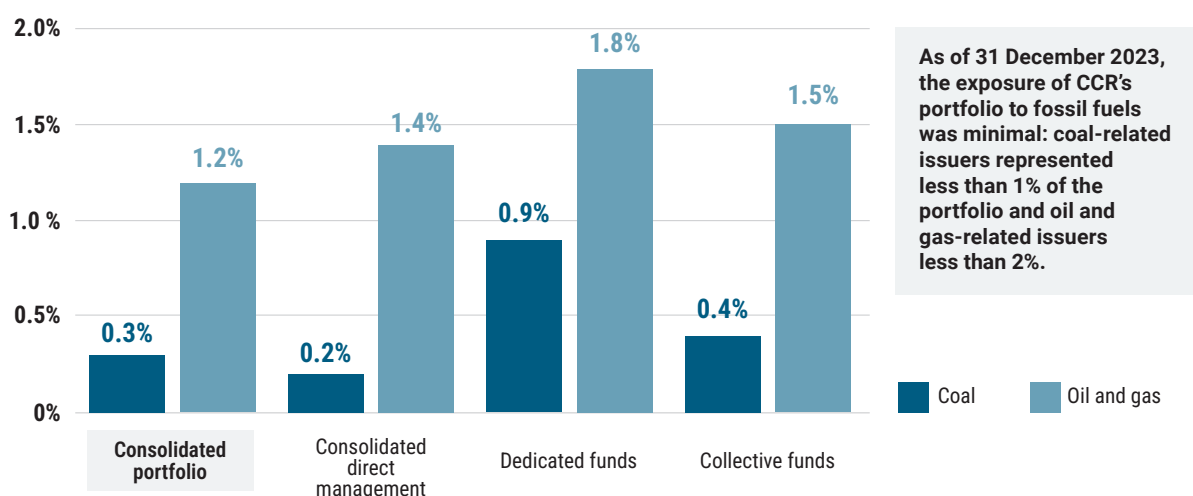
The GOCEL, Global Oil and Gas Exit List, covers the entire oil and gas sector, at both upstream (extraction) and midstream (transport and processing) levels. The definition of non-conventional hydrocarbons is in line with that of the Scientific Expertise Committee of the Sustainable Finance Observatory (except for methane hydrates which are not included).

CCR analyses its entire portfolio of financial assets (not including real estate), covering directly owned issuers, in dedicated funds and in collective funds that have been looked-through (i.e. 90% of assets). Green bonds issued by issuers with links to fossil fuels are excluded from the scope.

The exposure is not adjusted for the weight of fossil fuels in issuers' sales, and therefore corresponds to investments in the companies concerned without adjustment, in accordance with the ACPR recommendation.

Exposure via collective funds is the most complicated to manage. CCR is working to select the asset management companies most in line with its fossil fuel policy through particularly its proprietary non-financial questionnaire.

Figure 19 : Exposure to fossil fuels (% of assets in the relevant portfolio)



Sources: GCEL and GOGEL via Sequantis, CCR

⁹ See Appendix-Fossil fuel policy.

6. ALIGNMENT STRATEGY WITH THE PARIS AGREEMENT

6.1 Commitment for a Low-Carbon Economy

As early as 2021, CCR committed to aligning its portfolio with a greenhouse gas emission reduction trajectory compatible with the global warming mitigation objectives of the Paris Agreement: The report states that the global temperature increase should be “well below 2°C, striving for 1.5°C [above pre-industrial temperatures by 2100]”.

As part of this long-term objective, CCR aims to contribute to the global goal of carbon neutrality by 2050. This ambition is underpinned by an ongoing improvement process based on the best practices defined by regulators and on scientific recommendations¹⁰.

CCR is focusing on financing the energy transition and excluding high emitters that are not part of this transformation process to a low-carbon economy.

CCR does not wish to focus solely on carbon-free sectors, which would result in a portfolio aligned to a “below 2°C” target but would imply a sector-bias. On the contrary, CCR aims to select committed issuers to finance the economy of the future.

CCR endeavours to:

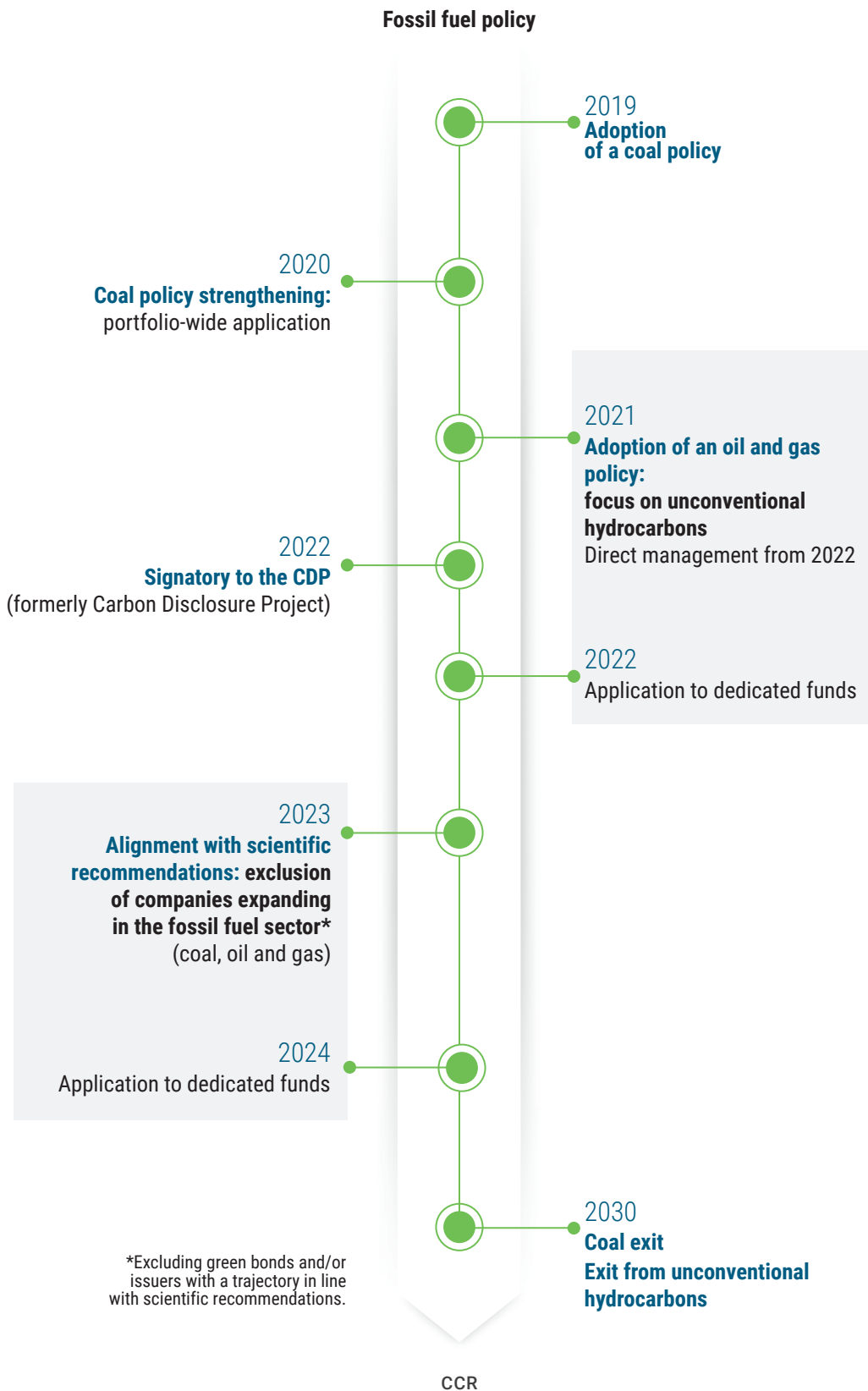
- **Continue to finance the transition** through green bonds (directly and via dedicated funds), climate funds and work to improve the energy performance and sobriety of its buildings.
- **Reduce the carbon footprint of its** financial and commercial real estate portfolios. specifically, reduce the carbon footprint of its directly owned corporate bonds by 50% by 2030, with 2020 as the reference year (in tonnes of CO2 equivalent per million euros invested, Scopes 1 and 2). This target will be reviewed every 5 years until 2050. This target is necessary; but it is also ambitious and can only be achieved if the stakeholders (companies and governments) actively implement a transition policy.
- **Involve stakeholders** around the global carbon-neutral goal, a collective commitment, as well as through dialogue with issuers and asset management companies.

IMPROVEMENT PLAN

This strategy is currently being reviewed and enriched. CCR is working on expanding the range of asset classes considered, including dedicated funds, collective funds, and residential real estate. Additionally, CCR is developing an ambitious operational plan for each asset class, with quantitative objectives for the short, medium, and long terms, as well as the means to achieve them, all targeted for 2025.

¹⁰ International Energy Agency “Net Zero by 2050 A Roadmap for the Global Energy Sector” published in May 2021. France Assureurs published a guide on ‘Carbon neutrality and investment portfolios’ in December 2022, which could be used to enhance and/or clarify the policy in 2023.

Figure 20: Summary of fossil fuel commitments



The gradual implementation of a low-carbon business model to limit global warming to below 2°C raises a transition risk for all agents, and more particularly for the financial system, which is at the heart of capital allocation.

According to TCFD segmentation, this risk is mainly defined by:

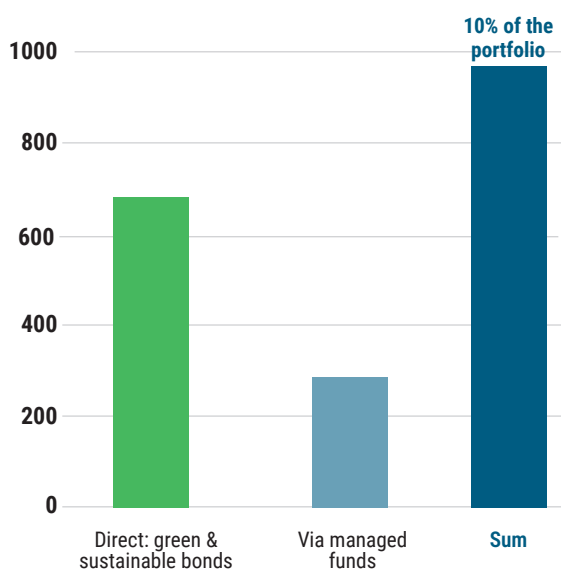
- **Legal and regulatory risk** linked to the evolution of laws and standards aimed at guiding agents towards a low-carbon economy,
- **Technological risk** arising from research and technological innovations to improve the energy efficiency of production processes and equipment,
- **Market risk** resulting from the impact of climate change on supply (scarcity of certain resources) and demand (changes in consumption behaviour),
- **Reputational risk** linked to changes in the perceptions of all stakeholders, in particular customers and consumers, about the challenges of climate change and the positioning of agents in relation to these challenges.

6.2 Financing the transition

CCR is financing the energy transition, namely through investments:

- in green bonds which differ from traditional bonds in that they finance exclusively environmentally friendly projects. CCR believes that 'sustainable' bonds, which combine projects with an environmental and social impact, are instruments that can be used to finance a just low-carbon transition. These can be held directly or via funds:
- in funds: funds that have obtained an environmental label; funds that do not have a label but for which the documentation indicates a strategy that considers environmental issues (targets and indicators) or infrastructure funds that contribute to the transition to a low-carbon economy
- through its real estate portfolio, enabling it to control and reduce energy consumption and improve energy performance (with building renovation projects, for example). As a result, green projects constituted 72% of the investment work undertaken on the building stock in 2023.

Figure 21: Financial Investment in the Energy Transition (in €m)



6.3 Alignment with the Paris Agreement

Financial assets

The alignment with Paris Agreement targets is assessed using Carbon4Finance's Carbon Impact Analytics (CIA) methodology via the STM platform. The portfolio exposure analysis is carried out on the looked-through portfolio (i.e. 90% of assets).

CCR has adopted a comprehensive approach: the study covers all asset classes and all GHG scopes (1.2 and 3).

This methodology measures four key indicators:



1. Emissions saved: sum of avoided and reduced emissions

- Avoided emissions: replacement of emissions that would have occurred without the company's activities (based on a comparison with a reference scenario).
- Reduced emissions: based on the efficiency of the process over a long period (study of the carbon intensity of an emitter).

The higher a company's saved emissions, the greater its contribution to mitigating climate change.



3. Carbon Impact Ratio

Ratio of saved emissions to induced emissions.

The CIR represents a company's capacity to reduce GHG emissions in relation to the emissions generated by its activity and products. As such, it represents a company's contribution to the transition to a low-carbon economy at a given time.



2. Carbon footprint: investment-induced emissions

- High-stake sectors, emitting a significant amount of greenhouse gases (energy companies, transport, heavy industry, etc.) are analysed through a bottom-up approach, integrating Scope 1, 2 & 3 emissions (as defined by the GHG Protocol).
- Low-stake sectors, with low greenhouse gas emissions, are subject to a simplified analysis: only Scope 1 and 2 emissions are considered (actual data used if available, otherwise recalculated using sector averages).

A double-counting adjustment is made. The larger a company's carbon footprint, the higher the transition risk.



4. Portfolio temperature





Determined by positioning investments on an average global rating scale of the underlying constituents, calibrated with two benchmarks representing the 2°C and 3.5°C "Business as Usual" trajectories¹¹. A curve, using these two references, starting at +1.5°C and capped at +5°C allows¹² us to assess the temperature rise of the investments through its overall average score.

¹¹ The "Euronext Low Carbon 100" index represents the 2°C trajectory. It is specifically designed to reflect the investment needs to reach a 2°C world based on the IEA outlook. The 'Business as Usual' scenario is based on the IPCC scenario SSP3-7.0

¹² Corresponding to IPCC scenarios SSP1-1.9 and SSP5-8.5

77% of eligible assets were covered by the CIA methodology (64% under the in-depth approach and 13% under the simplified approach).




Figure 22: Summary of CCR's 2023 climate indicators

				
	Carbon footprint (tCO ₂ /€M EV.)	Emissions saved (tCO ₂ /€M EV)	Carbon Impact Ratio	Temperature (°C to 2100)
2023	148	13.9	0.09	2.4

Source: Carbon4Finance via Sequantix™, CCR

Carbon footprint, emissions saved and Carbon Impact Ratio

Figure 23: Carbon footprint results, emissions saved and Carbon Impact Ratio

		CCR		Euro corporate index	Euro equity index
		2022	2023	2023	2023
	Carbon footprint (tCO ₂ /€M EV)	155	148	161	151
	Emissions saved (tCO ₂ /€M EV)	35	13.9	22.5	13
	Carbon Impact Ratio	0.23	0.09	0.14	0.09

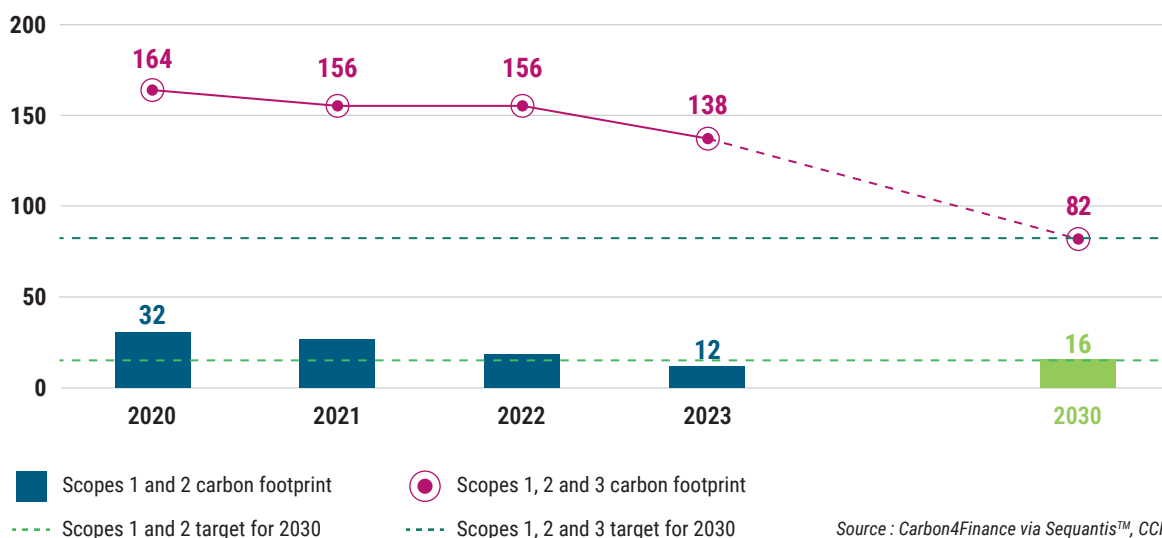
Source: Carbon4Finance via Sequantix™, CCR

The carbon footprint of the portfolio, which includes all asset classes (excluding direct real estate and non-looked through funds), has decreased by 5% in comparison with 2022 (scopes 1, 2 and 3).

Emissions saved were down, mainly due to a change in C4F's methodology for green bonds, despite an increase in AUM on these instruments, which produce avoided emissions thanks to projects in low-carbon transport (train infrastructure, buses, electric vehicles, bicycle lanes), in renewable energy (electricity production, transmission and distribution, energy efficiency) and in the building trade (construction and renovation).

The Carbon Impact Ratio of the portfolio is lower than in 2022, following the change in the calculation of emissions saved.

Figure 24: Carbon footprint results - Direct management (bonds issued by private issuers)



The target of reducing the carbon footprint (scopes 1 and 2) by 50% by 2030 compared with the baseline year of 2020 was achieved in 2023, ahead of schedule.

CCR wants to align with scientific and industry recommendations by including scope 3 in its carbon footprint reduction target.

At this stage however, the availability and reliability of data on Scope 3 emissions is limited, given among other challenges, the complexity of estimating all upstream and downstream emissions in the life cycle of a product. Despite this, CCR chose to include it in its GHG reduction objective for the sake of comprehensiveness, transparency and in anticipation

of improvements in the data, which will be all the more informative as it will be increasingly requested by institutional players.

As the investment universe is predominantly European, CCR believes that the forthcoming application of the CSRD regulation will involve more private issuers and help to reduce the portfolio's carbon footprint. In addition, the EU's 'Fit for 55' roadmap¹³ should improve the energy mix of countries, and therefore the energy profile of companies.

Temperature

Figure 25: Temperature Results

	CCR		Euro corporate index	Euro equity index
	2022	2023	2023	2023
Temperature (°C to 2100)	2.4	2.4	2.7	2.8

Source: Carbon4Finance via Sequantis™, CCR

The CCR portfolio is aligned with a 2.4°C trajectory equivalent to a better performing model than the Business as usual (3.5°C) and benchmark scenarios. CCR's ambition is to achieve the Paris Agreement's target of limiting global warming to below 2°C.

¹³ In June 2021, the European Climate Act set a new, more binding target of a 55% reduction in greenhouse gas (GHG) emissions by 2030 compared with 1990 levels.

Qualitative analysis of transition plans

Aware of the methodological limitations of the above two quantitative approaches, CCR is working on a qualitative analysis of the trajectory of its portfolios, in accordance with the recommendations of the *Observatoire de la Finance Durable*¹⁴.

To this end, the transition plans of private issuers are assessed. Initially, CCR concentrated on the directly managed portfolio of corporate bonds. This analysis will subsequently be extended to dedicated funds.

The analysis of the transition trajectory of private issuers is based on two criteria:

- Transparency and disclosure of their greenhouse gas emissions (data used: CDP).
- The ambition and credibility of the targets (data used: SBTi).

Figure 26: CDP Mapping: 2023 Climate Score

Companies that complete the CDP questionnaire are given a score according to their level of commitment and their management of climate issues: ('leader' is the highest, 'reporting' the lowest):

2023 Climate Score	Number of issuers	"Allocation (number of issuers)"	"Allocation (AUM in market value)"
Covered	127	89%	82%
Leader	77	54%	39%
Management	23	16%	21%
Awareness	7	5%	8%
Reporting	1	1%	0%
Reporting in progress	19	13%	15%
Not covered	15	11%	18%

- **Leader:** a company that is fully aware of environmental issues and their impact, and is taking strong, tangible action to remedy them.
- **Management:** a company that manages issues relating to its impact and its management of resources (increased awareness).
- **Awareness:** a company that is aware of the influence of environmental issues but does not take them into account in its strategy.
- **Reporting:** a company that provides minimal information in response to the questionnaire and for which environmental issues are not part of its core strategy.

¹⁴ Publication_de_recos_n3_Indicateurs_du_Comite_Scientifique_dExpertise_de_IOFD_v2.pdf (observatoiredelafinancedurable.com)

82% of the portfolio of corporate bonds held directly is covered by the CDP questionnaire, with nearly three-quarters of issuers exhibiting high ratings including 39% showing the application of environmental best practices and 21% implementing actions to address environmental issues, minimise risks, and capitalise on opportunities.

Figure 27: SBTi Mapping

The *Science Based Targets initiative* (SBTi) offers a benchmark for corporate transition targets, introducing the first global scientific standard aligned with the 1.5°C trajectory. The validation of these targets follows strict criteria specific to each business sector, ensuring ambitious, reliable, and achievable commitments for investors. The 1st step is a written commitment from the company, which then has two years to validate its objectives.

	Number of issuers	“Allocation (number of issuers)”	“Allocation (AUM in market value)”
Committed SBTi	94	66%	53%
Validated target	74	52%	43%
Committed	20	14%	10%
Uncommitted SBTi	48	34%	47%
Not committed but members of the NZBA alliance	19	13%	26%

As a result, 53% of the direct management portfolio is committed to the transition in a credible way: 43% of issuers already have a SBTi-validated trajectory and 10% are committed to building their trajectory and having it validated within the next two years. Of the 47% that have not committed, CCR identifies issuers that have committed to other initiatives (e.g. Net Zero Banking Asset Management), and those for which SBTi has not yet established a methodology to best interpret this result.

The portfolio of corporate bonds is therefore already on a natural path towards decarbonisation (provided that the companies committed to SBTi respect their commitments).

IMPROVEMENT PLAN

CCR is working to create a climate filter based in part on these qualitative data. This would complement the ESG analysis by focusing on the existence and credibility of the issuer's transition plan upstream of direct investments.

Real Estate

CCR is committed to improving the energy performance of the buildings it owns, to which it devotes a significant proportion of its renovation budget. Additionally, CCR has commissioned energy audits for each of its buildings, identifying areas for improvement and developing a multi-year works plan.

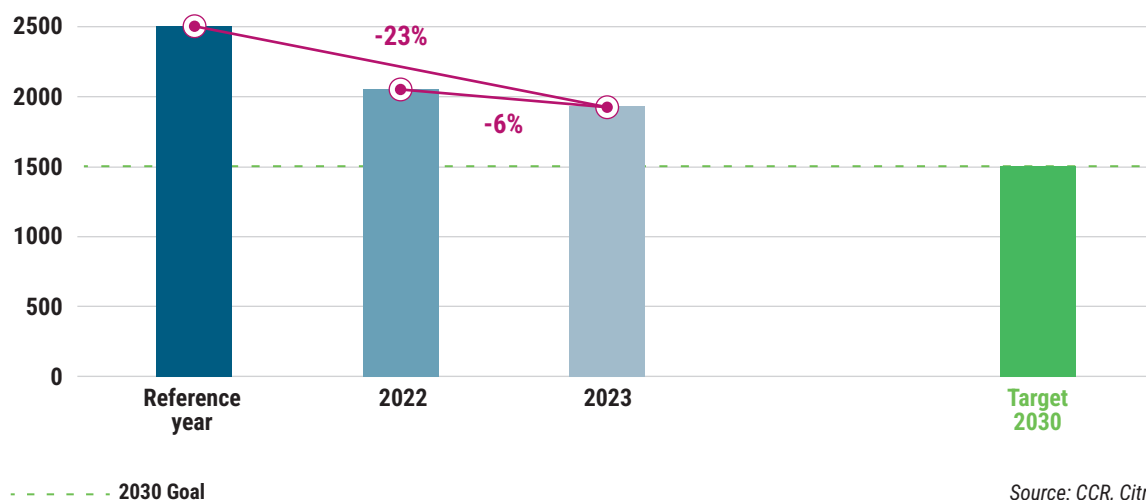
Office Space

A partnership was renewed with Citron® Énergie, which centralises and analyses the energy consumption of buildings and thus enables CCR Re to prepare its energy reduction actions in accordance with the provisions of the French “Tertiary Eco-Energy” Decree¹⁵.

The tertiary eco-energy scheme has now entered its operational phase. In accordance with Article 175 of the Elan Act, the objective is to achieve a reduction in final energy consumption by 40% by 2030, 50% by 2040, and 60% by 2050, compared to a reference energy consumption level or by reaching a specified level of final energy consumption in absolute terms.

The regulations set 31 December 2022 as the deadline for owners or tenants of office buildings of more than 1,000 m² to enter their energy consumption data for 2020 and 2021, as well as for the reference year, on the OPERAT platform.

Figure 28: Tertiary Decree Performance (MwH)



Source: CCR, Citron

¹⁵ The Tertiary Decree requires the implementation of actions to reduce the final energy consumption of existing CRE buildings to achieve a reduction in final energy consumption of at least 40% in 2030, 50% in 2040 and 60% in 2050 compared to 2010.

Residential Real Estate

CCR would like to include residential real estate in its strategy of alignment with the Paris Agreements and plans to use Energy Performance Certificates¹⁶ (EPCs) to achieve this.

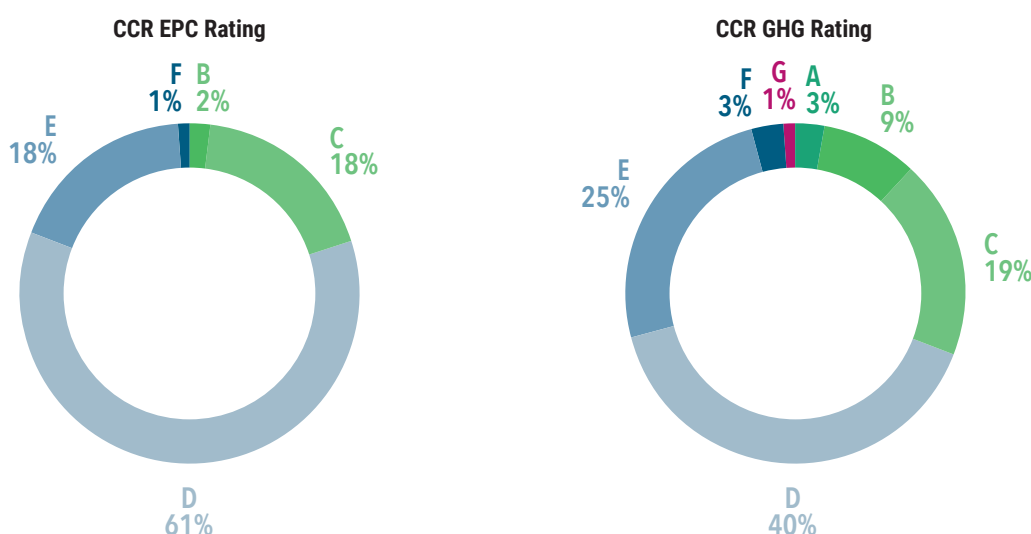
An EPC can be used to classify a property as energy-decent and serves as a benchmark (particularly when it comes to renting or selling dwellings that consume a lot of energy, also known as “thermal sieves”).

EPCs have gained significant importance since the 2021 Climate Act: Indeed:

- An EPC influences the sale price, as buyers consider the energy rating along with the cost, difficulty, and timeline of the work required to make a property energy-efficient when making an offer;
- It impacts the rental market, as the outcome determines whether a property can be rented and at what price.

The reliability of the EPC outcome has been questioned because the calculation method is seen as insufficiently scientific, overly standardised, and unreflective of the property’s actual use.

Figure 29: Breakdown by lot by EPC classification



This means that 99% of EPCs are rated between A and E and 96% of GHG EPCs are rated between A and E.

CCR does not have any dwellings with an EPC G-rating, as the majority of its properties have an EPC D-rating.

CCR acknowledges certain difficulties:

- related to the instability of the EPC assessment methodology,
- and related to its residential property portfolio: mainly composed of Haussmann-style buildings in the heart of Paris, which makes renovation and refurbishment a complex task (especially when tenant-occupied).

¹⁶ Energy Performance Certificates (EPCs) provide information on the energy and climate performance of dwellings and buildings, using A to G ratings to assess their energy consumption and impact on greenhouse gas emissions.

7. BIODIVERSITY STRATEGY

aligned with long-term objectives

For several years now, scientific reports, namely those of the IPBES¹⁷, have been warning of the increasing deterioration of biodiversity and making companies aware of the risks linked to the loss of biodiversity and the need to control their impacts or pressures on the diversity of ecosystems and species.

The IPBES identified five direct drivers of biodiversity loss as changing use of sea and land, overexploitation of resources, climate change, pollution and invasive non-native species.

The 1992 Rio Earth Summit¹⁸ and the Aichi Strategic Plan 2011-2020 set the framework for a sustainable future in the run-up to COP 15. This framework has “the objective, by 2030 and 2050, to take urgent action across society to conserve and sustainably use biodiversity¹⁹ ».

COP15, or the Conference of the Parties on Biodiversity, held in Kunming in October 2021 for its 1st session and finalised in Montreal in December 2022, established a new global strategic framework for biodiversity post-2020²⁰ with the establishment of 23 targets to be achieved by 2030 if we are to live in harmony with nature by 2050.

The most emblematic targets are to ‘Protect 30% of Earth’s lands, oceans, coastal areas, inland waters’; ‘Reduce by half both excess nutrients and the overall risk posed by pesticides and highly hazardous chemicals’; ‘Phase out subsidies that harm biodiversity’; and ‘Raise international financial flows to developing countries, to at least US\$ 30 billion per year by 2030’.

7.1 Protecting Biodiversity within the Investment Strategy

In line with its commitments, CCR has enhanced its SRI policy by integrating the concept of biodiversity and in 2022, the company adopted a biodiversity strategy.

To define and structure its commitments, CCR based itself on two goals of the 1992 Convention on Biological Diversity: the conservation of biodiversity and the sustainable use of its components. To clarify the goals, CCR also based itself on COP15. This approach is part of a continuous learning and improvement process and is also based on industry recommendations place²¹.

Since 2022, CCR has been committed to four objectives:

1

Understanding concepts and methodologies

2

Identifying, assessing and measuring dependency-impact relationships to analyse biodiversity-related risks and opportunities

3

Reducing the impact of portfolio investments on biodiversity (Target 7)

4

Financing solutions that help restore or preserve biodiversity (Targets 2 and 19)

¹⁷ IPBES: Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem, the equivalent institution to IPCC for biodiversity.

¹⁸ <https://www.cbd.int/doc/legal/cbd-fr.pdf>

¹⁹ <https://www.cbd.int/doc/c/d40d/9884/b8a54563a8e0bf02c1b4380c/wg2020-03-03-fr.pdf>

²⁰ The 20 Aichi targets adopted in 2010 were due to expire in 2020.

²¹ Guides from France Invest ‘The integration of biodiversity in private equity’ and France Assureurs ‘Insurance and biodiversity: challenges and outlook’.

To meet these four objectives, CCR uses a number of levers:

Regulatory
and scientific watch

Qualitative and
quantitative measures
of the portfolio (impacts
and dependencies
on biodiversity)

Implementation of a
biodiversity benchmark,
particularly in sectors
with high impacts

Communication with
companies through
the collective dialogue
conducted by the CDPP

CCR is working to define sector-based policies, targets and action plans.

Financing and Exclusion Policies

- **Exclusion policy for issuers not committed to a sustainable approach:**

As a first step, CCR chose to focus on palm oil because of the massive deforestation caused by its cultivation and the consequences of this deforestation on the fauna, flora, activities and lifestyles of local populations. This means that issuers with palm oil sales exceeding 5% and that are not RSPO-certified, are excluded from the investment universe.

In addition, from Q1 2024, in line with the 7th target of COP 15²² CCR will exclude companies that derive more than 10% of their sales from the manufacture or sale of pesticides, which disrupt biodiversity and ecosystems through the direct or indirect disappearance of certain animal and plant species²³.

In addition, also from Q1 2024, CCR will exclude companies generating more than 10% of their sales from Genetically Modified Organisms (GMOs), because of the damage they cause to biodiversity and the negative social impact they are often associated with this method of production.

- **Financing policy for solutions that help to preserve biodiversity**

This policy is mainly expressed through investment in sustainable bonds. Although the market centred on this concept is still underdeveloped, CCR that green bonds, through the “climate-biodiversity nexus²⁴” have a positive impact on the preservation of biodiversity.

Credible funds on the theme of biodiversity preservation and/or funds offering an environmentally sustainable investment objective linked to biodiversity are also subject to investment analysis.

In real estate management, we are looking at a number of avenues: the greening of buildings, the reuse of resources, and the Biodiversity certification awarded to a restructured CRE building in the Greater Paris region.

²² 'Reduce by half both excess nutrients and the overall risk posed by pesticides and highly hazardous chemicals' by 2030.

²³ cf. INRAE 2022 report “Impacts of plant protection products on biodiversity”.

²⁴ Term used by Banque de France, the French central bank, to explain the ties between biodiversity and climate Biodiversity, macroeconomics and finance: what we do know, what we don't know yet, and what we have to do | Banque de France (banque-france.fr).

7.2 Identifying Impacts and Dependencies on Biodiversity

CCR considers that, if the entire value chain of its activities is considered, 100% of its assets depend on biodiversity and are at risk of its erosion.

As UN Development Programme (UNDP) Administrator, Achim Steiner, pointed out during COP15, *“Biodiversity is interconnected, intertwined, and indivisible with human life on Earth. Our societies and our economies depend on healthy and functioning ecosystems. There is no sustainable development without biodiversity.”*

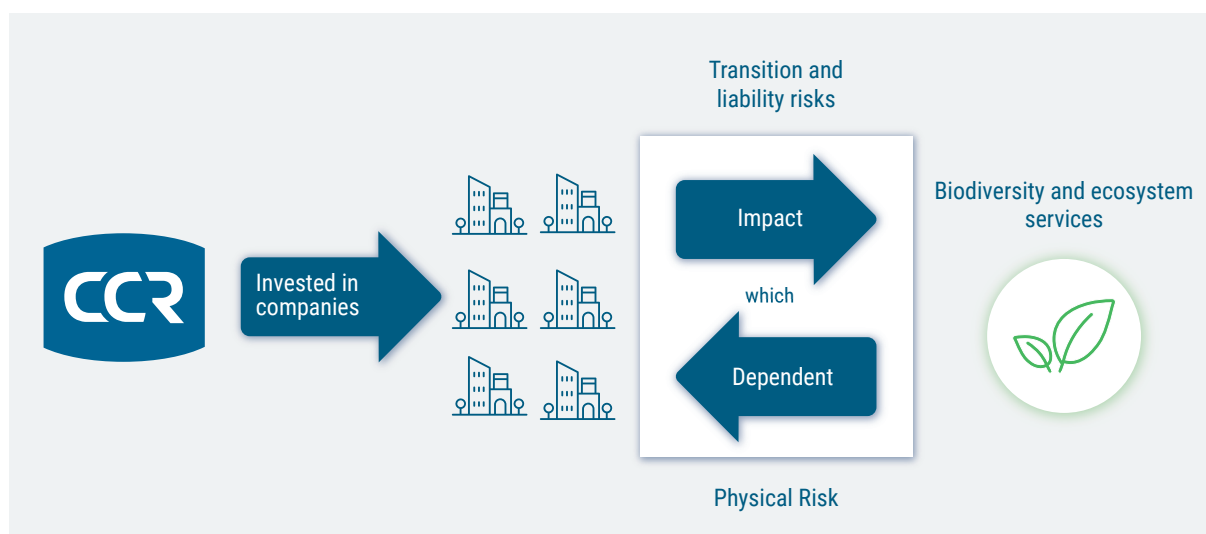
CCR does not wish to use a unique indicator to capture the multidimensional and complex nature of biodiversity.

Biodiversity is not only about ecosystems and life forms, but also about the relationships and interactions between the different organisms in the biosphere and

between these organisms and their environment. *“It is illusory to hope to describe biodiversity by a single indicator”* (Chevassus-au-Louis et al., 2009).

Reflecting this complexity, academic research offers a wide range of quantitative and qualitative indicators. Rather than comparing them, **CCR has chosen a complementary approach by monitoring a quantitative indicator (biodiversity footprint) and maintaining a qualitative analysis of these issuers.**

In addition, to ensure a dual materiality approach, the dependency of companies in the portfolios on ecosystem services and the pressure exerted by these companies on biodiversity were assessed.



Qualitative measures

Methodology

CCR has chosen to use the ENCORE tool, *Exploring Natural Capital Opportunities, Risks and Exposure*, which offers a comprehensive approach. This tool was developed by the Natural Capital Finance Alliance in partnership with the United Nations Nature Conservation Monitoring Centre.

ENCORE takes a dual approach to biodiversity: exposure to biodiversity-related risks using the dependency indicator, and negative impacts on biodiversity using the impact indicator.

Covering many business sectors (86 production processes), ENCORE makes it possible to identify for each production process its impact level on (11) natural capital assets and its level of dependency on (21) ecosystem services. The materiality of the impact of dependency is assessed on a scale of 0 to 5 (increasingly important). Dependency scores are the product of two factors: the degree of disruption to production processes if the ecosystem service were to be lost, and the expected financial losses that would result.

Results

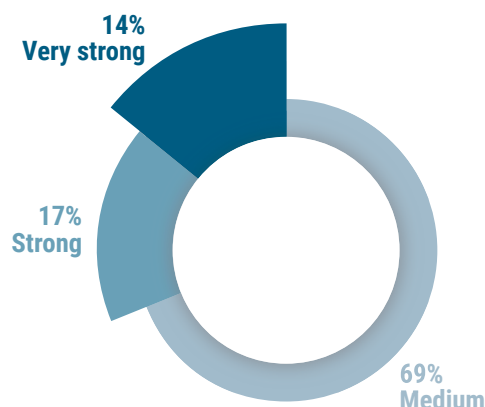
The study was carried out on the portfolio of directly owned corporate equities and bonds, excluding public sector issuers (which account for 24% of the portfolio).

Limits

The main limitation of the ENCORE methodology is that it remains very generalistic, and does not take into account the diversity of companies' activities, their location (and related regulations), or the quality of the production process. There is therefore a significant sector bias.

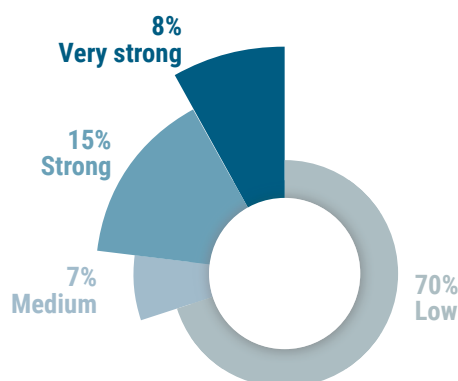
The methodology provides a general understanding of the risks associated with biodiversity without any notion of a company's performance, initiatives, actions, or mitigation measures.

Figure 30: Biodiversity Impact of CCR's Direct Investment Portfolio



Only 31% of AUM have a strong (17%) or very strong (14%) impact on biodiversity. 25% of the strong or very strong pressures on biodiversity come from water use.

Figure 31: Biodiversity Dependency of CCR's Direct Investment Portfolio



Only 23% of AUM are highly or very highly dependent on biodiversity. 34% of high or very high dependency is explained by dependency to surface water and 23% by dependency to groundwater.

The results of this analysis show the need to adopt a specific approach to water in the biodiversity strategy.

Additional Analysis to Water exposure

The results obtained from the ENCORE analysis demonstrated the importance of specific monitoring of the ‘water’ theme.

In fact, many companies have manufacturing sites in regions that are already or are likely to become water scarce. CCR has therefore decided to assess the extent to which current and future water management risks are considered, both in terms of strategy and use by the companies in its portfolio.

To do so, CCR used the CDP database and, more specifically, the ‘Water’ questionnaire, which assesses the management of risks related to water consumption.

The CDP assigns scores ranging from A to D (or F for companies that were approached but did not respond, with D being the lowest score) for companies identified by sector as having an impact and/or material dependence on water. Scores are awarded on the basis of effective management of the risks associated with water management.

This analysis covered listed corporate issuers in the direct bond portfolio, i.e. 48% of this portfolio (representing 33% of CCR’s total assets). **Only 71 issuers, i.e. 29% of the scope considered, were identified by CDP as materially impacting and/or dependent on water.**

Figure 32: Breakdown of portfolio issuers by CDP Water Security 2023 Score

2023 Water Score	Number of issuers	“Allocation (number of issuers)”	“Allocation (AUM in market value)”
Couvered	71	50%	29%
Leader	31	22%	13%
Management	17	12%	7%
Awareness	4	3%	2%
Reporting	3	2%	1%
Reporting in progress	16	11%	6%
Not covered	71	50%	71%

The majority of issuers have a high “2023 Water Score” (48 issuers are between A and B-), demonstrating effective management of water-management related risks.

IMPROVEMENT PLAN

CCR intends to extend the scope of its analysis to dedicated funds initially and is considering more in-depth monitoring of D- and F-rated issuers.

Quantitative measurement

To assess the quantitative impact of investments on biodiversity, CCR used data produced by Carbon4 Finance which, in partnership with CDC Biodiversité, developed a joint methodology: *Biodiversity Impact Analytics- Global Biodiversity Score (BIA-GBS)*.

The impact of investments is assessed by the biodiversity footprint, which is comparable to a carbon footprint: the larger a company's footprint, the greater the transition risk.

Methodology

The GBS tool allows for the quantitative assessment of the contribution of companies to the various pressures on biodiversity and the translation of these pressures into potential impacts using the GLOBIO model. Carbon4 Finance then applies this tool to the portfolio through BIA.

GBS calculates the biodiversity footprint of an economic activity, measured by the Mean Species Abundance (MSA) indicator which is the ratio of observed biodiversity to undisturbed biodiversity. The MSA indicator assesses the ecological integrity of ecosystems on a scale of 0% to 100%. As the pressure increases, the percentage decreases. Thus a natural virgin forest will have an MSA indicator of 100% while a cement slab will have an MSA indicator of 0%.

This assessment is carried out along the entire value chain. Scopes 1, 2 and 3 impacts on the operational sites and upstream (suppliers, distribution chain, etc.) are covered in this study (downstream on a case-by-case basis).

GBS has implemented the MSA.m² equivalent which provides the quality and quantity of biodiversity: 1 MSA.km² lost is equivalent to the total destruction of 1 km² of initially intact natural landscape. This metric shows two levels of aggregation: the combination of terrestrial and aquatic biodiversity (MSAppb) and the combination of static and dynamic impacts (MSAppb*). Thus, stocks and flows of impacts are accounted for: the accumulation of past impacts represents static impacts, ongoing impacts, dynamic impacts.

This measure has its limitations, namely because of the unavailability of the data necessary for its calculation, as well as the use of approximations and the failure to take into account all the pressures identified by the IPBES (the marine environment and invasive species).

Result: Biodiversity footprint- intensity

To compare the impact of portfolios, it is necessary to use the MSA.m²/€K intensity indicator, which links the biodiversity footprint to the amount invested.

This study was carried out using the SequantisTM platform. It covered all corporate bonds and equities held directly or via looked-through dedicated funds (i.e. 37% of total assets by market value)²⁵. Coverage was respectively 93% and 82% for each portfolio.

²⁵ The current methodology overestimates the impacts for sovereign bonds (it does not deduct the impact of exports in the calculation of country impacts), so CCR has opted to exclude them from the scope under review this year. Once the methodology matures and stabilises, this will be reconsidered.

Figure 33: IPBES pressure biodiversity and distribution of the overall score

	Direct Management	Dedicated Funds
Intensity MSA.m²/€K		
Aquatic - dynamic	0.0	0.1
Aquatic - static	4.1	5.0
Land - dynamic	3.2	3.4
Land - static	59.6	69.1
IPBES breakdown		
Changes in land and sea use	18%	17%
Climate change	72%	72%
Pollution		
Direct Operation		

Source: Carbon4Finance via Sequantis™, CCR

This analysis shows that the impact of portfolios on biodiversity is mainly caused by the terrestrial ecosystem.

Climate change and land use are the predominant pressures exerted by the companies in which the portfolios invest. These results justify CCR's initial approach of taking into account biodiversity in the fight against global warming.

IMPROVEMENT PLAN

CCR is committed to a process of ongoing improvement in terms of knowledge of concepts and the application of scientific recommendations. A number of areas for improvement have been identified in terms of understanding the risks associated with the erosion of biodiversity, which will help enhance the strategy:

- **Enhancing the quantitative approach by applying the SFDR and Taxonomy regulations:**
 - The SFDR regulation incorporates biodiversity issues, in particular through the 'Principals Adverse Impacts' or PAIs. These pressure indicators can feed into the funds' biodiversity analysis grid (for example with the mandatory PAI "Activities negatively affecting biodiversity-sensitive areas").
 - The 6th objective of the Taxonomy Regulation involves "the protection and restoration of biodiversity and ecosystems". It will provide a common framework for the identification of activities that contribute to the conservation or enhancement of ecosystems ("contribution" approach) and those that significantly reduce the pressures on ecosystems ("mitigation" approach).
- **Setting quantitative targets.** Once a consensus has been reached on a key indicator to be monitored, CCR follows the scientific and industry recommendations and makes any necessary commitments.

8. ESG RISK MANAGEMENT: approach for the consideration of ESG criteria, including physical, transitional and responsibility risks associated with climate change and biodiversity

8.1 Identifying sustainability risk

Sustainability risk is defined in the SFDR as an “environmental, social or governance event or condition which, if it occurs, could cause an actual or potential material negative impact on the value of an investment”.

These sustainability risks are identified, assessed, and monitored on a regular basis by the Investment Department prior to any investment and then on a quarterly basis on the inventory.

ESG criteria are integrated into investment decisions through exclusion policies and issuer selection based on ESG risk analysis and controversy monitoring. The monitoring process covers all the financial asset classes in CCR's portfolio.

8.2 ESG analysis results (excluding direct real estate)

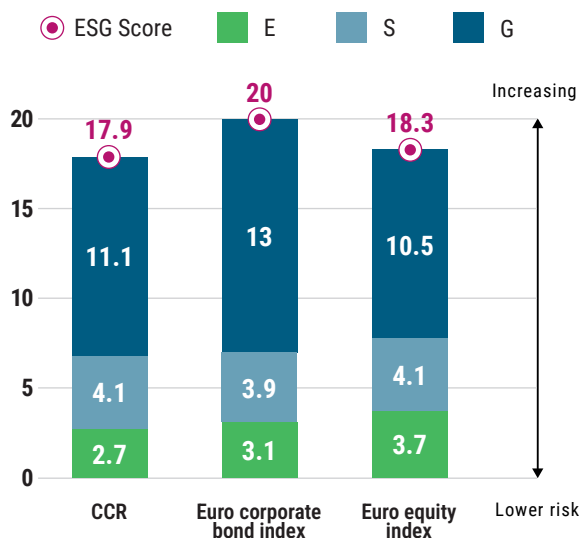
The ESG risk of the financial portfolio is based on Sustainalytics data (via the Sequantix™ platform) and covers assets held under direct management (excluding real estate) and under delegated management (excluding non looked-through funds), i.e. 90% of the portfolio assets. 88% of the scope is covered by Sustainalytics.

The Sustainalytics ESG Risk focuses on issuers. The types of investment in the portfolio are not considered. For a given issuer, the ESG score of a sustainable bond should be better than that of a conventional bond. The ESG risk of the portfolio may seem overestimated: the ongoing investment effort in sustainable bonds is not reflected in this assessment.

However, the ESG risk of the portfolio is low at 17.9/100, below the benchmarks (corporate bonds and eurozone equities) and relatively stable in comparison to 2022.

Between 2022 and 2023, the Sustainalytics methodology changed for quasi-public entities (which represent around 10% of CCR's portfolio). Previously, these entities were not rated by Sustainalytics, so CCR assessed their risk based on the sovereign score of their ultimate issuer.

Figure 34: ESG risk of the CCR portfolio and comparison with benchmark indices

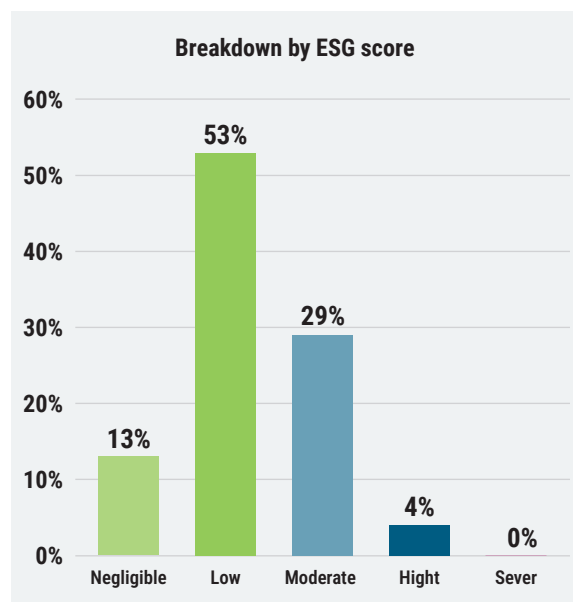


Source: Sustainalytics via Sequantis™, CCR

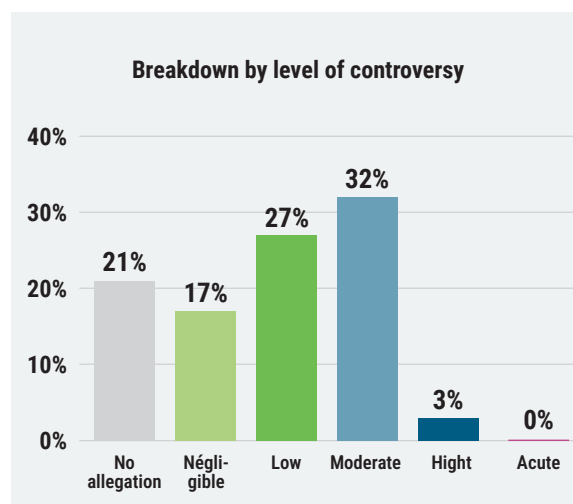
The portfolio's ESG risk is considered low and under control

Sustainalytics now evaluates these issuers using a methodology similar to that applied to private entities, with only partial consideration given to their government affiliation. As a result, the assessed risk of these entities has increased compared to last year.

Figure 35 : Portfolio breakdown by ESG score and controversy level



Source: Sustainalytics via Sequantis, CCR



The low level of ESG risk in the portfolio is primarily due to its geographical allocation and the significant weighting of European issuers.

The primary risk stems from governance issues, predominantly within the financial sector, which constitutes 37% of the analysed portfolio. Additionally, CCR has minimal exposure to high-risk sectors, with only 1% in energy.

Figure 36: Geographical and Sector-Based Allocation of the ESG Score

	Weight	ESG risk	Contribution		Weight	ESG risk	Contribution
Europe	81%	17.7	14.3	Finance	37%	20.5	7.6
North America	10%	21.3	2.1	Public sector	32%	12.7	4.1
Asia/ Pacific	3%	20.9	0.7	Industrials	7%	21.2	1.4
Africa/ Middle East	0%	23.8	0.1	Consumer discretionary	5%	18	0.8
Latam and the Caribbean	1%	23.3	0.2	Non-cyclical consumption	5%	21.7	1
Supranationals	4%	9.1	0.4	Utilities	4%	21.3	0.8
	100%		17.8	Information Technology	3%	16.6	0.5
				Healthcare	3%	21.3	0.6
				Materials	2%	20.5	0.3
				Real estate	2%	10.3	0.2
				Energy	1%	31	0.4
				Telecom	1%	19.3	0.2
					100%		17.9

Scale of risk

Negligible	Low	Moderate	High	Severe
0-10	10-20	20-30	30-40	>40

Source: Sustainalytics via Sequantis, CCR

A quantitative estimate of the financial impact of ESG risks is not presently available. However, CCR uses the proportion of its portfolio invested in issuers with high risk and/or facing severe controversy as an initial approach and proxy.

The distribution of ESG risks shows very low portfolio exposure to issuers with high or acute risk (i.e. greater than 30). Similarly, exposure to issuers with severe or high (4) and very severe or acute (5) controversy levels is extremely low.

8.3 Climate risk

The valuation of assets can be impacted by climate change through transition risks and physical risks, otherwise known as “Climate risks”.

To assess the financial impact of these two risks, CCR has chosen to use the method developed by CLIMAFIN, a choice justified by the scientific quality of their methodology (recognised and used by EIOPA), for its entire looked-through portfolio.

Transition risk

Transition risk is the financial risk associated with the process of adjusting to a low-carbon economy: regulatory and market changes, technological innovations and disruptions.

This transition to a low-carbon economy will generate economic shocks, particularly if it is implemented in a haphazard manner, i.e. insufficiently anticipated, poorly coordinated or delayed.

The sectors exposed to this risk are those with high greenhouse gas emissions (fossil fuels, energy-intensive industry, agriculture, transport, etc.).

CLIMAFIN enables the NGFS²⁶ forward-looking climate transition scenarios to be translated into financial shocks, providing investors with risk metrics²⁷. Their methodology covers listed company shares, corporate bonds and loans, and sovereign bonds.

CLIMAFIN is a fintech founded by three global climate risk experts: S. Battiston, A. Mandel and I. Monasterolo. They have developed a methodology to incorporate climate scenario projections into financial valuation models. This methodology has been the subject of a series of scientific publications¹. It is referenced in the latest IPCC report and has been used by EU regulators².

¹ Namely Battiston et al. “A climate stress-test of the EU financial system” published in Nature Climate Change, Mandel et al. (2021) “Risks on Global Financial Stability Induced by Climate Change” published in Climatic Change or Battiston et al. “Accounting for finance is key for climate mitigation pathways” published in Science.

² See the December 2019 EIOPA report on financial stability, which uses the CLIMAFIN methodology: *Financial Stability Report - December 2019* (europa.eu). The PRIs also list CLIMAFIN as one of the suppliers of climate risk data: *Providers of Scenario Analysis and Climate Risk Metrics* | PRI Web Page | PRI (unpri.org).

²⁶ Network for Greening the Financial System, a network of central banks and financial supervisors aiming to boost the greening of the financial system. Since June 2020, the NGFS has been developing climate scenarios that explore different possible trajectories for the transition to a low-carbon economy (by simulating more or less ambitious public climate policies with varying levels of planning) and the associated physical impacts. *NGFS Scenarios Portal*.

²⁷ The method is based on the Climate Stress-test by Battiston et Al. (2017, academic reference tool).

CLIMAFIN METHODOLOGY

The transition risk model developed by CLIMAFIN considers the orderly¹ and disorderly² scenarios compatible with a temperature rise of between 1.5°C and 2°C. The model simulates variations in economic and technological trajectories resulting from the introduction of climate policies, comparing these to a baseline scenario (in this case the NDC trajectory³). It infers the impact on the value of a financial asset as a function of the issuer's sector and technological characteristics.

For a given issuer, the shock depends on 5 factors:

- the degree of planning and the level of ambition of the GHG emissions reduction policy,
- the model used to translate climate targets into macroeconomic variables⁴,
- the time horizon (2030, 2040, 2050 and 2080),
- the issuer's country of incorporation: each country has its own current energy mix, its own ambitions for 2050-2100 and its own degree of credibility,
- the economic sector⁵.

The model generates a distribution of shocks, each shock corresponding to a difference between the base scenario and the simulated scenario (orderly or disorderly transition), which may be positive for sectors benefiting from the transition or negative for sectors set back by the transition.

¹ Orderly transition: ambitious climate policies, implemented early and strengthened gradually.


















² Disorderly transition: climate policies are delayed, implying a more sudden and disruptive transition to comply with the Paris Climate Agreement (2015).


















³ NDC trajectory (Nationally Determined Contributions): NDCs embody efforts by each country to reduce their GHG emissions for which countries commit to at Climate COPs.

⁴ Also known as IAM models: Integrated Assessment Model. CLIMAFIN uses the IAM REMIND-MAGPIE 1.7-3.0 and MESSAGEix-GLOBIOM 1.0 models, and the GEM-E3 computed general equilibrium model.

⁵ Issuers are classified according to the CPRS (Climate Policy Relevant Sectors) classification defined by CLIMAFIN on the basis of the materiality of the impact of public climate action on the sector (this materiality is three-dimensional: contribution to GHGs, role in the energy value chain, sensitivity to the cost of public action).

Figure 37: Results of the transition risk stress test to 2030

Shock by sector 2030	Orderly transition shock			Orderly transition contribution		
CPRS sector	Poids	Choc				
Fossil Energy	1.54%	-11.68%		-0.18%		
Utilities	1.69%	-1.30%		-0.02%		
Energy-intensive sectors	6.79%	1.90%		0,13%		
Buildings	9.28%	2.27%		0.21%		
Transport	6.19%	1.06%		0.07%		
Agriculture	0.30%	1.86%		0.01%		
Finance	34.55%	2.10%		0.73%		
Scientific R&D	0.01%	0.37%		0.00%		
Others	27.81%	0.72%		0.20%		
Total	88.15%			1.14%		

Shock by sector 2030	Disorderly transition shock			Contribution in disorderly transition		
CPRS sector	Weight	Shock				
Fossil Energy	1.54%	-23,92%		-0.37%		
Utilities	1.69%	5,08%		0.09%		
Energy-intensive sectors	6.79%	1,63%		0.11%		
Buildings	9.28%	2,16%		0.20%		
Transport	6.19%	0,70%		0.04%		
Agriculture	0.30%	2,15%		0.01%		
Finance	34.55%	1,73%		0.60%		
Scientific R&D	0.01%	0,30%		0.00%		
Others	27.81%	0,52%		0,14%		
Total	88.15%			0.82%		

Source: CLIMAFIN à travers Sequantis™, CCR

Between now and 2030, the CCR portfolio is unlikely to lose value whether the transition is orderly or disorderly. On the contrary, the value of the portfolio would increase relative to its market trend value (+1.14% in an orderly transition and +0.82% in a disorderly transition), demonstrating the resilience of the portfolio, in contrast to benchmark indices with a negative shock in a disorderly transition (-0.32% for the eurozone corporate bond index and -1.19% for the eurozone equity index).

Its diversification helps to smooth out shocks, especially as portfolios are well exposed to low-carbon activities that support the transition.

The most penalising sector is the fossil fuel sector, which is most directly impacted by the transition risk. Because of its low weighting in the portfolio, it does not cause an overall negative shock.

Physical Risk

Physical risk refers to damage caused to property, people, and natural capital as a result of climate-related events, which can be of two types:

- Slow changes in climate conditions (rising water levels, gradual increase in temperature, deterioration in soil quality, etc.), corresponding to chronic risks;
- Sudden and unpredictable weather phenomena (hurricanes, fires, drought)..., which will increase in intensity and frequency, represent severe risks.

The TCFD identifies two main transmission channels through which these shocks will spread to the economy: the deterioration of physical assets and the disruption (or even interruption) of operations (value chain, workforce, sales, etc.).

METHODOLOGY

CCR CLIMAFIN covers to date four physical risks¹:

- Coastal flooding
- River flooding
- Hurricanes/Cyclones
- Forest fires

To simulate the loss of production assets for each counterparty, CLIMAFIN uses the geolocation of production sites² and on Sequant's sector-based activity (breakdown between intangible and tangible assets). This loss is reflected in the model by a loss of production assets and future cash flows, and therefore in the valuation of the impacted issuers³.

- ¹ For each of these risks, CLIMAFIN relies on climate impact models developed by recognised scientific consortia (DIVA, Hinkel et al. 2018 for coastal flooding; GLOFRIS, Ward et al. 2018 for river flooding; Ranson et al. 2014 for hurricanes; Howard 2014 for forest fires).
- ² Geographic granularity is 50*50 km.
- ³ Vulnerability is reflected differently across asset classes. For example, for a sovereign bond, the shock translates into a change in tax revenues and expenditure, whereas for a corporate bond, the shock translates into a change in the probability of default (see *CLIMAFIN Handbook: Pricing Forward-Looking Climate Risks Under Uncertainty* by Stefano Battiston, Antoine Mandel, Irene Monasterolo: SSRN).

Figure 38: Physical risks: Estimated loss²⁸ by peril until 2030 under RCP 4.5 scenario

"RCP 4.5 - 2030 Physical hazards"	CCR	Indice obligatoire corporate - ZE	Indice action - ZE
Coastal flooding	0.18%	0.11%	0.35%
River flooding	0.36%	0.31%	1.16%
Forest fires	0.00%	0.01%	0.01%
Hurricanes/Cyclones	0.14%	0.09%	0.53%
Total	0.68%	0.52%	2.05%

Source: CLIMAFIN à travers Sequantis™, CCR

The portfolio's value at risk due to physical climate risks is low between now and 2030. It is 0.67% in a RCP 4.5 scenario (i.e. global warming between +1.1°C and +2.6°C). The main risk to which the portfolio is exposed is river flooding, while the risk of forest fires is negligible.

The portfolio therefore appears to be highly resilient, especially when compared to the benchmark indices. Portfolio diversification in terms of geography and sector helps limit the extent of the shock.

It should be noted that the financial loss is underestimated here, as extreme events are considered to be independent and uncorrelated. This limitation is one of the areas for improvement on which CLIMAFIN is currently working to refine its methodology.

²⁸ 99% Value at Risk: product of counterparty exposure (capital intensity and geographical distribution of assets) * hazard (according to IPCC climate scenario and adaptation scenario) * vulnerability (damage intensity according to climate impact models).

Figure 39: Sectoral allocation of physical risk - RCP 4.5 scenario until 2030, main sectors

Sector	Weight	Total	Coastal	Fluvial	Forest fires	Hurricanes/ Cyclones
Financial activities	38.18%	0.27%	0.08%	0.14%	0.00%	0.05%
Manufacture	13.07%	0.12%	0.02%	0.07%	0.00%	0.03%
Real estate	8.95%	0.08%	0.02%	0.04%	0.00%	0.02%
Public administration	15.73%	0.08%	0.02%	0.04%	0.00%	0.01%

Source: CLIMAFIN through Sequantis™, CCR

Figure 40: Geographical allocation of physical risk - RCP 4.5 scenario until 2030, main countries

Sector	Weight	Total	Coastal	Fluvial	Forest fires	Hurricanes/ Cyclones
France	32.95%	0.23%	0.07%	0.11%	0.00%	0.05%
United States	7.51%	0.08%	0.01%	0.07%	0.00%	0.01%
Germany	6.54%	0.05%	0.02%	0.03%	0.00%	0.01%

Source: CLIMAFIN through Sequantis™, CCR

Furthermore, this information is based on an analysis the accuracy of which depends on the granularity of the information available (sector/geographical breakdown). 13.3% of the portfolio is subject to an in-depth breakdown²⁹, 10.7% to an average breakdown³⁰ and 76% to a basic breakdown³¹. The results will be refined as the census of issuers evolves.

Climate-related financial risks face uncertainties linked to the implementation of collective action and its consequences, as well as uncertainties related to climate change and its consequences.

However, CCR notes that the objective of raising awareness and strengthening expertise is at least as important as the results of the risk assessment itself.

²⁹ Geographical locations of production sites and primary activities.

³⁰ National location and primary activities.

³¹ National location and NACE code.

Directly owned real estate exposure to climate risks

Definition

The climate risk a building faces depends on its exposure to various climate hazards and its vulnerability to these hazards.

For a given climate hazard, a building's exposure is measured by the nature, intensity, and frequency of the hazard, along with the environmental factors that may enhance or mitigate its impact.

A building's vulnerability depends on its sensitivity, determined by technical criteria such as construction choices, and its usage factors, which include adaptation measures and crisis management processes.

The risk of climate-related hazards can therefore be assessed on the basis of a cross-analysis of exposure and vulnerability.

Risk Assessment for Buildings in France

To assess the exposure of its real estate portfolio to climate risks, CCR has opted to use the Bat - ADAPT tool, newly integrated into the R4RE platform of the *Observatoire de l'Immobilier Durable* (OID).

This tool uses different types of data:

- exposure levels are based on cross-references between various forward-looking climate indicators (projected climate risk for different levels of warming);
- territorial indicators are not forward-looking (known existence of certain parameters of the territorial context relating to the risk studied, to date) and depend on location.

To date, Bat-ADAPT assesses medium-term (2050) exposure to four hazards under an IPCC business-as-usual scenario (RCP 8.5 or SSP5-8.5) heat waves, droughts, precipitation, floods, and extreme cold.

Regarding vulnerability and cross-analysis, they pertain exclusively to the two hazards of heat waves and flooding.

By cross-analysing a building's vulnerability with its exposure to climate risks, a risk level for each hazard can be determined. A higher score indicates a greater risk.

Vulnerability	Exposure				
	0 - 20%	20 - 40%	40 - 60%	60 - 80%	80 - 100%
0 - 20%	Very low	Very low	Low	Low	Medium
20 - 40%	Very low	Low	Low	Medium	Important
40 - 60%	Low	Low	Average	Important	Important
60 - 80%	Low	Average	Important	Important	Very important
80 - 100%	Average	Important	Important	Very important	Very important

Figure 41: Exposure, vulnerability and cross-analysis of the real estate portfolio (residential and commercial) to physical risks, heatwaves and flooding

HEAT WAVE CROSS-ANALYSIS

Vulnerability	Exposure				
	Very low	Low	Average	High	Very strong
Very low					
Low					9%
Average					91%
High					
Very strong					

CCR's entire real estate portfolio is located in the Greater Paris region, which is highly exposed to the heatwave hazard. However, 9% of its properties have a low level of vulnerability and 91% a medium level. Cross-analysis indicates a significant level of risk from the heatwave hazard.

FLOOD WAVE CROSS-ANALYSIS

Vulnerability	Exposure				
	Very low	Low	Average	High	Very strong
Very low					
Low					
Average					9%
High		55%	36%		
Very strong					

Only 9% of CCR's properties have a very high exposure to flooding, 36% a medium exposure and 55% a low exposure.

Vulnerability is high in 91% of the portfolio, primarily due to the presence of basements, which significantly influences this result, while medium vulnerability accounts for 9% of the portfolio.

Cross-analysis indicates a medium to high level of risk from flooding.

Based on its expertise in modelling physical risks, CCR has a more detailed and comprehensive approach to flood risk, incorporating additional indicators such as run-off.

Proprietary tool integrating CCR modelling with the Bat-ADAPT tool

The CCR Real Estate Dashboard is a tool developed using a web application from *Portal for ArcGIS Enterprise* (ESRI technology) and comes from CCR's Reinsurance, Consulting and Modelling Department.

The summary of the impact of flooding proposed by CCR is the result of a multi-criteria geomatic analysis to represent the impact of flooding phenomena on the territory of Metropolitan France in a homogeneous way.

To do this, two indicators were used:

- An actual claims indicator based on historical claims from the CCR database (located down to each address, from 1995 to 2019 and analysed according to cost and frequency).
- An indicator of potential losses calculated by cross-referencing an indicator of flood hazard frequency based on probabilistic CCR modelling of flood return periods: **overflow, runoff and coastal flooding, and an indicator of the challenges faced by areas in the face of flooding** based on 'OSO Théia' land use data at 10m spatial resolution.

The analysis involves summing the scores for each indicator on a 25x25M grid across Metropolitan France.

The synthesis layer is thus classified into 6 impact classes, ranging from very slight to major. The water surfaces (permanent waters of IGN's TOPO BD) were not taken into account in the multi-criteria analysis.

CLAIMS AREAS - CCR HISTORICAL DATA

The claims areas are mapped on the basis of Nat Cat claims recorded by CCR and geolocated at the addresses of the claims.

These claims relate to flooding (flooding and/or mudslides, flooding due to rising water tables, coastal flooding), drought, landslides, earthquakes, avalanches, and other perils (other perils covered by the Nat Cat cover - e.g. torrential lava).

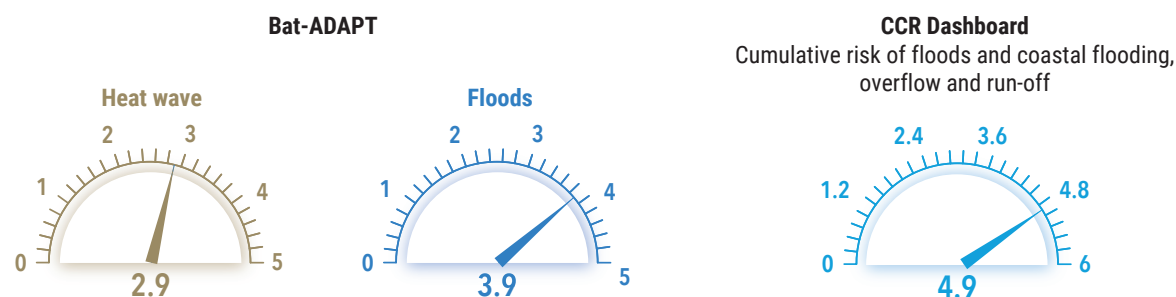
For confidentiality reasons, the claims were randomly positioned in a 100 m square centred on their original positions. A circle with a 75m radius is then created to chart the disaster zone. Areas containing fewer than 5 buildings were removed to make it impossible to identify the affected building(s).

The oldest recorded and geolocated claim in this database dates back to 1989. The claims database, which is used to map claims areas, has been expanded over the years.

Results

The real estate portfolios have a moderate vulnerability score (the lower the score, the better the outcome). This physical risk mapping and assessment exercise identifies areas for improvement which preserves the value of the assets and the well-being of the occupants.

Figure 42: Vulnerability Score



Sources: CCR, Bat-ADAPT, CCR Real Estate Dashboard

8.4 Risks associated with the erosion of biodiversity

Three categories of risk are related to the erosion of biodiversity:

- Physical risks resulting from the potential loss of ecosystem services on which economic activities depend. These risks may be chronic (more long-term, resulting from changes in environmental conditions) or acute (resulting from one-off events).
- Transition risks defined as the exposure to changes brought about by the ecological transition. They occur when the actions of an economic player do not align with stakeholders' expectations regarding biodiversity. These risks may be political, market-related, technological, or reputational. *litigues, de marché, technologiques et de réputation.*
- Liability risks arising from legal action under regulations or case law relating to the protection of nature.

The aim of risk analysis is to identify the financial materiality of a company's impacts and dependencies on biodiversity, based on the specific characteristics of the risk: its nature (current or emerging, exogenous or endogenous), its occurrence, its intensity, and its timeframe.

Particular attention must be paid to the relationship between the gross risk faced by the company and the measures implemented to control or mitigate this exposure, in order to determine the net risk.

To quantify biodiversity risks financially, CCR opted as a first step to identify the proportion of its portfolio at risk and the amounts invested in high-impact sectors, using data provided by Sustainalytics. This risk study is conducted quarterly on the portfolio of corporate issuers directly managed by CCR.

CCR presents here the analysis of the listed corporate issuers of the directly held bond portfolio, i.e. 48% of this portfolio (representing 33% of CCR's total assets). The approach taken is conservative and cautious, as CCR does not differentiate between green and non-green bonds. Given CCR's investment in issuers through various financial instruments, it has opted to focus on issuers rather than incorporating a bond-type distinction, which may result in a slight overestimation of risk.

It is the exposure to the 'land use and biodiversity' risk by Sustainalytics, as well as the quality of the management of this risk, that are studied. This issue focuses

on how companies manage the impact of their own operations on land, ecosystems, and wildlife. Topics covered include land conversion, land rehabilitation and forest management, as well as the protection of biodiversity and ecosystems. This issue is considered material for several industries: commercial services, food products, consumer services, chemicals, diversified metals, oil and gas producers, paper and forestry, precious metals, refiners and pipelines, steel, traders and distributors, utilities, and transport infrastructure.

Figure 43: Exposure to Biodiversity Risk in terms of Number of Issuers and Portfolio Weight (Gross and Net)



Only 19 issuers, representing 7% of this portfolio allocation, are materially exposed to the 'land use and biodiversity' issue.

Gross exposure is mainly categorised as low risk (12 issuers representing 4.4% of the portfolio) and CCR does not have any companies in its portfolio facing severe risk. All issuers have strong management executives, so residual risk is limited and becomes negligible. In fact, the risk can be limited by existing good practice in the sub-sectors (specific programmes, certification, transparency, communication with local communities, etc.).

CCR has chosen to complement this approach by identifying the issuers in its portfolio affected by:

- An environmental controversy within its own operations and in its supply chain concerning the issues at stake. Controversies relate to two issues:

‘Land use and biodiversity’ (incidents of non-compliance with sustainable land use practices, resulting in negative impacts on land or ecosystems) and ‘Water use’ (incidents of excessive water use associated with a company’s operations in areas where water is scarce);

- An activity that is significantly harmful to biodiversity. These include palm oil, fur and leather, pesticides, and genetically modified organisms.

CCR does not have any positions involving issuers facing significant environmental controversy³² or issuers generating high revenues from significantly harmful businesses³³.

IMPROVEMENT PLAN

CCR aims to expand the scope of assets analysed for biodiversity erosion risks. This includes extending coverage to issuers within dedicated funds through look-through analysis and to real estate assets through the development of the BIODI-Bat tool on OID’s R4RE platform.

CCR will also aim to refine its analysis by using forward-looking scenarios, relying on the development of advanced methodologies.

³² Level 4 and 5 controversies are considered significant.

³³ High income is defined as income in excess of 25% of revenues.










APPENDICES

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CCR'S EXCLUSION POLICY

CCR exclusions apply:

- to new investments: there may be issuers in stock related to the excluded theme which were therefore owned prior to the adoption of the said exclusion,
- to direct management investments. Dedicated funds are rolled out according to a specific timetable and problematic positions are reviewed with the management companies.

Regulatory exclusions		Adoption year
	<ul style="list-style-type: none">Controversial weapons: This means companies involved in the production, use, stockpiling, marketing or transfer of anti-personnel mines or cluster bombs, which are prohibited by the Ottawa (1999) and Oslo (2010) conventions	2020
	<ul style="list-style-type: none">Companies or countries that may be subject to an embargo or financial sanction: This means companies and states that do not comply with anti-money laundering and anti-terrorist financing regulations, states under embargo, states and territories deemed non-cooperative in terms of tax information exchange by the Financial Action Task Force (FATF)	2020
	<ul style="list-style-type: none">Companies that fail to comply with the principles of the UN Global Compact are excluded. Initially, since 2020, this exclusion was limited to ILO principles, but as of 2023, it has been broadened to encompass all UN Global Compact principles	Initiated in 2020
Sector-based exclusions		Adoption year
	<ul style="list-style-type: none">Tobacco: tobacco producers (2020)	2020
	<ul style="list-style-type: none">Fossil fuels: companies expanding in the coal, oil and gas sector; with specific thresholds and criteria for thermal coal (in particular companies generating more than 10% of their revenues from coal mining or coal-fired power generation).	Initiated in 2020
	<ul style="list-style-type: none">Non-sustainable palm oil: issuers with palm oil revenues exceeding 5% and which are not 'Roundtable on Sustainable Palm Oil' (RSPO) certified	2022
	 <ul style="list-style-type: none">Pesticides and GMOs: issuers directly generating more than 10% of their revenues from one of these two products	2023
ESG exclusion		Adoption year
	<ul style="list-style-type: none">Red-zone issuer: Any issuer with severe ESG risk (above 40 on the Sustainalytics scale) and facing acute controversy (Sustainalytics level 5)	2022

CCR'S FOSSIL ENERGY POLICY

Exclusions apply to new investments: there may therefore be positions on the issuers related to the excluded theme which were therefore owned prior to the adoption of the said exclusion.

Fossil fuels: coal, oil and gas

Since 2022 CCR no longer finances issuers with fossil fuel development projects (expansion plans for infrastructure, mines, power stations or production capacity, transformation, transport - all parts of the value chain are therefore concerned: upstream, midstream, downstream). This exclusion has been applied to the coal sector since 2021 and to non-conventional hydrocarbons since 2022.

Possible exception: issuer committed to a greenhouse gas reduction trajectory compatible with the goal of the Paris Agreement to limit global warming under 2°C, or if the financing involves a financial vehicle dedicated to the energy transition (namely green bond).

Covered scope: direct management (2023) and dedicated funds for delegated management (2024).

Specific thermal coal policy: coal phase-out by 2030 for all portfolios

Application conditions:

- Exclusion of companies with a coal-related portion of their income exceeding 10% of their turnover, except in cases involving a green bond or if the issuer has a credible transition plan.
- Exclusion, until 2025, of companies with installed coal-fired capacity in excess of 10 GW. From 2026, this threshold will be lowered to 5 GW.

Covered scope: direct management (2020) and dedicated funds for delegated management (2022).

Specific policy for unconventional hydrocarbons: exit by 2030

Application conditions:

- Exclusion of issuers producing unconventional hydrocarbons (upstream phase) unless it is a green bond and/or the issuer has a credible transition plan.

Covered scope: direct management (2022) and dedicated funds for delegated management (2023)

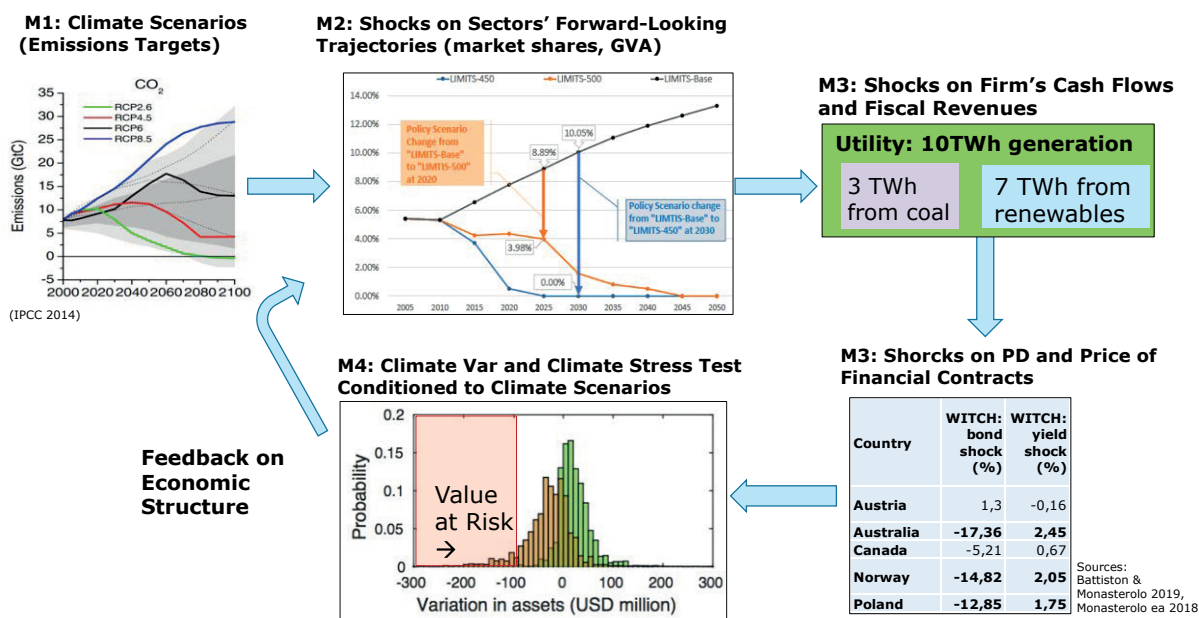
Definition of unconventional hydrocarbons:

Coalbed methane or coal seam gas; tight oil and gas reservoir; oil shale and shale oil; shale gas and shale oil; oil from tar sands; extra-heavy oil; ultra-deep offshore oil and gas; and fossil oil and gas resources in the Arctic (*as defined by the Arctic Monitoring and Assessment Program*).

Definition in line with that of the Scientific and Expertise Committee and based on the geological characteristics of hydrocarbon reservoirs (including reservoir viscosity and permeability), as well as on extraction methods.

STRESS TEST CLIMAFIN

Risques de transition



The CLIMAFIN methodology is based on four modules:

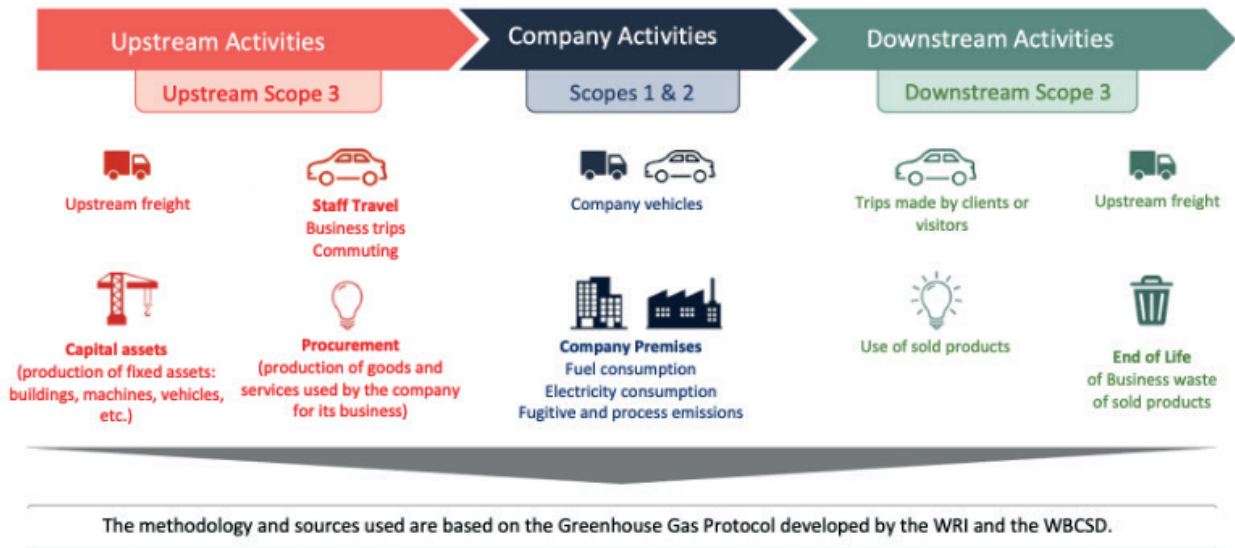
1. Set of scientific information, economic and market trajectories (IPCC, IAMs).
2. Information on (positive and negative) economic shocks associated with the transition scenario, broken down by economic activity and by region.
3. Integrated forward-looking approach.
4. Translation into financial risk metrics.

Physical Risk

Description of the methodology of shock transmission channels by financial instruments: CLIMAFIN Handbook: Pricing Forward-Looking Climate Risks Under Uncertainty by Stefano Battiston, Antoine Mandel, Irene Monasterolo: SSRN

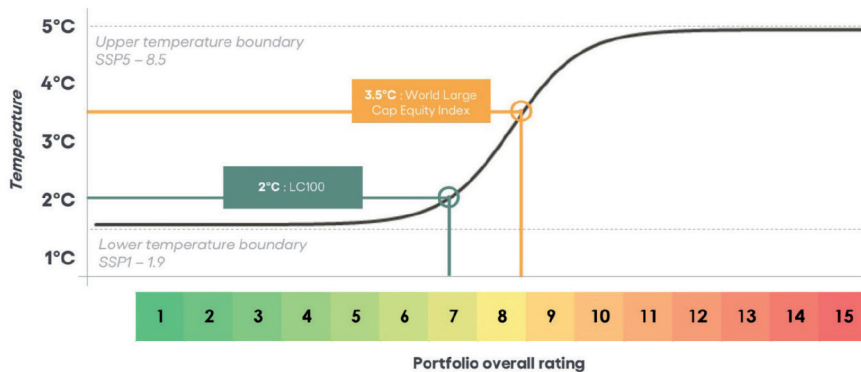
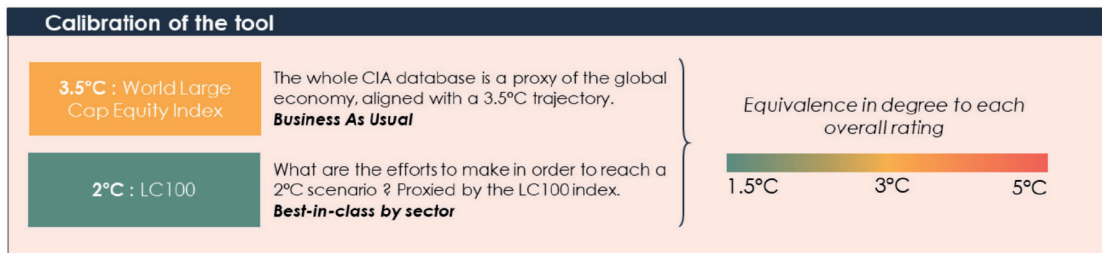
CIA METHOD, FOCUS ON THE CALCULATION OF THE CARBON FOOTPRINT

Scopes 1, 2 and 3



carbon4 | finance

Scenarios used



carbon4 | finance

DOUBLE-COUNTING TREATMENT IN THE CIA METHODOLOGY

Double counting emissions occurs when the same tonne of GHG emissions is counted more than once in a portfolio, usually due to the compilation of induced and saved emissions:

- within the sectoral value chain,
- between different sectors of the world economy,
- within a sovereign entity and all the companies included in such entity.

The CIA methodology treats each case separately to minimise double-counting issues.

Double-counting treatment in the same value chain

Measuring Scope 3 indirect emissions can lead to double counting for companies in the same sector - at company level - particularly for vertically integrated companies.

To avoid this first double-counting set, CIA considers that the sum of all induced emissions and saved emissions that have been accumulated in the creation of the final product is proportional to the company's value in creating the final product. The total induced emissions and saved emissions from sold products (quantified at company level) are multiplied by the company's share of the total value added along the value chain. However, the value added by a company on specific products is rarely disclosed, so the CIA methodology calculates the company's share in its value chain.

Thus, for a given product category, multiplying the indirect emissions induced by the company's share in the value chain becomes equivalent to multiplying the indirect emissions induced by €1 of the final product by the company's added value, in financial terms. The same rule applies to saved emissions.

Double-counting treatment between different sectors of the world economy

Double counting also tends to occur between three categories of players in the global economy:

- energy suppliers (e.g. the oil company that supplies fuel),
- energy and carbon intensive businesses (e.g. trucking companies),
- companies providing equipment and solutions (e.g. the truck manufacturer).

Therefore, the CIA methodology restates the total GHG emission figures by allocating one third of the emissions from each category. Both induced emissions and saved emissions are restated in this way, eliminating most multiple counting at portfolio level.

Treatment within a sovereign entity and all the companies included in such entity.

Another double counting elimination is applied to the portfolios. Indeed, on the macroeconomic front, GDP is impacted by corporate and sovereign income. To eliminate multiple counting issues in the portfolios, a ratio is applied to each category of issuer, representing the share of the company or sovereign in the average GDP.

With these three principles, the CIA methodology avoids the most common problems of double counting. In addition, the separate treatment of induced emissions and saved emissions provides valuable information, especially as the results are not distorted and highly comparable.

DEFINITION OF BIODIVERSITY AND PRESSURES FROM HUMAN ACTIVITY

There are several levels of biodiversity:

- Genes: what makes us up,
- Species: living things,
- Ecosystems: things that are not alive.

Biodiversity can be broken down into 8 natural capital assets...:




Atmosphere	Minerals	Land relief	Species
Habitats	Underwater relief	Soils and sediments	Waters

... which each provide ecosystem services that can be grouped under 4 major themes.

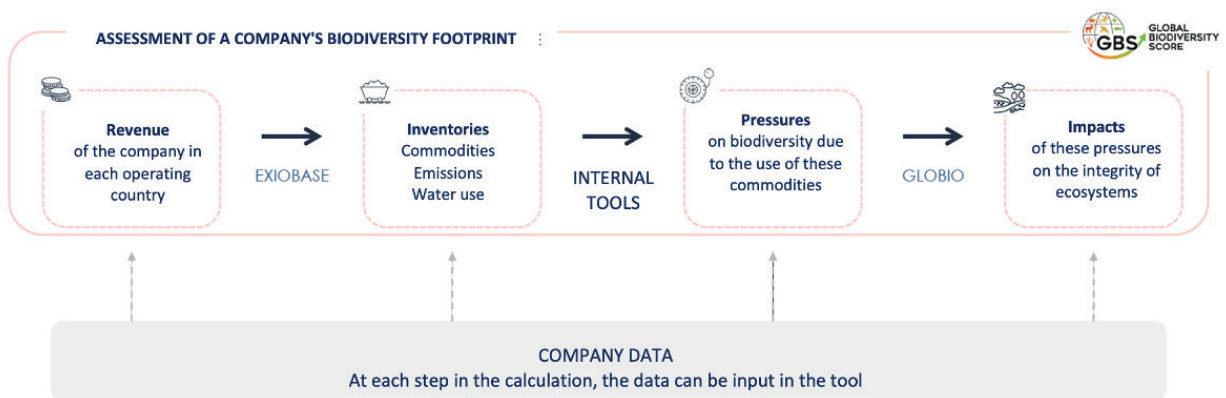
- Supply: tangible benefits that can be derived from ecosystems (which can be from plants or animals).
- Regulation: to make the planet habitable (e.g. climate regulation through carbon sequestration).
- Housing: that which enables living species to live and reproduce in a suitable environment.
- Cultural aspect: the intangible or spiritual benefits that humanity can get from ecosystems through knowledge enhancement.

BIA GBS: METHODOLOGY

IPBES has mapped five main direct pressures responsible for biodiversity loss.

IPBES PRESSURES		GBS / GLOBIO PRESSURES	
	 Terrestrial	 Freshwater	 Marine
Land and Sea change of use	Use of land Fragmentation Riprap	Conversion of humid areas	Not covered
Direct exploitation	Pressure due to the extinction of resources (agriculture, wood, mines, etc.)	Hydrologic system disturbance due to water use	
Climate change	Climate change	Hydrologic disturbance due to climate change	
Pollution	Atmospheric nitrogen deposition Ecotoxicity	Use of land in humid areas Eutrophication of freshwater Ecotoxicity	
Invasive species	Not covered		

The GBS model covers most of it:



GBS assesses the pressures on biodiversity and their impact on the state of ecosystems using the GLOBIO model.

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