

The FRR and the climate challenge



REPORT UNDER ARTICLE 173
OF THE ENERGY TRANSITION ACT
FOR THE YEAR 2017

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Service providers selected



To identify the risks associated with issuer behaviour, the FRR depends on the external expertise of Vigeo Eiris to monitor and prevent the non-financial risks of the securities that make up its portfolio and that could have an impact on the Fund's reputation. Vigeo Eiris has been responsible for assessing the non-financial risks of the companies in the FRR's portfolio since 2016. Vigeo Eiris applies methodologies that are appropriate and specific to the different categories of controversies:

- Those related to controversial weapons;
- Those related to the Global Compact;
- Those inherent in the tobacco industry.



S&P Dow Jones Indices
ESG Analysis

To analyse and measure the environmental footprint of its portfolio, the FRR has selected Trucost Ltd, which specialises in analysing and measuring portfolios' carbon footprints.

To assist it in its work and to meet all of the FRR's needs, Trucost Ltd has delegated specific tasks to four highly specialised agencies:

Beyond Ratings
Sovereign Risk Matters

Beyond Ratings specialises in analysing sovereign bonds.



Grizzly Responsible Investment specialises in aligning portfolios with a 2°C scenario.



Four Twenty Seven specialises in analysing physical and climate risks.



I Care & Consult specialises in analysing the green share of portfolios.

Introduction

The Supervisory Board decided that, from 2003, the Fonds de Réserve pour les Retraites would make a strong commitment to responsible investment. As a public investor, and a vehicle for intergenerational solidarity, the FRR has decided to lead by example and factor Environmental, Social and Governance (ESG) criteria into its management practices. The FRR also made a commitment in April 2006 to apply the UN-supported Principles for Responsible Investment (PRI).

The FRR has therefore gradually laid the foundations for incorporating socially responsible criteria, across its portfolio held via mandates, when selecting its asset managers and the securities in which they invest.

The first reason that the FRR became a responsible investor relates to its core mission and objective: to optimise returns on the funds entrusted to it, on behalf of the community, in as secure an environment as possible. As such, ESG criteria need to be factored into the FRR's management practices for it to fully understand the (financial and non-financial) risks presented by the businesses in which it invests.

The second reason is economic: investment returns do not depend solely on the impact of companies' financial and non-financial strategies, but also on the externalities they generate for their industry or the economy as a whole. An analysis of the environmental and social externalities is essential, in particular for a public universal investor tasked with optimising and protecting its investments over the long term.

Although its investment horizon was shortened in 2010 due to pension reform, the FRR has maintained its objective of protecting the

long-term value of its investments. The FRR is, by virtue of the volume of its assets, a universal investor whose diversification constraints force it to be present in all asset classes, sectors, regions, etc.

The increasing prevalence of ESG and management teams within management companies has allowed non-financial criteria to be taken into account in their management practices for all of the FRR's asset classes, including those that are not specifically labelled ESG. The FRR will continue to encourage all of its investment managers to move in this direction by deepening those ties in order to build the institutional investor and management company community.

In 2013, the FRR renewed its strategy for up to 2017, by consulting its Responsible Investment Committee and considering changes in the practices developed by other institutional investors. This strategy expands the FRR's basis for action beyond the traditional scope of SRI – especially in emerging markets – and defines new ways to apply it to asset classes still largely unaffected by responsible management, such as small and mid-capitalisations. It is implemented differently according to the specific characteristics of each investment instrument based on different strategic priorities: integration of ESG factors in asset management; managing social responsibility; exercise of voting rights; contribution to Responsible Investment research and support for international initiatives.

In this report, as well as via other communication channels, the FRR undertakes to work with the utmost transparency, by reporting publicly on the progress made and conclusions drawn in implementing this strategy.

The FRR and the TCFD's recommendations

The Task Force on Climate-related Financial Disclosures (TCFD) of the Financial Stability Board (FSB) provides a global framework to facilitate the conversion of non-financial information into financial indicators. The TCFD has been approved by more than 238 companies, including 150 financial institutions, which represent a combined market capitalisation of more than USD 6 trillion and assets under management of USD 81.7 trillion.

The FRR monitors the short-term priority actions that investors should consider taking to comply with the TCFD framework:

- **Governance: examine governance structures to ensure that there is effective supervision at board level and that internal management processes are in place to efficiently manage climate-related risks and opportunities.** In 2003, the FRR Supervisory Board emphasised that “its investment policy should be consistent with respect for collective values that encourage balanced economic, social and environmental development and that the FRR should actively promote best practices with the aim of the management companies adopting these values in their analysis of financial assets and transparency of corporate governance”. In 2008, the Supervisory Board's Responsible Investment Committee was created in order to improve the prevention of non-financial risks.
- **Strategy: begin the process of analysing the portfolios' ability to withstand climate scenarios, including those presenting a result of less than or equal to 2°C.** In its socially responsible investment strategy, the FRR endeavours to analyse the impact of environmental challenges on its investment strategy. In 2006, the FRR embarked upon an initiative to assess its entire portfolio based on non-financial criteria. In the Article 173 report, the FRR provides information on the action undertaken and the implementation of its strategy.

- **Risk management: assess the potential financial impact of climate-related risks on the investment portfolio and the action required to mitigate these risks and seize new opportunities.** The FRR has incorporated the inclusion of ESG criteria into its responsible investor strategy in order to fully understand the financial and non-financial risks and opportunities presented by the businesses in which it invests.

- **Metrics: measure GHG emissions for each fund or investment strategy when the data is available or when reasonable estimates can be made.** The FRR has been measuring and assessing its portfolio's carbon footprint since 2013. It acts to reduce the carbon footprint of its entire portfolio by assessing risks and increasingly favouring investments that promote an ecological and energy transition towards a low-carbon economy.

- **Engagement: engage with companies and external fund managers to encourage greater transparency and alignment with the TCFD's recommendations.** The FRR communicates with institutional investors and issuers as part of an engagement policy that is based in particular on collaborative initiatives (PRI, IIGCC, etc.). The FRR also holds talks with its managers in order to coordinate how voting rights are exercised.

- **Transparency: publicly disclose all of the above actions and their results in annual reports and address climate risk in reports on PRIs.** The FRR encourages issuers to adopt good practice by promoting greater transparency of information. As such, it often reports publicly on the progress made and conclusions drawn in implementing its responsible investor strategy (in particular through the Article 173 report).

Part 1

Full incorporation of non-financial issues into the FRR's investment policy



A delegated management approach that fully incorporates Environmental, Social and Governance issues

With the exception of the management of operational cash requirements, all of the FRR's investments are made through investment service providers (portfolio managers).

To meet its investment objectives and thus retain the best providers, the FRR may either use management mandates awarded through public tender processes, or invest directly in undertakings for collective investment (UCIs). The FRR uses UCIs, with the exception of money market UCIs, to expose its portfolio to emerging market assets (equities and bonds), high yield assets and unlisted assets.

A portfolio management mandate is a legal tool that allows strict investment constraints to be imposed on the portfolio managers selected. Non-financial issues are an integral part of these constraints.

By using UCIs, the FRR has opted for a strategy that is already available on the market. In its capacity as unitholder, among others, the FRR is unable to apply its own investment policy and must therefore abide by the funds' pre-existing investment strategies. For this reason, prior to selecting UCIs, the FRR must ensure that there is a balance between the fund manager's investment strategy and the incorporation of non-financial criteria.

This approach is driven by the FRR's key role as a global institutional investor and its positioning across all asset classes. Since its inception, the FRR has believed that the mechanism whereby traditional managers incorporate ESG factors is an evolving and gradual process. This process allows the FRR to capture the best sustainability/return ratio offered by its investments. The FRR would

therefore like to continue its efforts so that its investment managers further augment their analyses with non-financial data and so that these factors become routinely incorporated. As part of its responsible investment laboratory, the FRR is also endeavouring to facilitate discussions with investment managers, in particular those responsible for French and European small and mid-cap equity management mandates.

REGULARLY EVALUATING THE PORTFOLIO FROM A NON-FINANCIAL PERSPECTIVE

Since 2005, the FRR has sought to evaluate its portfolio's exposure to non-financial risks by calling on service providers that specialise in ESG research. These risks, which are linked to issuer behaviour, may be defined as those likely to harm the FRR's image, i.e. to permanently break the bond of trust that a public institutional investor must preserve and maintain with key stakeholders (public authorities and social partners) that are represented on its Supervisory Board. These risks could also threaten the financial soundness of the companies in which FRR invests, as a result of lawsuits, fines, etc. Such risks consist of serious, proven and repeated breaches of core principles, such as the Global Compact, good governance principles and the Ottawa¹ and Oslo² conventions.

To fully incorporate issues associated with climate change and with the ecological and environmental transition risk, the FRR also relies on external expertise to assist it in implementing a more environmentally friendly policy in the long term. The FRR's environmental footprint identifies the climate change risks to which it

1 Convention on the prohibition of the use, stockpiling, production and transfer of anti-personnel mines and on their destruction.
2 Convention on the prohibition of the use, stockpiling, production and transfer of cluster bombs and on their destruction.

is exposed through the financial assets that it holds. This footprint must enable the FRR to assess its portfolio's:

- Carbon footprint (greenhouse gas emissions and stocks, including coal);
- Physical risks;
- Transition risks;
- Alignment with a 2°C scenario; as well as
- Opportunities linked to ecological and energy transition.

INTEGRATING THE RISKS ASSOCIATED WITH THE QUALITY OF CORPORATE GOVERNANCE

The FRR's responsible investor policy requires shareholder approval at every general meeting. Given the wide-ranging and international nature of the FRR's investments, its voting guidelines incorporate three dimensions:

1) The benefits for the FRR of working actively to improve the governance of the companies in which it invests. Governance aims to promote the balance of power within companies' management bodies and clarity about these powers, as well as the quality of the information provided to shareholders and respect for their rights and for the integrity of their votes. Accordingly, it is one of the factors that play an important role in the long-term survival of the corporate community, in the continuity of the strategy that companies pursue, and in the way they fulfil their responsibilities to all their stakeholders. All these factors contribute directly to strong future valuations.

2) The fact that the FRR is a long-term investor. It has chosen to prioritise, in its portfolio structure and the management mandates that reflect the asset allocation strategy set by the Supervisory Board, an active approach based on an analysis of the fundamental valuation outlook for equity and debt securities issued by various categories of issuers. It therefore stands to reason that investment managers would take this horizon into consideration in their application, on a case-by-case basis, of the guidelines included in the voting rights principles, in particular when assessing the appropriateness of financial transactions that affect corporate capital.

3) Lastly, efforts to improve corporate governance, whether made by the companies themselves, lawmakers or regulators, have intensified in recent years and must continue. The active exercise of the FRR's voting rights must, however, realistically consider the specific conditions in each market, mainly based on the issuers' capitalisation, and the significant differences that may exist in corporate law and in terms of the corporate governance practices in the relevant countries.

The FRR's guidelines on the exercise of voting rights incorporate all of these factors and must therefore be broad enough to account for particular national circumstances (in France and internationally). The FRR therefore aims to capitalise on investment managers' knowledge and their ability to understand the practices in force in various financial centres. Investment managers may also rely on these practices for subjects not covered by the FRR's guidelines.

To assist it with its monitoring, the FRR is working on a system to score the quality of the governance of its portfolio of developed market equities. This new analytical approach will improve the FRR's understanding of the key elements of this portfolio's governance.

ADAPTING NON-FINANCIAL ISSUES TO DIFFERENT ASSET CLASSES

The incorporation of non-financial issues into the management of the portfolio is adapted to the characteristics of each asset class, geographic region, and market capitalisation. For example, on the recommendation of the Responsible Investment Committee, the FRR decided to safeguard its investments by not investing in agricultural commodities.

WORKING TRANSPARENTLY

As a public entity, the FRR regularly reports to its own bodies and the public³. It documents the progress made and conclusions drawn in implementing its investment strategy. Also, once a year the FRR publishes the composition of its portfolio⁴ on its website.

³ <http://www.fondsdereserve.fr/documents/politique-en-matiere-de-votes-du-FRR.pdf>

⁴ <http://www.fondsdereserve.fr/fr/composition-du-portefeuille>

Finally, although it is not bound by the Energy Transition for Green Growth Act no. 2015-992 of 17 August 2015, the FRR has adopted the framework set out in the new disclosure requirement for institutional investors regarding the incorporation of environmental, social and governance criteria into their investment policy and practices, and specifically their management of climate-related financial risks (Article 173, paragraph 6 of the Energy Transition for Green Growth Act, extension of Article 224 of the Grenelle II law).

A commitment to and active support for several industry initiatives

INVOLVEMENT IN DRAFTING THE UNITED NATIONS PRINCIPLES FOR RESPONSIBLE INVESTMENT



At the beginning of 2005, the Secretary General of the United Nations invited a few of the world's biggest institutional investors, including the FRR, to come together and establish a number of principles for promoting the incorporation of socially responsible investment practices into financial management. After six working sessions, and with expert help from representatives of the various stakeholders (companies, NGOs, researchers, etc.), the "Principles for Responsible Investment" were established before being officially signed in New York and Paris during the spring of 2006.

- Principle 1: We will incorporate ESG issues into investment analysis and decision-making processes.
- Principle 2: We will be active owners and incorporate ESG issues into our ownership policies and practices.
- Principle 3: We will seek appropriate disclosure on ESG issues by the entities in which we invest.
- Principle 4: We will promote acceptance and implementation of the Principles within the investment industry.
- Principle 5: We will work together to enhance our effectiveness in implementing the Principles.
- Principle 6: We will each report on our activities and progress towards implementing the Principles.

The PRI now reflect the shared values of a

group of investors having a long-term investment horizon and diversified portfolios, including insurers and reinsurers, pension funds and other private and public institutional investors. They are fully compatible with the FRR's SRI strategy.

Managing risks linked to the supply chain in the textile industry

Despite the efforts made by companies within the textile industry, poor working conditions and violations of human rights are still recurring problems in the supply chain. Realising this, seven French institutional investors, including the FRR, decided to launch a joint initiative in 2014 organised by Mirova for managing risks relating to the supply chain in the textile industry. The main aims of this were to improve transparency, map social risks, develop long-term relations with suppliers, and participate in sector initiatives. The latter aspect was reinforced in 2017.

Human rights in the extractive sector

This project seeks to understand how policies relating to human rights are applied by extractive companies, especially in the context of partnerships with local companies or governments.

Statement on tobacco (15 May 2017)

53 investors, health systems, pension funds and insurers, representing USD 3.8 trillion in assets under management, have signed a statement to the World Health Organization (WHO) representatives and national health ministers openly supporting stronger regulation around tobacco control.

Statement on ESG in credit ratings

Alongside six rating agencies, including S&P and Moody's, and 100 international investors representing assets of USD 16 trillion, the FRR signed a joint declaration on more systematic consideration of ESG criteria in assessing issuers. This is an important stage in the integration of ESG factors in asset management.

Corporate climate lobbying - PRI Platform

Many long-term investors consider corporate efforts to resist climate policies to be counterproductive to maximising the long-term value of their portfolios. In spite of their claims to support climate policies, numerous listed companies are indirectly involved in lobbying through their professional associations. This engagement focuses on this inconsistency and seeks to improve the transparency of the lobbying activities of listed companies in the United States, Canada and Australia. Climate lobbying has been addressed, for Europe, through IIGCC.

ADOPTION OF THE CDP, CDP WATER AND CDP FOREST



Supported by the United Nations Environment Programme, the CDP is one of the most important international initiatives for the environment and climate change. Wanting better information on companies' behaviour with regard to the environment, energy consumption and the effects of climate change, the FRR gave the CDP its backing in 2005, before the biggest 120 French companies were questioned.

SIGNATURE OF THE CLIMATE CHANGE DECLARATION AT THE UN SUMMIT HELD ON 23 SEPTEMBER 2014

In signing this initiative, the FRR committed to:

- Collaborate with the authorities to take measures that encourage financing of energy transition towards a low-carbon economy;
- Identify and assess low-carbon investment opportunities;
- Develop investors' ability to assess risks and opportunities linked to climate change, and incorporate this into investment methodologies;
- Foster dialogue on the issue of climate change with companies included in the portfolios;
- Publish the initiatives taken and progress made.

EXTRACTIVE INDUSTRIES TRANSPARENCY INITIATIVE (EITI)



This initiative seeks to increase the transparency and responsibility of companies operating in extractive industries, by checking and publishing all payments made by companies, as well as all income received by governments, as a result of mineral, oil and gas extraction. In supporting the EITI, the FRR invites all companies directly or indirectly concerned by the above, and in which it holds shares, to contribute. It also encourages those companies already committed to supporting the initiative to play an active role in its implementation.

THE INTERNATIONAL CORPORATE GOVERNANCE NETWORK (ICGN)



ICGN
International Corporate Governance Network

The ICGN, which was founded in 1995, is an international organisation of governance professionals. Its aim is to inspire and promote international corporate governance standards. These improvements help to render companies' performances more sustainable and promote transparency.

In this context, the ICGN has various committees which reflect on the establishment of best practices in corporate governance.

Anne-Marie Jourdan, Chief Legal Officer and Head of Communications at the FRR, is a member of the ICGN board of governors.

THE MONTREAL PLEDGE



Signed by 35 institutional investors at the Principles for Responsible Investment conference in Montreal on 25 September 2014, it is backed up by the PRI and United Nations Environment Programme Finance Initiative (UNEP-FI). The investors who signed the Montreal Pledge have undertaken to publish the carbon footprint of their equity investments each year.

THE PORTFOLIO DECARBONIZATION COALITION (PDC)



Launched in September 2014, this collaborative initiative aims to reduce greenhouse gas emissions by mobilising a critical mass of institutional investors committed to measuring and decarbonising their portfolios. The FRR is at the forefront of this coalition.

Olivier Rousseau, a member of the FRR's Management Board, sits on the PDC's steering committee.

GLOBAL INVESTOR LETTER TO THE G20 (JULY 2016 - APRIL 2017)

Along with 158 institutional investors, the FRR signed a letter addressed to the G20 and G7 leaders before the summits held in 2016 and 2017. This letter invited the G20 to adopt measures for combatting climate change.

INSTITUTIONAL INVESTORS GROUP ON CLIMATE CHANGE (IIGCC)



The IIGCC is a forum for investors to collaborate on climate change. The IIGCC

provides its members with a collaborative platform to encourage public policies, investment practices, and corporate behaviour that address long-term risks and opportunities associated with climate change.

PARIS PLEDGE

By signing the Pledge, businesses, cities, civil society groups, investors, regions, trade unions and other signatories promised to ensure that the ambition set out by the Paris Agreement is met or exceeded to limit global temperature rise to less than 2 degrees Celsius.

MANIFESTO TO DECARBONIZE EUROPE (2016)

The signatories of the manifesto call upon all European States to immediately implement policies aiming to achieve a level of greenhouse gas emissions close to zero by 2050

CLIMATE ACTION 100+ (1 DECEMBER 2017)

Climate Action 100+ is a five-year initiative led by investors to engage with the world's largest corporate greenhouse gas emitters to improve governance on climate change, curb emissions and strengthen climate-related financial disclosures. The initiative is designed to implement the investor commitment first

set out in the Global Investor Statement on Climate Change in 2014/15, supported by 409 investors (including the FRR) and representing more than USD 24 trillion: *“As institutional investors and consistent with our fiduciary duty to our beneficiaries, we will: [...] work with the companies in which we invest to ensure that they are minimising and disclosing the risks and maximising the opportunities presented by climate change and climate policy.”*

This initiative seeks to support and implement the Paris Agreement by:

- Creating a global network of investors
- Giving businesses a clear agenda
- Amplifying the voice of investors in relation to the climate
- Measuring progress made by businesses

This initiative will prompt commitments to be made at board and senior management level on:

- The implementation of a solid governance framework that clearly incorporates the consideration of climate risk.
- The taking of measures to reduce greenhouse gas emissions throughout the value chain, in accordance with the target set by the Paris Agreement to keep the increase in global average temperature at no more than 2°C above pre-industrial levels.
- The provision of improved information in accordance with the final recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) and the specific expectations of investors on climate change (GIC⁵) to enable investors to assess the health of companies' activities.

PRI-LED ENGAGEMENT ON CLIMATE CHANGE TRANSITION FOR OIL AND GAS (LINKED TO CLIMATE ACTION 100+) (25 JANUARY 2018)

This new engagement coordinated by PRIs and aligned with the Climate Action 100+ objectives asks businesses to react to the risks they face from future constraints on the use of oil and gas. The initiative uses Carbon Tracker research (Report “2 degrees of separation: Transition risk for oil & gas in a low carbon world” co-written by the FRR) to determine how companies assess future production and capital expenditure, as well as governance of decision-making. This initiative is based on four objectives: Examine how businesses fully evaluate their exposure to climate change transition risks. See that the companies are planning suitable responses to future technological and political changes that could limit their ability to use their resources (i.e. in a 2 degrees Celsius scenario under the Paris Agreement on Climate Change). Gain a better understanding of how businesses see future production and capital expenditure, as well as the governance underlying this decision-making. Encourage better disclosure in line with the recommendations of the Task Force on Climate-Related Financial Disclosures (TCFD) – especially regarding the analysis of scenarios.

5 GIC stands for the Global Investor Coalition on Climate Change.

Charte des investisseurs publics français en faveur du climat

L'ensemble des institutions et opérateurs financiers publics français mettent en œuvre une approche visant à assurer la cohérence de leurs activités avec les objectifs de l'Accord de Paris.

Ces institutions et opérateurs financiers publics nationaux incluent la Caisse des Dépôts (CDC), Bpifrance, l'Agence française de développement (AFD), le Fonds de réserve pour les retraites (FRR) et l'Etablissement de retraite additionnelle de la Fonction publique (ERAFP).

L'Etat actionnaire adopte, dans une démarche plus globale de prise en compte des enjeux liés aux questions environnementales, sociales et de gouvernance dans sa politique actionnariale, une démarche analogue reposant sur un engagement exigeant, exercé au sein de l'ensemble des instances de gouvernance pertinentes, afin de conduire les entreprises au sein desquelles l'Etat détient des participations à s'engager de manière claire dans une stratégie de transition vers une économie bas carbone.

A cette fin, dans le respect des spécificités de leur objet social, de leur mandat et des conditions d'exercice de leurs activités, les investisseurs publics français mettent en œuvre, dans leur politique d'investissement, les principes communs suivants, cohérents avec les principes de l'action climatique au sein des institutions financières présentés lors de la COP21.

Principe n°1 [Prise en compte des enjeux climatiques dans les décisions d'investissement]

Les investisseurs publics français mettent en œuvre des procédures internes d'évaluation et de gestion des risques liés au changement climatique propres à chaque acteur, pleinement intégrées à leur politique d'investissement ou à leurs décisions d'octroi de crédit.

Principe n°4 [Diffusion des meilleures pratiques]

Les investisseurs publics français participent à la diffusion des meilleures pratiques sur les enjeux touchant à la réduction des risques climatiques et à l'adaptation au changement climatique auprès de leurs pairs, des entreprises et parties prenantes qu'ils financent et des autres parties prenantes qu'ils identifient comme pertinentes.

Principe n°2 [Participation au financement de la transition vers une économie bas carbone]

Les investisseurs publics français participent activement au financement de la transition vers une économie bas carbone et résiliente face au changement climatique, en tenant compte de leur mandat, de leurs contraintes propres et dans le respect de la subsidiarité vis-à-vis des autres financeurs.

Principe n°5 [Emission d'instruments financiers dédiés]

Les investisseurs publics français valorisent autant que possible leurs actifs ou activités en lien avec la transition bas carbone dans le cadre de leur politique de financement ou de refinancement, notamment, lorsque ce mode de refinancement est pertinent pour eux, en émettant des obligations vertes respectant des standards de marché exigeants.

Principe n°3 [Dialogue structuré avec les parties prenantes]

Les investisseurs publics français conduisent un dialogue approfondi et structuré avec les entreprises dont ils sont actionnaires, les institutions financières auxquelles ils confient des mandats ou accordent des refinancements, les parties prenantes auxquelles ils octroient des financements, afin d'inciter ces entreprises, institutions financières et parties prenantes à renforcer leurs initiatives en faveur de la lutte contre le réchauffement climatique et ses effets.

Principe n°6 [Transparence et redevabilité]

Les investisseurs publics français s'attachent à rendre compte, par une documentation publique appropriée, des actions engagées en faveur du climat et de la mise en œuvre des présents principes, ainsi que des résultats obtenus.

Nicolas Hulot
Ministre d'État, ministre de la Transition écologique et solidaire



Eric Lombard
Directeur général de la Caisse des dépôts et consignations
Président du directoire du fonds de réserve des retraites



Bruno Le Maire
Ministre de l'Économie et des Finances



Rémy Rioux
Directeur général de l'Agence française de développement



Philippe Desfosés
Directeur de l'Etablissement de retraite additionnelle de la fonction publique



Jean-Yves le Drian
Ministre de l'Europe et des Affaires étrangères



Nicolas Dufourcq
Directeur général de Bpifrance



FRENCH PUBLIC INVESTORS CHARTER FOR CLIMATE COMMITMENT

The FRR signed this charter in December 2017. All French public financial traders and institutions decided to pursue an approach aimed at ensuring that their activities comply with the objectives of the Paris Agreement.

As part of a broader attempt to factor environmental, social and governance issues into its shareholding policy, the State has adopted a similar measure based on a strict commitment by all relevant governing bodies to encourage the companies in which the State holds interests to make a clear commitment to a strategy for transitioning to a low-carbon economy.

The FRR has been applying the principles of the Charter for several years:

Principle 1:

The FRR has implemented an internal procedure for evaluating and managing climate change risks. The FRR implements its SRI strategy in three ways:

- Monitoring and publishing the portfolio's non-financial risks since 2008;
- Improving the portfolio's carbon footprint since 2013; and
- Coordination by the Finance Division and Legal and Communications Division, which involves:
 - Calculating the environmental footprint since 2016;
 - Managers' obligations; and
 - ESG reporting systematically required of all FRR managers.

Principle 2:

For the FRR, the transition to a low-carbon economy involves:

- The decarbonisation of passive equity portfolios since 2014;
- Divestment from coal; and
- Investment in infrastructure funds relating to energy transition (fibre optics, solar, wind, biogas, water management, heat networks).

Principle 3:

The FRR's objective via this component is to improve knowledge with regard to responsible investment and to ensure that its work and best practices are shared as widely as possible with the businesses concerned, especially through a list of commitments and dialogue with managers of the companies in which it invests every year. The FRR is part of joint commitments such as:

- Climate 100+
- PRI, IIGCC
- Statement on ESG in credit ratings

Principle 4:

The FRR has been committed to sharing best practice for many years. The FRR's directors and staff frequently speak at conferences, a notable example being the presentation on Article 173 at the Paris-Tokyo-London international ICGN conferences, and at the IAE in Aix-en-Provence (Institut d'Administration des Entreprises). The FRR supports the Sustainable Finance and Responsible Investment Chair.

Principle 5:

The FRR holds nearly EUR 180 million of investment in green bonds through its investment grade euro and US mandates.

Principle 6:

The FRR often reports to the public on the progress and conclusions of its strategy, in particular through the publication of its annual report, the Article 173 report and press statements on its portfolio's environmental and carbon footprint.

EXCLUSION OF NON-COOPERATIVE JURISDICTIONS FOR TAX PURPOSES

Exclusions were implemented in the FRR's mandates a number of years ago taking into consideration the French and European lists of non-cooperative jurisdictions for tax purposes. Accordingly, the following are excluded:

- Shares of companies whose registered office is located in a country included on the Common EU list of third country jurisdictions for tax purposes⁶. On the date of drafting of this report, this includes the following seven jurisdictions: American Samoa, Guam, Namibia, Palau, Samoa, Trinidad and Tobago, US Virgin Islands;
- Shares of companies whose registered office is located in any territory deemed uncooperative by France⁷. On the date of drafting of this report, this includes the following seven countries: Botswana, Brunei, Guatemala, Marshall Islands, Nauru, Niue and Panam.

⁶ Common EU list of third country jurisdictions for tax purposes published by the European Council, as amended on 25 May 2018.

⁷ List of States and countries referred to in the Decision of 12 February 2010 made pursuant to the second sub-paragraph of (1) of article 238-0 A of the French General Tax Code, as amended by decision dated 8 April 2016.

Engagement partnership with the FRR's management companies

ENGAGING WITH ISSUERS, VIA ITS INVESTMENT MANAGERS, TO IMPLEMENT SUSTAINABLE AND RESPONSIBLE POLICIES

The FRR outlined its identity as an investor for 2013-2017 in a Responsible Investment Strategy that permits the use of shareholder dialogue. It stated that the FRR *"has a range of options available, from dialogue with the company to, as a last resort, a decision to put the company on its investment exclusion list if it refuses to put an end to repeated violations"*. It also described the procedures for conducting its activities: *"The FRR will promote dialogue with companies through its investment managers to take advantage of the leverage they have due to the volume of assets under management, as well as their research capabilities"*.

Every year, the FRR analyses its portfolio in light of the principles of the UN Global Compact and conventions on prohibited weapons. This analysis makes it possible to identify companies accused of non-compliance with international standards. At the end of 2016, according to the assessment by Vigeo Eiris, the FRR was invested in 85 companies (80 from developed countries and 5 from emerging countries) subject to high-risk allegations. The strong presence of US companies, irrespective of sector, was highlighted.

At the beginning of 2017, out of the 85 companies identified by Vigeo Eiris in its analysis, there were 11 companies with which the FRR wanted to initiate a dialogue in collaboration with its investment managers.

These interactions, whether written or verbal, with the FRR's investment managers led to a better understanding of the FRR's non-financial risks and therefore increased awareness of ESG issues. Through its 2017 dialogue strategy, the FRR aimed to encourage companies to adopt a progressive approach and to enable its investment managers to better incorporate the ESG aspect when assessing their investments, while engaging in dialogue with companies. The FRR has elected to ask its investment managers certain questions, the answers to which will allow it to ascertain their level of involvement. In general, managers are communicating with companies and becoming increasingly aware of controversies. Overall, they believe that controversies are analysed and dealt with and have little financial impact.

The dialogue on ESG themes among the FRR, investment managers (of passive and active mandates) and companies, although hard to quantify, is truly positive for risk management. This adds to the "ESG pressure", the effects of which are an overall improvement in companies' ESG performance and therefore better management of their non-financial risks.

Shareholder engagement

ENGAGEMENT IN THE TEXTILES AND APPAREL SECTOR

The Rana Plaza scandal (24 April 2013) highlighted the significance of the environmental and social risks in the supply chain, as well as the reputational impacts for companies. Despite the efforts made by stakeholders in the various sectors concerned to improve their processes, poor working conditions and violations of human rights are still recurring problems in the supply chain. This affects not only countries such as Bangladesh and China, but also other countries with comparable social contexts.

Realising this, the Mirova engagement platform made up of seven French institutional investors, including the FRR, decided to launch a joint engagement initiative in 2014 for managing risks relating to the supply chain in the textile industry. Currently 19 institutions, representing EUR 1.36 trillion, are signatories.

The main objectives of this engagement are to:

- Improve transparency;
- Map social risks;
- Develop long-term relationships with suppliers; and
- Participate in sector initiatives.

SUMMARY OF 2016 AND INITIATIVES TAKEN IN 2017

In 2016, the emphasis was placed on dialogue with various industry organisations seeking to develop a more sustainable and responsible supply chain in the textile sector. Among the organisations identified, the Sus-

tainable Apparel Coalition (SAC) emerged as a preferred partner. Unlike the other initiatives, which look at social issues in the supply chain in general, SAC is concerned only with the textile industry and its members represent approximately 40% of that industry. Additionally, in 2007, SAC developed a self-assessment platform aimed at improving the transparency of the various actors in the supply chain, in particular with respect to social and environmental performance. As such, a roadmap was established to allow members to publish their score by 2020.

In 2016, SAC outlined new commitments:

- Improve the quality, integrity and robustness of the assessment platform's information;
- Standardise the social assessment models used by members.

The initial results of the engagement showed that supply chain transparency remained a problem for most of the companies contacted. While some were clearly leading the way, the majority have been slow to follow their example. The lack of consistency in the information submitted also made comparison difficult.

As a result, the emphasis in 2017 was placed on dialogue with various industry organisations seeking to develop a more sustainable and responsible supply chain in the textile sector.

The investor group concentrated its efforts on communications with the Sustainable Apparel Coalition (SAC)⁸ in particular. In addition, the FRR has actively contributed to several working groups, particularly on 17 November at a working session attended by members of SAC, several international investors and a textile company (H&M).

⁸ SAC was founded in 2009 with the aim of limiting the negative environmental impact of the clothing, textile and footwear industry, while maximising the positive impact on industry participants. Its primary activity is the Higg Index: a self-assessment platform for brands and their supplier factories to measure, share and assess their environmental and social performance. SAC consists of around 175 members (SMEs and major multinationals), which represent around 40% of the industry.

Discussions resulting from various meetings led SAC to make the following commitments, which the FRR has been able to verify during interactions with this organisation:

- Improve the quality, integrity and robustness of the information collected for assessment;
- Standardise the social assessment models used by members.

The FRR supports academic and applied research

THE SUSTAINABLE FINANCE AND RESPONSIBLE INVESTMENT CHAIR

The Sustainable Finance and Responsible Investment Chair, managed jointly by Sébastien Pouget (Toulouse School of Economics, Toulouse IAE, Toulouse 1 Capitole University) and Patricia Crifo (Economics Department of the Ecole Polytechnique), was created in 2007, in particular at the instigation of the Fonds de Réserve pour les Retraites. It currently brings together investors such as Allianz Global Investors, Amundi, La Banque Postale Asset Management, Caisse des Dépôts, Candriam, Edmond de Rothschild Asset Management, Groupama Asset Management, HSBC Global Asset Management and Neufilze OBC Investissements.

For several years, the FRR has been closely involved in a research project on small- and mid-cap companies. This project proposes an empirical study of factors that affect these companies' performance both financially (economic profitability and stock market valuation) and in terms of social responsibility (environmental, social and governance aspects).

The preliminary results of the data analyses are as follows:

First, family businesses, when they are still owned by their founders or their descendants, appear to perform better in economic terms. This is particularly true when economic performance is measured by return on assets (ROA) or return on equity (ROE). Additionally, volatility in daily stock market returns appears to be lower for family businesses still run by their founders or descendants.

Next, it seems that the stock markets factor in the economic outperformance by family businesses run by their founders. The stock market valuation (measured by Tobin's q) of family businesses run by descendants nevertheless appears to be lower while their economic profitability is better than that of non-family businesses. Consequently, there seems to be some inefficiency in the financial markets for this type of company.

Accordingly, and consistent with the assumption that long-term engagement with a company generates a positive financial performance, a company where employees hold a significant proportion of equity seems to have better economic profitability and lower stock market return volatility than other companies. This strong economic profitability nevertheless does not seem to be reflected in stock market valuations. Once again, the markets do not seem to fully understand that employee share ownership has a generally positive impact on corporate performance.

Lastly, family control of a company, when it is run by the founder or an outside manager, is associated with a better non-financial performance. This is also the case for companies that have a high proportion of employee shareholders or of employees on the board of directors.

To conclude, it seems that companies that have a long-term focus, because they are controlled by a family or because employees own a large share of the equity, perform better in both economic and non-financial terms.

2 DEGREES OF SEPARATION – ANALYSIS OF THE ALIGNMENT OF 69 COMPANIES IN THE OIL AND GAS SECTORS WITH +2°C CLIMATE SCENARIOS

The FRR, the Principles for Responsible Investment (PRI), and Carbon Tracker, along with investors AP7, Legal & General Investment Management and PGGM, have worked together to prepare a report⁹ for responsible investors. This report provides an analysis of the alignment of 69 companies in the oil and gas sectors with +2°C climate scenarios. It also includes the share of future investment and production expenditure that exceed these companies' carbon budgets. This report also includes guidelines on how to hold a dialogue with these companies.

CARBONE 4

The FRR has contributed to Carbone 4's CRIS project to assess the physical risks affecting portfolios of investments in companies, infrastructure and sovereign issues due to climate change.

This methodology was developed with the support of the AFD (French Development Agency), Caisse des Dépôts et Consignations (CDC), the FRR, Natixis-Mirova, CDG Capital, BNP Paribas, the ERAFP (French public service additional pension scheme) and EDF and with assistance from a high-level scientific board.

This methodology offers risk indices by issuer. At the issuer level, the index is constructed by taking into account the sector and geographic breakdown of its activities and cross-referencing them with the scientific databases developed by Carbone 4.

FIR PRI AWARDS

The *Forum pour l'Investissement Responsable* was created in 2001 by fund managers, experts in social and environmental analysis, consultants, trade unionists, academics, citizens and investors with the aim of promoting socially responsible investment (SRI) and ensuring that more investments incorporate social cohesion and sustainable development issues. Along with other Sustainable Investment Forums (SIFs), the Forum pour l'Investissement Responsable (FIR – the French SIF) is a founding member of the European Euro-sif network.

The Principles for Responsible Investment (PRI) were developed by the investor community. They reflect the idea that Environmental, Social and Corporate Governance (ESG) aspects can affect the performance of investment portfolios and that investors must therefore take them into consideration.

These Principles provide a voluntary framework whereby all investors can incorporate ESG issues into their decision-making and thus better align their objectives with those of civil society. The PRI now has 1,400 signatories representing more than USD 59 trillion in assets under management.

In 2011, the FIR and the PRI joined forces to create the European Finance and Sustainability Research Award. The FRR has supported this award from the outset.

⁹ More information available at: www.2degreeseperation.com

Incorporation of ESG in the investment manager selection process

The investment manager selection process fully incorporates ESG aspects and the FRR's ESG policy. These topics are covered in a number of questions in the investment manager candidate selection questionnaires, as well as in the proposal questionnaires. During their onsite visits, the FRR's teams systematically assess the inclusion of ESG criteria in management, the exercise of voting rights and shareholder engagement.

In addition, the FRR's standard mandate includes ESG requirements, and the FRR's responsible investor strategy constitutes an appendix to the mandate.

Part 2

Analysis of the FRR portfolio's non-financial issues



In 2008, the FRR adopted a system to monitor and prevent non-financial risks likely to have an impact not just on its investments but also on its reputation. Risks to the FRR may arise from companies in which it invests failing to comply with universally recognised principles, such as those of the United Nations Global Compact and of good governance, as well as with international conventions ratified by France, in particular the Ottawa¹⁰ and Oslo¹¹ Conventions.

On 1 August 2010, the Oslo Convention entered into force. The same year also saw the adoption of legislation that was fundamental for its application in national law. To date, the Convention has been signed by 113 countries and ratified by 84. However, China, the United States, India, Israel, Pakistan and Russia – which hold around 90% of the global stockpiles of cluster munitions – have not signed the Convention. Additional clarifications were also made during this legislative work regarding the scope of the Convention. Concerning France, the text, which is faithful to the Convention text, does not expressly provide for a ban on direct or indirect financing of activities associated with cluster munitions. However, Article 1 of the Convention stipulates that each State Party undertakes never under any circumstances to assist, encourage or induce anyone to engage in any activity prohibited to a State Party under this Convention. During the debate on the bill adopted by

the Senate, Hubert Falco, Secretary of State for Defence and Veterans, had thus stated that financing “*would constitute assistance, encouragement or inducement punishable under criminal law*”.

Furthermore, Article 9 (National Implementation Measures) indicates that each State Party shall take all appropriate legal, regulatory and other measures to implement this Convention, including the imposition of penal sanctions to prevent and suppress any activity prohibited to a State Party under this Convention undertaken by persons or on territory under its jurisdiction or control.

The same commitments are found in the Ottawa Treaty on anti-personnel mines.

The FRR invests in mandates and collective funds. The exclusion policies and measures implemented concerning the withdrawal by the FRR’s portfolios from controversial weapons, tobacco and coal addressed in this chapter only concern investments via mandates. Some of the stocks affected by exclusions are held indirectly by collective funds. Although the FRR can intervene in investments via mandates, it does not have the same scope to impose its measures to promote the ecological and energy transition on the collective funds in which it invests.

¹⁰ Convention on the prohibition of the use, stockpiling, production and transfer of anti-personnel mines and on their destruction.

¹¹ Convention on the prohibition of the use, stockpiling, production and transfer of cluster bombs and on their destruction.

Analysis of controversies

Vigeo Eiris has been responsible for assessing the non-financial risks of the companies in the FRR's portfolio since 2016. Vigeo Eiris applies methodologies that are appropriate and specific to the different categories of controversies:

- Those related to controversial weapons;
- Those related to the Global Compact;
- Those inherent in the tobacco industry.

METHODOLOGIES

Methodology applied to controversial weapons

A producer of controversial weapons is defined as any company or group of companies that, itself or through a subsidiary or joint venture (with a stake equal to or greater than 50%), develops or produces such weapons – including their key components. Companies that supply key services that are directly related to such weapons are also taken into consideration. Finally, in this assessment, Vigeo Eiris also refers to the main shareholders of the companies listed as being potentially involved in controversial weapons.

The methodology seeks to identify companies involved in the development, production, maintenance, use, distribution, stockpiling, transport or trade of banned weapons or their key components.

Stakeholders have traditionally characterised these weapons as:

- Weapons of mass destruction;
- Nuclear, biological and chemical weapons; as well as
- Anti-personnel mines, cluster bombs and certain conventional weapons.

The production and proliferation of these weapons is governed by international treaties. At the FRR's request, Vigeo Eiris focused on the weapons listed below:

- Cluster bombs;

- Anti-personnel mines;
- Chemical and bacteriological weapons.

France has ratified all the conventions on these weapons.

Methodology applied to assess Global Compact-related controversies

The analysis of Global Compact-related controversies is based on three factors:

- The severity of the controversy

To assess the severity of a controversy, Vigeo Eiris analyses its impact on stakeholders and uses the framework defined by the United Nations High Commission on Human Rights (analysis of the scale, scope and irremediable character of the impact) and applies it to all ESG criteria. Severity is divided into four levels (Minor, Significant, High and Critical). The severity of a controversy is considered critical when related to a fundamental issue, with high adverse impact on the interests of the company and stakeholders.

- The company's responsiveness to the controversy

Vigeo Eiris defines responsiveness as the ability demonstrated by a company to engage in stakeholder dialogue from a risk management perspective based on explanatory, preventative or corrective measures. Responsiveness is assessed on a four-level scale: Non-communicative, Reactive, Preventive, Proactive.

- The frequency with which a company is exposed to controversies

Frequency is divided into four levels: Isolated, Occasional, Frequent, Persistent. Companies are analysed against all these criteria and this process and, where appropriate, are placed on a warning list.

Methodology applied to controversial tobacco industry activities

The tobacco business is analysed by Vigeo Eiris in light of the three following sub-criteria:

- The production of tobacco products (manufacture of cigarettes, cigars, rolling tobacco, snuff or chewing tobacco, and the production or growing of tobacco as a commodity).
- The production of secondary tobacco products (manufacturing of products that do not contain tobacco themselves, but that are specifically developed or manufactured to be used in the manufacturing or consumption of tobacco products. E.g. rolling machines, cigarette filters, tobacco flavours. Products such as matches, lighters, packages and adhesives, also used in contexts other than tobacco manufacturing or consumption, are not regarded as tobacco products).
- Distribution of tobacco-based products (sale/distribution of tobacco-based products).

Vigeo Eiris has changed how it classifies the level of involvement based on the proportion of revenue associated with each sub-criteria:

- Producing tobacco products is deemed to be major involvement, regardless of the amount of associated revenue (no change).
- Selling or distributing tobacco-based products equates to minor involvement if the associated revenue is equal to or less than 10% of the company's turnover. It is considered major involvement if this proportion is greater than 10%. NB: a revenue threshold of 0-1% previously indicated no involvement.

- Producing secondary tobacco products equates to minor involvement, regardless of the amount of associated revenue. Associated revenue equal to or greater than 10% previously corresponded to major involvement.
- The production of e-cigarettes (only if the company is not involved in the production of tobacco): yes/no.

The FRR used the GICS classification "Tobacco – Manufacturers of cigarettes and other tobacco products" to define issuers exposed to tobacco:

- The FRR's investment managers signed an amendment in 2017.
- The GICS classification is used for the FRR's compliance (under development).
- This classification has four tiers: Sector, Industry group, Industry and Sub-industry. It was decided that the Industry level should be used (302030 – Tobacco - Manufacturers of cigarettes and other tobacco products.).
- This classification is public and companies are classified using this system on Bloomberg. As such, this does not pose a problem for the FRR's investment managers when implementing this list in their systems.
- Furthermore, this classification is used for equities and bonds. It is therefore suitable for all asset classes.

The definition of exclusion used by the FRR thus takes into account the companies identified in the first sub-criterion (production of tobacco-based products). Neither the production of secondary products nor distribution are exclusion factors for the FRR.

As at 31 July 2018, the FRR changed the reference used for the exclusion of tobacco from the GICS classification to the BICS classification¹² "Bloomberg ICS level 3": industry code – Tobacco.

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SCOPE COVERED BY THE CONTROVERSY ANALYSIS

Vigeo Eiris' analysis focuses on the portfolio's performance at the end of 2017.

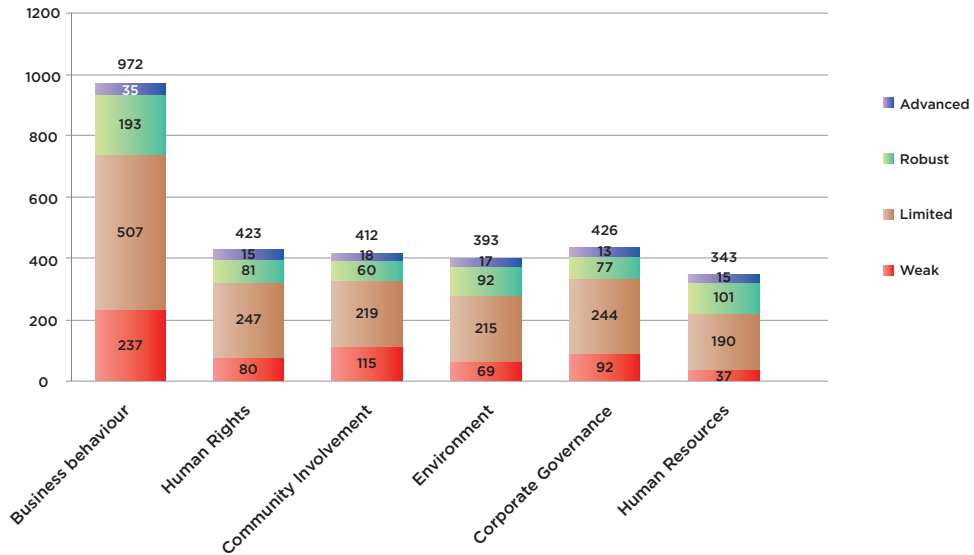
The size of the consolidated portfolio had grown significantly since the previous audit in 2016, with a marked increase in the number of companies from emerging countries.

Of the 4,918 stocks in the FRR's consolidated portfolio, Vigeo Eiris analysed the controversy management of 2,718 stocks, i.e. 55% of the companies that make up 93% of the portfolio's investments. The results presented therefore provide a highly significant representation of the management of controversy risks affecting the consolidated portfolio.

Of the 2,718 stocks analysed, 1,286 had dealt with controversies and 131 are now on Vigeo Eiris' Warning List (comprising 167 stocks), compared with 85 in 2017.

Analysis by ESG area

ANALYSIS BY ESG AREA FOR THE MOST CONTROVERSIAL COMPANIES - CONSOLIDATED PORTFOLIO



On the consolidated portfolio, 36% of the companies were affected by at least one controversy in the Market Behaviour segment and 16% in the Human Rights and Corporate Governance segments. The international regulatory framework, which is much more rigorous in terms of business ethics, and the particular vigilance of judicial authorities on this issue may explain this pattern.

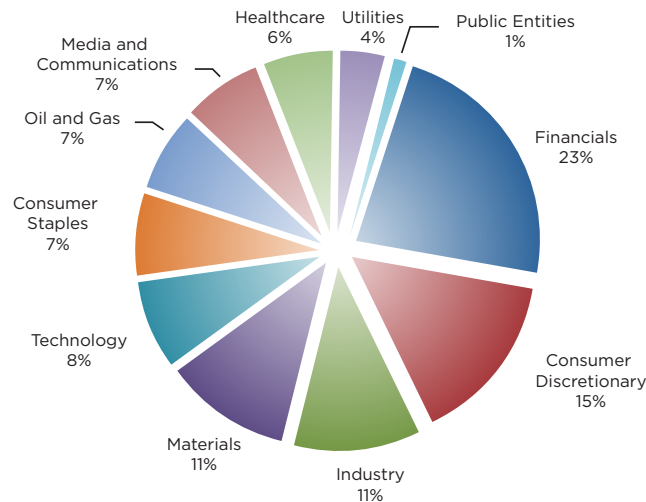
393 companies were therefore affected by at least one controversy owing to corruption (C&S 3.1), with Deutsche Bank being the most controversial with a total of 37 controversies, of which 32 have a critical or high severity level in this area. Meanwhile, 400 companies were affected by at least one controversy for anti-competitive behaviour (C&S 3.2). Alphabet was the most controversial in this regard.

In June 2017, Google, a subsidiary of Alphabet, was fined EUR 2.4 billion for violating EU competition rules.

Across all segments, at least two thirds of companies present a low or limited degree of controversy management. Conversely, a very small percentage of companies – between 3.1% and 4.4% depending on the segment – demonstrate advanced management. In the Market Behaviour segment, Heineken Holding, Pernod Ricard and Enbridge were some of the 35 companies to demonstrate advanced controversy management.

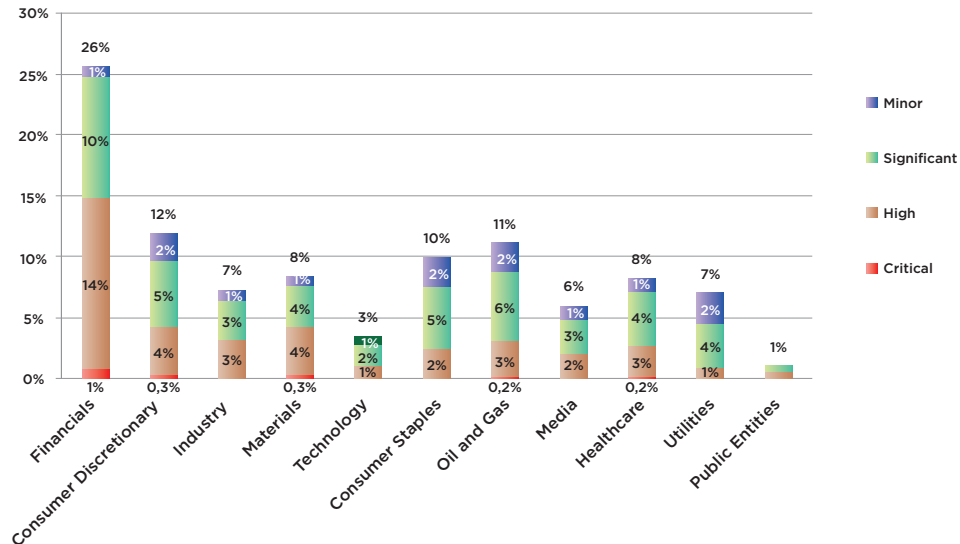
Sector analysis

SECTOR ANALYSIS - CONSOLIDATED PORTFOLIO



The financial companies sector is overrepresented (23%) within the portfolio

SECTORAL BREAKDOWN OF COMPANIES - CONSOLIDATED PORTFOLIO



By comparing the representativeness of the sectors in the portfolio (with the proportion of controversial companies within them) and the volume of controversies generated, we can thus identify the most controversial sectors. They are therefore the sectors that are associated with a higher proportion of controversies than companies in the portfolio.

The Financial Companies sector represents 22% of the companies in the region but accounted for 27% of controversies. These controversies were however found in less than half of companies in the sector.

We noted, for example, that 6 banks (Deutsche Bank, HSBC Holdings, Barclays, Bank of America, Citigroup, Credit Suisse Group) were each involved in more than 50 controversies, equating to 337 controversies for those banks alone, i.e. almost a quarter of the controversies in the sector.

The oil and gas, consumer staples and utilities sectors also accrued a larger volume of controversies than their proportion of representation in the portfolio. For example, oil companies only represent 7% of companies in the region but accounted for 11% of controversies.

70% of the companies in the consumer staples and utilities sectors were involved in at least one controversy. Wal-Mart Stores, Nestlé, Coca-Cola, Tyson Foods and Philip Morris International had the highest number of controversies within the consumer staples sector. As regards utilities, Duke Energy, EDF, Enel and Dominion Resources were the most controversial companies.

On a positive note, less than a third of companies in the Technology sector faced a controversy. Companies in this sector, which represent 8% of the companies in the region, only account for 3% of the controversies.

Apple, Microsoft and Panasonic had the most adverse impact on this sector as they alone account for 54 controversies, i.e. a third of the controversies identified in this sector.

Split between developed/ emerging countries

Of the 2,718 companies analysed, 47% have faced at least one controversy, for a total of 5,970 controversies: this ratio is down on 2016 (52%). This decrease is attributable to the decline in the ratio for the developed region, and especially for the Europe and Asia Pacific regions. The number of companies in the portfolio included in the research that were from emerging countries soared (+70% approx.), with the latter showing increased involvement in controversies.

Emerging countries posted an increase in their ratio of controversial companies (+2 points). The developed country region continues to be the most controversial: 52% of controversial companies versus 37% for the emerging region.

The 10 countries with the highest number of controversial companies are mostly in the developed world. Since the last assessment in 2016, two emerging countries – India and China – have been added to this list, replacing Italy and Spain in Europe.

The United States remains the country with the largest proportion of controversies in the portfolio. It accounts for 27% of companies in the portfolio but 34% of controversial companies.

The analysis demonstrates that the companies in the portfolio have been involved in 119 controversies of critical severity (2% of the total volume of controversies), 90% of which stem from countries in the developed region.

Withdrawal from tobacco

Smoking is recognised as one of the greatest and most serious threats to public health worldwide. The World Health Organization (WHO) estimates that smoking is responsible for nearly 12% of deaths among adults over the age of 30. Of the one billion smokers around the world, 80% live in low- or middle-income countries, where the burden of tobacco use is the heaviest. Furthermore, children from poor households are frequently employed in tobacco farming. Tobacco workers are also exposed to green tobacco sickness, which is caused by the nicotine that is absorbed through the skin from handling wet tobacco leaves.

The WHO Framework Convention on Tobacco Control entered into force in 2005. Its primary objective is to protect present and future generations from the health, social, environmental and economic consequences of tobacco consumption and exposure to tobacco smoke. The fight against tobacco has gained ground since then with the implementation of measures such as plain packaging, higher taxes, and a ban on advertising, etc. Tobacco use has nevertheless continued to increase among adults in developing countries, indicating that much work remains to be done.

The WHO Framework Convention on Tobacco Control signed by France is also the first treaty negotiated under the auspices of the WHO. It is an evidence-based treaty that reaffirms the right of all people to the highest standard of health. The Framework Convention represents a paradigm shift in developing a strategy to regulate addictive substances. In contrast to previous drug control treaties, the Framework Convention also asserts the importance of demand reduction strategies as well as supply issues. This Framework Convention is thus directed at the production and marketing of tobacco as well as at investors.

Tobacco companies are also playing an active role in promoting tobacco use, even though it has long been said that tobacco consumption has very harmful effects on human health. Although regulation has been tightened in developed countries, it is still limited in a number of developing countries, where several tobacco companies have discovered new markets and thus new smokers.

Lastly, the taxes imposed on the sale of tobacco fall well short of what is needed to cover smoking-related healthcare expenses. In Europe, the ratio is 1 to 5; tobacco companies therefore represent a net cost to society.

At the end of 2016, the FRR elected to divest from tobacco in 2017, marking its decision to become more involved in the fight against tobacco. Accordingly, *“At its meeting of 1 December 2016, the Supervisory Board of the Fonds de Réserve pour les Retraites (FRR) adopted the Management Board’s proposal to exclude from the portfolio investments in tobacco company equities or bonds”*¹³.

WHAT WERE THE FINDINGS FOR 2017?

Of the 4,918 stocks in the FRR’s consolidated portfolio, Vigeo Eiris analysed the involvement in tobacco of 2,457 stocks, i.e. 50% of companies and 92% of investments.

In comparison with the November 2016 analysis, the number of companies involved to a minor extent in tobacco increased from 17 to 182 in late November 2017. This rise in the number of companies involved to a minor extent is attributable to the threshold change and the extended scope of Vigeo Eiris’ research in this area. The production of secondary tobacco products now equates to minor involvement, regardless of the level of associated revenue.

¹³ Extract from the FRR’s press release of 15 December 2016 .

We are pleased to note that, in Vigeo Eiris' 30 November 2017 analysis, three companies demonstrating major involvement were excluded from the FRR's portfolio.

The analysis of the FRR's portfolio composition as at 31 December 2017 shows that, overall, 10 companies listed as having major involvement in the production or distribution of tobacco were excluded at the end of 2017. The commitment made by the FRR at the end of 2016 to exclude seven companies held through mandates was honoured.

Finally, in the analysis of the FRR's portfolio as at 30 June 2018, we have noted that all companies demonstrating major involvement in the production or distribution of tobacco were excluded from the FRR's portfolio.

Controversial weapons

EXCLUSION OF COMPANIES INVOLVED IN CONTROVERSIAL WEAPONS

France has ratified the Oslo Convention on Cluster Munitions of 3 December 2008, which stipulates, inter alia, that, *“each State Party undertakes never under any circumstances to: Use cluster munitions; Develop, produce, otherwise acquire, stockpile, retain or transfer to anyone, directly or indirectly, cluster munitions; Assist, encourage or induce anyone to engage in any activity prohibited to a State Party under this Convention”*. France has also ratified the Ottawa Convention of 18 September 1997, which stipulates that *“each State Party undertakes never under any circumstances: to use anti-personnel mines; to develop, produce, otherwise acquire, stockpile, retain or transfer to anyone, directly or indirectly, anti-personnel mines...”*.

Consequently, and in accordance with the Responsible Investment Strategy, the Supervisory Board has decided to exclude from the FRR’s portfolios, including passively managed portfolios, securities representing the equity or debt of companies that are involved in the manufacture of cluster munitions and anti-personnel mines, but also of chemical and bacteriological weapons.

THE FRR’S EXCLUSION LIST

Each year, the FRR publishes an exclusion list approved by the Supervisory Board’s Responsible Investment Committee. This list is updated during the first half of each year. The aim of its methodology is to identify companies involved in the development, production, maintenance, use, distribution, stockpiling, transport or trade of banned weapons or their key components. Stakeholders have traditionally characterised these weapons as:

- Weapons of mass destruction;
- Nuclear, biological and chemical weapons;
- Anti-personnel mines, cluster bombs and certain conventional weapons.

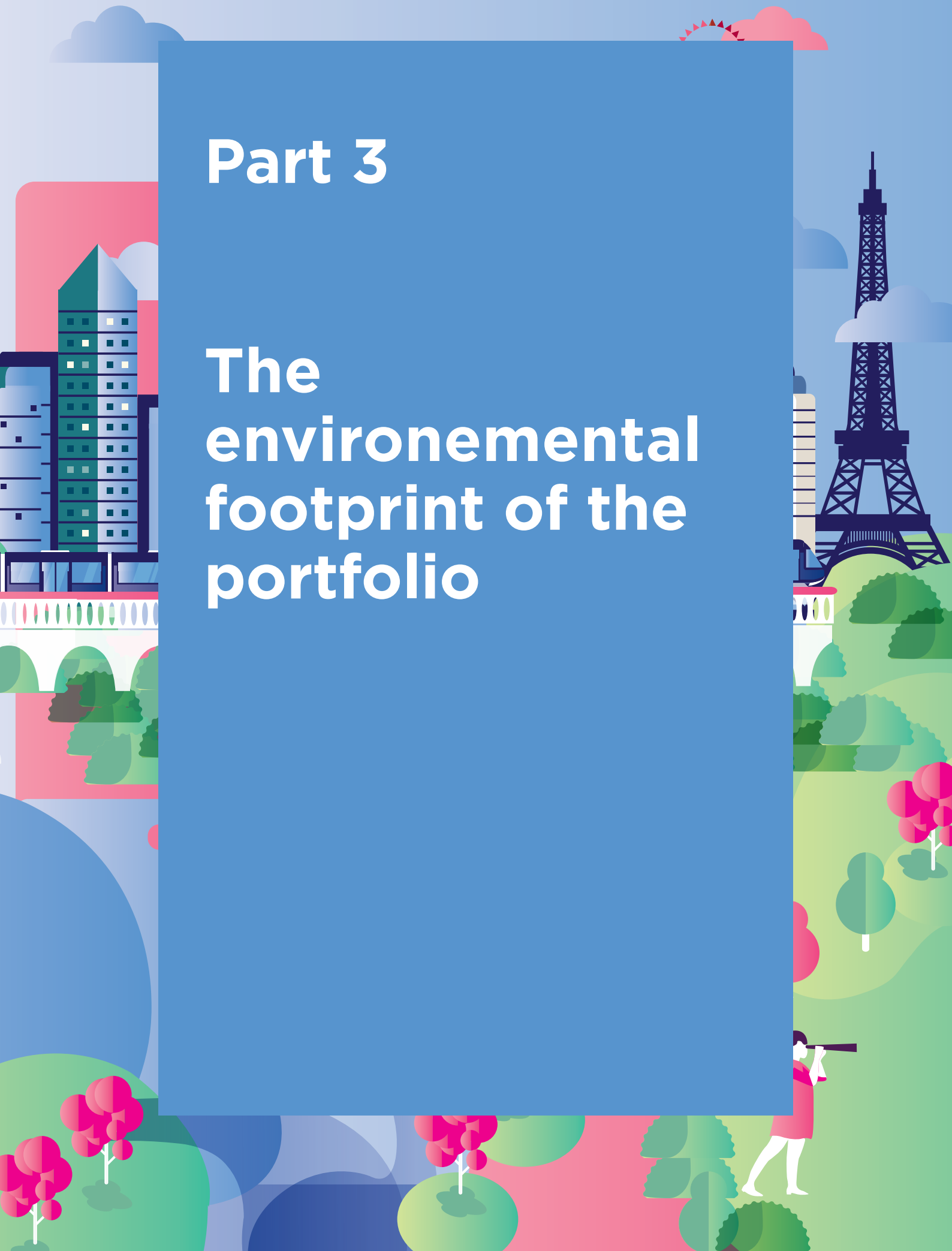
The FRR has chosen to exclude all of these weapons with the exception of nuclear weapons.

New list as at 4 October 2018

Company	Country	Quotation
Aerojet Rocketdyne Holdings, Inc. (GenCorp)	United States	Listed
Aeroteh	Romania	Listed
Arab Organization for Industrialization	Egypt	Non Listed
Aryt Industries Ltd.	Israel	Listed
Aselsan Elektronik Sanayi Ve Ticaret	Turkey	Listed
China Aerospace Science & Technology Corporation	China	Listed
China National Precision Machinery Import and Export Corporation	China	Non Listed
China North Industries (Norinco)	China	Listed
China Poly Group Corporation	China	Non Listed
DMD Group	Slovakia	Non Listed
Doosan Corporation	South Korea	Listed
General Dynamics	United States	Listed
Hanwha Group	South Korea	Listed
Hanwha Techwin	South Korea	Listed
Heliopolis Company for Chemical Industries	Egypt	Non Listed
Honeywell	United States	Listed
IMI Systems Ltd	Israel	Non Listed
Indian Ordnance Factories	India	Non Listed
Israel Aerospace Industries	Israel	Listed
Kaman	United States	Listed
L3 Technologies Inc	United States	Listed
Larsen & Toubro	India	Listed
Lockheed Martin	United States	Listed
Makina ve Kimya Endustrisi Kurumu (MKEK)	Turkey	Non Listed
Motovilikha Plants JSC/Motovilikhinskiye Zavody	Russia	Listed
Myanmar Defence Products Industries	Myanmar	Non Listed
Northrop Grumman Corporation	United States	Listed
Poongsan	South Korea	Listed
Raytheon	United States	Listed
Roketsan	Turkey	Non Listed
Rostec (Russian Technologies State Corporation)	Russia	Non Listed
S&T Dynamics	South Korea	Listed
S&T Holdings Co Ltd	South Korea	Listed
SPLAV State Research and Production Enterprise	Russia	Non Listed
Tata Power Company Ltd.	India	Listed
Textron	United States	Listed
Union of Military Industries	Cuba	Non Listed
Yugoimport SDPR	Serbia	Non Listed

Part 3

The environmental footprint of the portfolio



The FRR provides information on the carbon footprint of its equity and bond portfolio. The FRR calculated the environmental footprint of its portfolio for the first time in 2007, including the carbon footprint. In accordance with its responsible investment strategy, the FRR has been evaluating its portfolio annually since 2013.

Carbon footprint

IMPLEMENTATION OF DECARBONISATION

The FRR set out to decarbonise its passive equity portfolio in 2014. It continued in this direction and by 2016 decarbonised investments had increased by EUR 910 million (excluding the market effect). The decarbonised asset component therefore amounted to over EUR 5 billion. In 2017, this component grew again to EUR 5.905 billion.

Whichever method is used, the FRR's portfolio emits less than its benchmark, and thanks to the FRR's determined decarbonisation policy for its equity portfolios, it has consolidated its lead.

MEASURING AND ANALYSING THE CARBON FOOTPRINT OF THE FRR'S PORTFOLIO

Methodologies used to measure the portfolio's carbon footprint

The study conducted by Trucost Ltd covers the emissions generated by companies' operations, direct suppliers and fossil fuel reserves.

The FRR decided to use three methods to measure its portfolio's carbon footprint:

- The footprint in capital terms is calculated per million euro invested¹⁴ ;
- The carbon footprint in terms of revenue is calculated by dividing companies' annual

CO2 emissions by the annual revenue generated by their activities¹⁵ ;

- The average footprint is calculated as the arithmetic mean of the carbon intensities of companies in the portfolio weighted according to their weighting in the portfolio¹⁶.

The approach favours the per million euro in revenue generated method, which applies the equity ownership proxy principle (allocation to the investor based on the percentage interest in the company) to emissions and to revenue generated by the portfolio, and thus evaluates the portfolio's effectiveness in creating value. The footprint per million euro invested excludes the concept of effectiveness as it does not consider revenue creation, but it does give investors a better understanding of the absolute impact of their portfolio. Lastly, the weighted average of the consolidated portfolio's carbon footprints only evaluates the portfolio's exposure to emission-intensive companies, and thus does not consider the concept of responsibility.

To calculate its footprint, the FRR decided to analyse:

- Scope 1, reflecting the company's direct emissions;
- Scope 2, reflecting indirect emissions from purchased electricity or heat; and
- Scope 3, upstream first tier, reflecting the emissions of key suppliers

¹⁴ This ratio is expressed in tonnes of CO2 equivalent (tCO2e) per million euro invested; it can also be expressed in kg per thousand euro (kgCO2e/EUR 1,000).

¹⁵ This ratio is expressed in tonnes of CO2 equivalent (tCO2e) per million euro in revenue.

¹⁶ This ratio is expressed in tonnes of CO2 equivalent (tCO2e) per million euro in revenue.

S&P Trucost Ltd assigns the proportion of emissions “held” to the FRR’s portfolio as follows¹⁷ :

$$\frac{\text{Value held x Total emissions of the company}}{\text{Company value}}$$

This new methodology allows the FRR to calculate the consolidated carbon footprint of its equity and bond portfolios.

The FRR decided that, when evaluating its portfolio, it would differentiate between investments made in developed countries, where it can impose its own investment rules on investment managers through management mandates, and those made in emerging countries, where it invests through UCIs that have their own investment policies.

In order to gain a better understanding of the origin of the difference between its carbon footprint and that of its benchmark index, the FRR has also distinguished between the sectoral effect and the asset selection effect within each sector.

The analysis was carried out in comparison to a composite index reflecting each portfolio’s investment universe.

Scope of the portfolio covered by Trucost Ltd’s analysis

As regards mandates, the consolidated equity portfolio and corporate bond portfolio were analysed on 30 November 2017. This analysis covers 3,735 companies and investments worth EUR 20.12 billion in total. The analysis therefore covers 95% of the total value of the

consolidated equity portfolio and 86% of the total value of the bond portfolio. The bond portfolio has a lower coverage rate because “non-corporate” bonds were excluded from the scope of the analysis.

As regards UCIs offering exposure to emerging markets, the analysis was only carried out on the equity portfolio.

The carbon performance of the consolidated equity and bond portfolios was better than that of their respective composite indices irrespective of the indicators used and the methodologies applied to calculate the percentage interest held.

ANALYSIS OF THE FRR’S PORTFOLIO BY ASSET CLASS

At the end of 2017, the carbon footprint¹⁸ of the FRR’s equity portfolio was 251.1 tonnes of CO₂ equivalent per million euro of revenue. This is 22.8% lower than that of the FRR’s benchmark index¹⁹. Between 2013 and 2017, the FRR reduced its portfolio’s carbon footprint by 37.8%, whereas that of the benchmark fell by just 19.6%. This performance essentially results from the decarbonisation process under way since 2014 on passively managed equity portfolios.

For each million euro invested in the FRR’s equity portfolio in 2017, absolute emissions²⁰ amounted to 163.8 tonnes of CO₂ equivalent, 16.5% less than for the benchmark. By this yardstick, the FRR’s portfolio reduced its carbon footprint by 45.3% between 2013 and 2017, whereas the benchmark’s fell by just 39.8%.

17 In its previous analyses, Trucost Ltd assigned the proportion of emissions “held” to the FRR’s portfolio as follows:

$$\frac{\text{Value held x Total emissions of the company}}{\text{The company's market capitalisation}}$$

18 STANDARDISED EMISSIONS BY ENTERPRISE VALUE, NOT CAPITALISATION

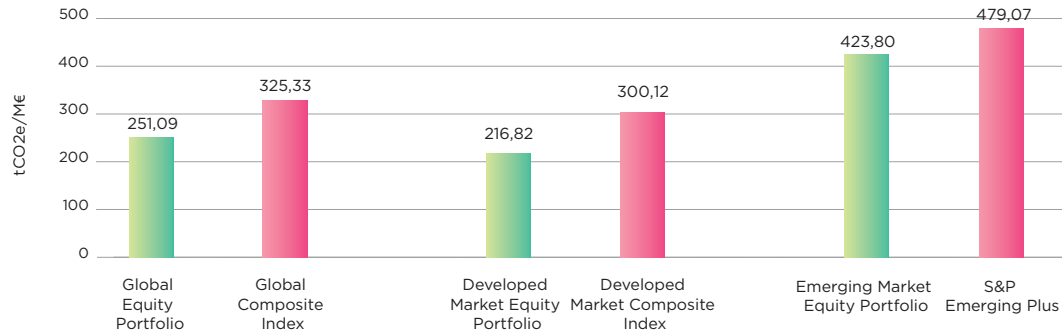
19 13.8% MSCI Emerging Markets index +43.2% FTSE Developed All Cap Excluding Eurozone index +43% FTSE Developed Eurozone All Cap index

20 Standardised emissions by capitalisation, not enterprise value, as the FRR has a larger set of data for the former.

The graph below compares the carbon performance of the developed market and emerging market equity portfolios. The results

presented here are based on a percentage holding calculated on the basis of the company's value.

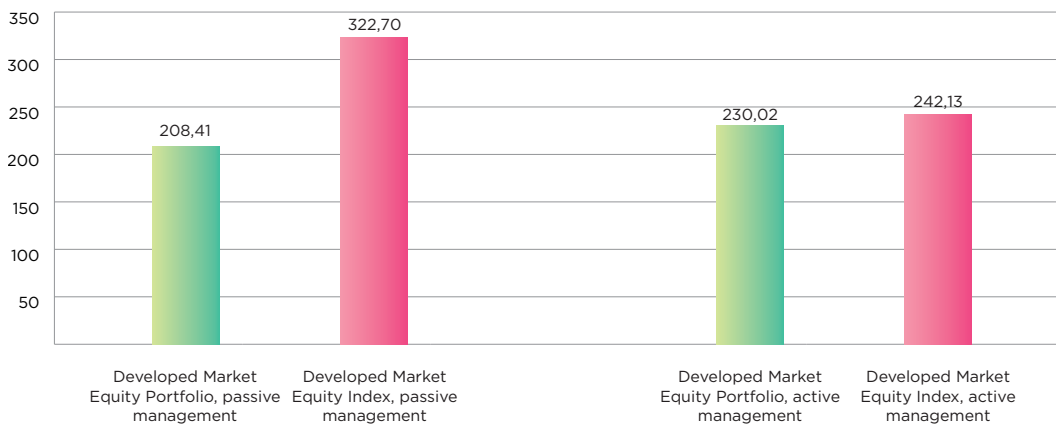
RESULTS OF THE CARBON FOOTPRINT ANALYSIS BY PORTFOLIO, IN TONNES OF CO₂ PER MILLION EURO OF REVENUE



The emerging market equity portfolio has the highest carbon intensity, and this is the case for each of the indicators and percentage interests used. This is mainly due to the higher carbon intensity of companies operating in emerging countries relative to that of companies operating in developed countries. This portfolio's carbon intensity is nevertheless

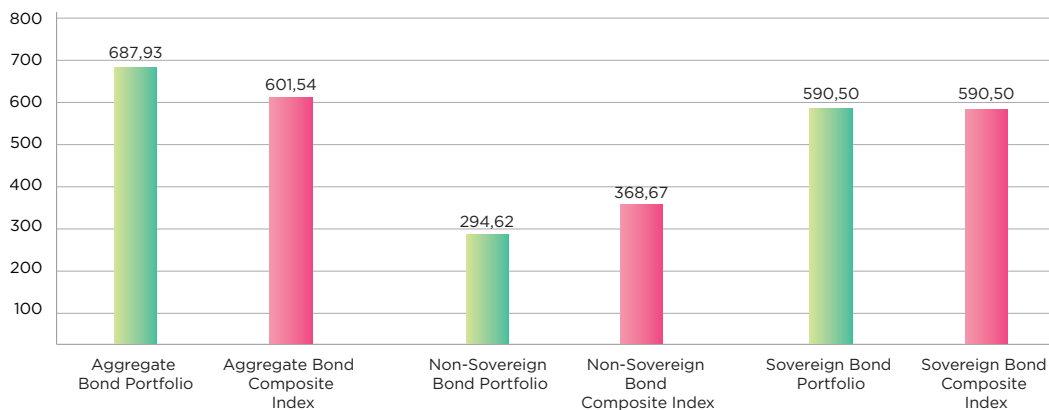
lower than that of its benchmark index, the MSCI Emerging Markets. The following graph details the results of the developed market equity portfolio's carbon footprint by management type (active and passive). Both portfolios have fairly similar carbon intensities, which are lower than those of their respective benchmark indices.

RESULTS OF THE CARBON ANALYSIS OF THE DEVELOPED MARKET EQUITY PORTFOLIO BY MANAGEMENT TYPE, IN TONNES OF CO₂ PER MILLION EURO IN REVENUE



The following graph compares the results of the consolidated bond, non-sovereign bond and sovereign bond portfolios.

RESULTS OF THE CARBON ANALYSIS BY PORTFOLIO, IN TONNES OF CO₂ PER MILLION EURO OF REVENUE/GDP



The carbon performance of the corporate bond portfolio was 20% higher than that of its benchmark index, while the carbon performance of the sovereign bond portfolio was 4.7% lower than that of its benchmark index. This is mainly because the emerging debt funds, which have issued large amounts of bonds, overweight certain countries such as Indonesia, South Africa, Zambia and Russia.

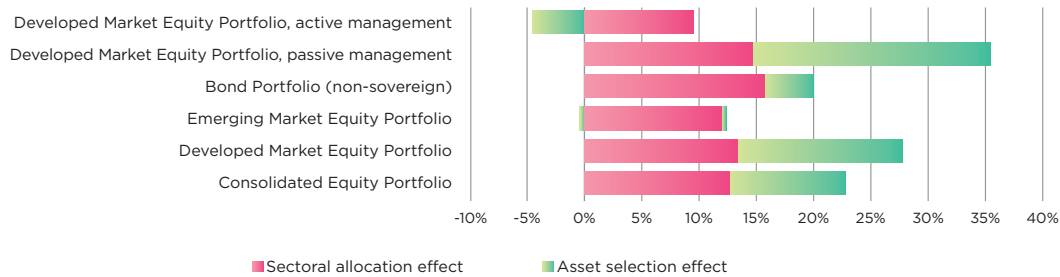
This carbon footprint analysis highlights the portfolios' positive performance relative to their composite indices, no matter which methodology is used. The FRR's portfolio emits less than its benchmark, and thanks to the FRR's determined decarbonisation policy for its equity portfolios, it has consolidated its lead.

How assets contribute to carbon performance

The main contributors to the carbon footprint of the equity and bond portfolios are the companies that represent a significant share of the portfolio's revenues and whose production processes are carbon-intensive.

The fact that the consolidated equity and bond portfolios outperformed their respective benchmarks was due to a combination of two effects: the sectoral allocation effect and the asset selection effect (see Appendix I). The graph below illustrates the cumulative impact of these effects for the Consolidated Equity, Developed Market Equity, Emerging Market Equity and Consolidated Bond Portfolios.

ALLOCATION OF PERFORMANCE BY PORTFOLIO, IN %



Source Trucost

Consolidated Equity Portfolio

The carbon intensity of the Consolidated Equity Portfolio is 23% lower than that of the benchmark owing to a positive sectoral allocation effect (13%) and an asset selection effect that was also positive (10%). The portfolio is underweight on carbon-intensive sectors such as utilities, materials and energy. Moreover, the portfolio invests in companies that are less carbon-intensive than their counterparts on the composite index within the same sectors. Similar results may also be observed for the Developed Market Equity Portfolio.

The Emerging Market Equity Portfolio mainly outperformed its benchmark in terms of carbon intensity as a result of the positive sectoral allocation effect in the utilities sector. The positive asset selection effect in the energy sector is partly offset by the selection of companies that are more carbon-intensive than their counterparts on the composite index in the materials sector.

Consolidated Bond Portfolio

The carbon intensity of the Consolidated Bond Portfolio is 20% lower than that of its composite index, primarily owing to a positive sectoral allocation effect (16%). This was

caused by an overweight on sectors that are not carbon-intensive, such as banking and insurance, and an underweight on highly carbon-intensive sectors such as materials and utilities. A positive asset selection effect in the energy, materials and utilities sectors also contributed to the positive performance of the portfolio.

Analysis of total emissions (scopes 1, 2 and 3)

Trucost Ltd estimated the total emissions (scopes 1, 2 and 3) of companies in the FRR's consolidated equity and bond portfolios. This meant going above and beyond the standard carbon footprint method which takes into account direct emissions plus "direct suppliers" by assessing the rest of the value chain. Scope 3 emissions include indirect emissions from sources not controlled by the company. Scope 3 emissions are generally separated into two categories:

- "Upstream" emissions relate to the company's direct and indirect suppliers;
- "Downstream" emissions relate to the use of the products and services provided by the company;

Last year, Trucost Ltd refined its methodology and supplemented the data reported by the companies with estimates derived directly from production data for the energy, coal and automotive sectors, as well as with sectoral emission factors for other sectors. This produces a more granular analysis that allows for management choices to be compared with benchmark indices.

The carbon footprints of the Consolidated Equity and Bond Portfolios remain lower than those of their respective benchmark indices when all emissions in the value chain are taken into account.

The tables below present the carbon footprint by emissions scope for each of the two portfolios:

CARBON FOOTPRINT OF THE CONSOLIDATED EQUITY PORTFOLIO AND ITS COMPOSITE INDEX, BY SCOPE

	Direct emissions intensity (tCO ₂ e/ EURm)	Scope 2 emissions intensity (tCO ₂ e/ EURm)	Scope 3 upstream emissions intensity (tCO ₂ e/EURm)	Scope 3 downstream emissions intensity (tCO ₂ e/ EURm)	Total emissions intensity (tCO ₂ e/ EURm)
Consolidated Equity Portfolio	137.99	37.49	202.47	805.66	1 183.61
Composite index	206.39	41.36	196.38	906.02	1 350.16
Relative performance (%)	33%	9%	-3%	11%	12%

CARBON FOOTPRINT OF THE CONSOLIDATED BOND PORTFOLIO AND ITS COMPOSITE INDEX, BY SCOPE

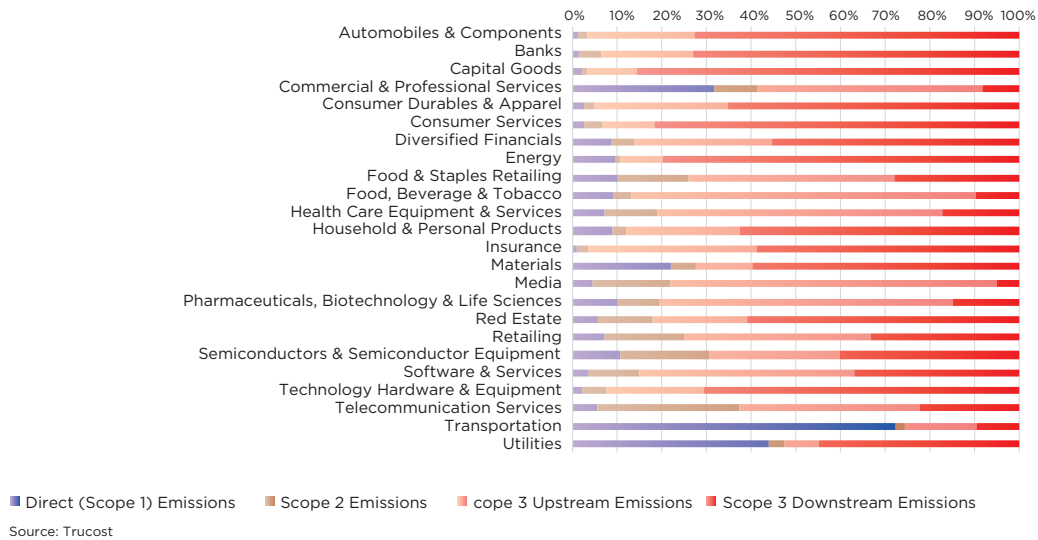
	Direct emissions intensity (tCO ₂ e/ EURm)	Scope 2 emissions intensity (tCO ₂ e/ EURm)	Scope 3 upstream emissions intensity (tCO ₂ e/EURm)	Scope 3 downstream emissions intensity (tCO ₂ e/ EURm)	Total emissions intensity (tCO ₂ e/ EURm)
Consolidated Bond Portfolio	197.05	31.45	176.34	845.22	1 250.04
Composite index	251.74	40.80	193.92	1,089.75	1 576.22
Relative performance (%)	22%	23%	9%	22%	21%

Scope 3 downstream represents about 68% of the Consolidated Equity and Bond Portfolios' emissions. Direct emissions and scope 3 upstream emissions for the two asset classes account for a comparable share of their total footprints, with 12% and 17% for the Consolidated Equity Portfolio, respectively, and 16% and 14% for the Consolidated Bond Portfolio, respectively. The composite indices have a similar emissions breakdown.

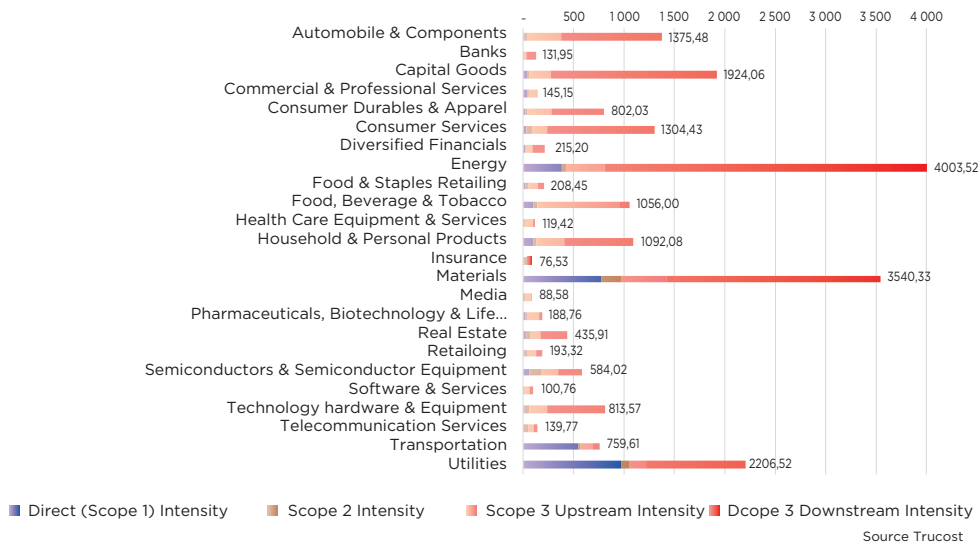
The breakdown of carbon emissions by scope varies according to business sector.

The graph below presents the sector breakdown for the Consolidated Equity Portfolio. The results are similar for the Consolidated Bond Portfolio and the composite indices.

SECTORAL BREAKDOWN OF CARBON EMISSIONS BY SCOPE IN %



SECTORAL BREAKDOWN OF CARBON EMISSIONS BY SCOPE (TCO2E/EURM)



The sectors with the most significant scope 3 downstream emissions as a percentage of total emissions are energy, materials, capital goods and the automotive sector. In other words, carbon emissions in these sectors relate mainly to the use of their goods and services.

Companies where the scope 3 upstream emissions are the most significant are found in the agri-food, consumer goods and commodities sectors.

The two primary recommendations for managing carbon risks arising from scope 3 are to evaluate indirect suppliers' exposure to carbon risks, in particular for companies dependent on commodities (agricultural and textile sectors), and to focus the scope 3 downstream emissions analysis on the sectors with the highest exposure to this category of emissions as a percentage of total emissions (automotive and finance sectors).

MEASURING AND ANALYSING THE CARBON FOOTPRINT OF THE SOVEREIGN BOND PORTFOLIO

Trucost Ltd works with Beyond Ratings, which specialises in analysing sovereign bond portfolios, to analyse and measure environmental footprints.

Methodology

Beyond Ratings' methodology for analysing a portfolio's carbon footprint entails measuring the exposure of sovereign assets, portfolios and benchmark indices to greenhouse gas emissions.

This enables it to compare carbon intensity levels among countries. This service was developed in partnership with Trucost Ltd. This analysis is based on several criteria used to evaluate both territorial emissions and those related to foreign trade. Intensities are evaluated based on total greenhouse gas emissions by country, reflecting the specific role of the public sector as a provider of key services for the economy and as a lawmaker that can influence carbon footprints. The analysis includes measurements of carbon intensity and contributions and a variety of other indicators.

The carbon exposure of the bond portfolio and of its scope of comparison is based on

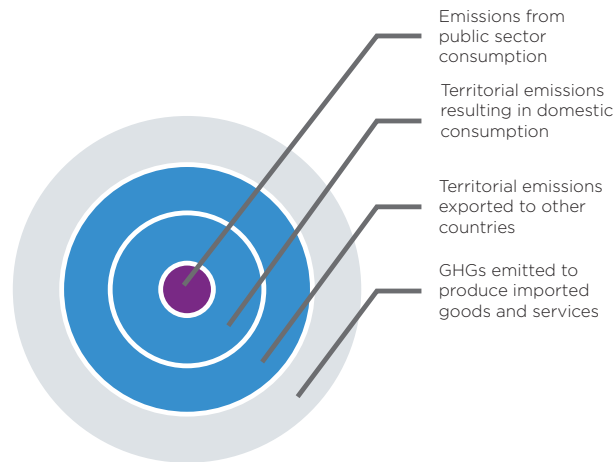
the carbon profiles of sovereign issuers at the national level. It is calculated based on profiles that include countries' total greenhouse gas (GHG) emissions. This reflects the public sector's unique role in managing the carbon footprint of national economies, as a legislator and provider of key public services. The analysis of the portfolios and benchmark indices is therefore based on national emissions rather than only on emissions directly related to public activities.

At the portfolio level, the ratio of greenhouse gases [territorial + imported]/GDP is the key indicator for evaluating the carbon footprint of sovereign assets. This means that a country is exposed to domestic GHGs as well as to those emitted to produce imported goods and services. This approach is consistent with the direct greenhouse gas + direct supplier greenhouse gas approach used in Trucost Ltd's "Corporate" carbon footprints.

As noted below, the greenhouse gas [territorial + imported]/GDP indicator covers the following scope:

- Emissions generated by the consumption of goods and services by the public sector;
- Territorial emissions resulting from domestic consumption or exports;
- Emissions used in the manufacture of goods and services produced abroad but supplied to the analysed country.

SCOPE OF GREENHOUSE GAS (GHG) EMISSIONS COVERED BY GHG [TERRITORIAL + IMPORTED]



Estimates are calculated to ensure that data and projections are up to date. The following principles are used to estimate GHG [territorial + imported] when data are missing:

- Reporting data are used as much as possible and emissions are not extrapolated;
- GHG/GDP ratios are calculated from (i) available GHG data and (ii) the IMF's GDP series at constant prices in national currency (most recent data and future projections);
- The above ratio is extrapolated based on the 10-year CAGR (10-year moving average);
- By combining them with the IMF's GDP data and forecasts, the extrapolated GHG/GDP ratios can be used to estimate total GHG emissions for the analysis period and future years;
- For the annual variation analysis, data at constant prices eliminate inflation impacts

- If data are not available, the breakdown of GHG emissions is considered stable;
- Estimated GHGs are compared with the most recent GDP data or estimates to calculate the ratios.

Available data cover nearly 100% of countries analysed. A benchmark index was created based on France's large weighting and on a segment made up of the portfolio's emerging countries reweighted for the share of their public debt, excluding China due to its very small presence in the portfolio.

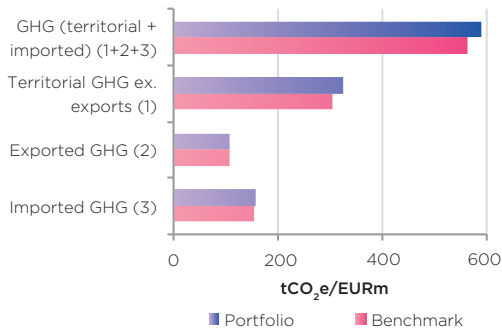
Main results

The carbon exposure analysis was carried out in January 2018 on assets held on 30 November 2017. Unless otherwise stated, the carbon data from 2016 was used to ensure consistency with the analysis of corporate assets.

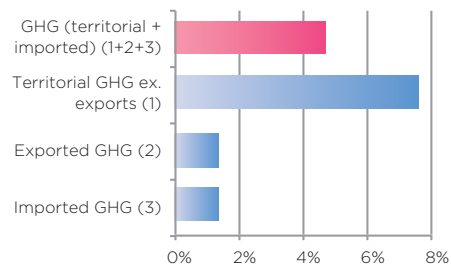
Based on positions held in 2017 and on 2016 data, the average carbon exposure of the portfolio is 590.5 tCO₂e/EURm of GDP (GHG/GDP [territorial + imported]), compared with the benchmark index's exposure of 564 tCO₂e/EURm of GDP. On that basis, the portfolio's exposure is 4.7% higher than that of the benchmark. This accounts for both territorial and imported greenhouse gases.

In terms of emissions of territorial GHG excluding exports/GDP, the portfolio's exposure is 7.6% higher than that of the benchmark. Similarly, the imported GHG/GDP ratio is 1.4% less favourable than that of the benchmark, while the exported GHG/GDP ratio is 1.3% less favourable.

WEIGHTED AVERAGE OF GHG/GDP [T+I] FOR 2016



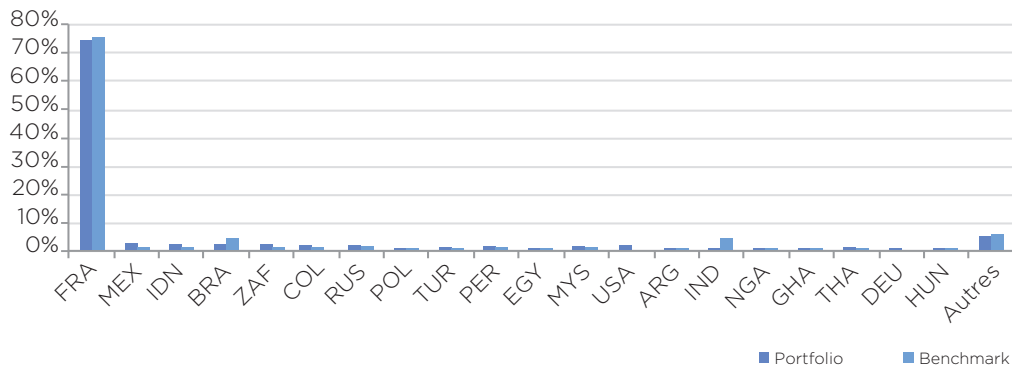
DIFFERENCE IN THE CARBON FOOTPRINT OF THE PORTFOLIO AND THE INDEX



The graph below presents the weightings of the main countries that make up the portfolio and the benchmark index. As the portfolio includes a total of 87 countries and 7 supra-national entities, only the top 15 countries in weighting terms are depicted. The portfolio is

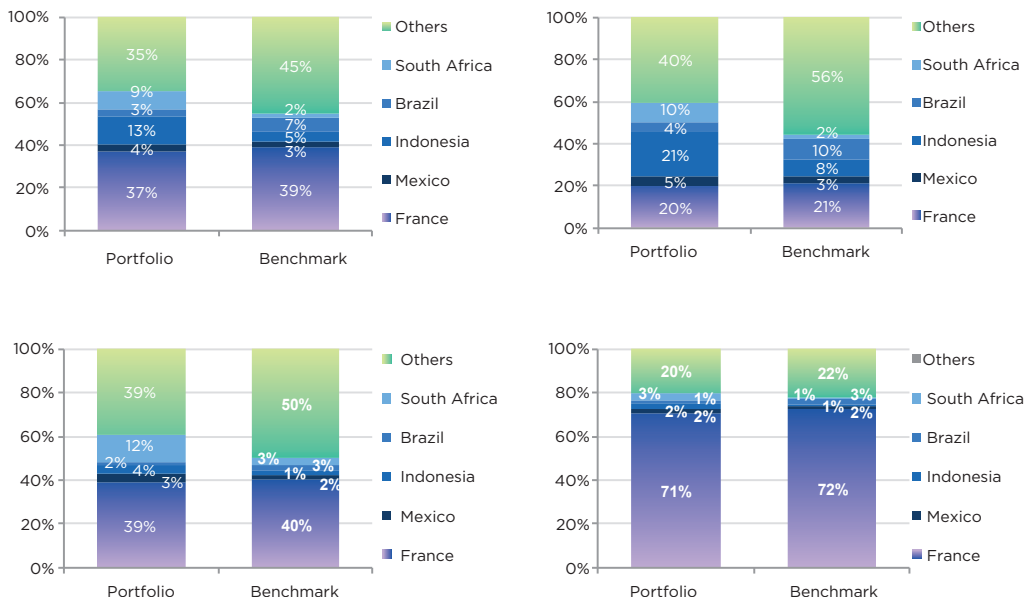
characterised by France's very large weighting (74.6% of the total) and the small weighting of the other positions. The second largest country in terms of weight - Mexico - therefore accounts for only 2.5% of the portfolio.

COUNTRIES THAT MAKE UP THE PORTFOLIO AND THE BENCHMARK INDEX



The following graphs present a breakdown of carbon impacts by country (portfolio and benchmark index).

BREAKDOWN OF GHG/GDP FOOTPRINTS BASED ON 2016



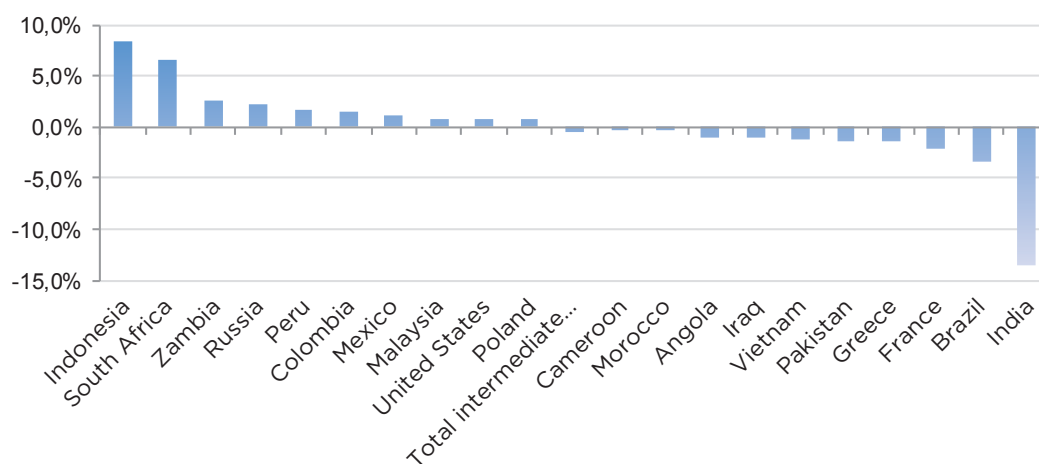
Because of its weighting, France represents by far the largest percentage of the portfolio's footprint. Its weighting in the carbon footprint is, however, significantly lower than its weighting in value terms in the portfolio. This corresponds to the moderate level of carbon exposure for France, except for imported GHGs.

Conversely, certain countries' contributions to the carbon footprint are substantially higher than their weighting in the portfolio. This is true in particular for Indonesia, which represents 13% of the portfolio's footprint compared with a weighting in value terms of 2.4%, owing to a high carbon footprint. Indonesia's 2.4% weighting in the portfolio

compared with 0.8% in the benchmark index is one of the key factors that adversely affect the portfolio's performance.

The following graph details, for 20 portfolio countries, the difference between their contribution to the portfolio's footprint and their contribution to the benchmark index's footprint in terms of GHG/GDP [territorial + imported]. The countries represented are the 10 countries with the most positive differences and the 10 countries with the most negative differences; the average of the intermediate countries is also noted.

DIFFERENCE IN COUNTRY CONTRIBUTIONS TO THE GHG/GDP [T+I] OF THE PORTFOLIO AND THE BENCHMARK INDEX



HOW TO READ THIS GRAPH

For example, Indonesia's share in the portfolio's total GHG/GDP [T+I] footprint is 8.4 percentage points higher than its share in the benchmark index's footprint (i.e. 13% vs 4.6%)

The 74 countries and supranational entities not included represent 7.7% of the portfolio's weightings for 15.4% of its footprint. Moreover, their differences (share of the portfolio's total footprint minus share of the benchmark's footprint) are very small, ranging from -0.3% to 0.6%.

This is largely because these are countries that, on the whole, have a very small weighting within the portfolio.

The portfolio's exposure to stranded assets

Stranded assets are assets that lose their value as a result of changes in the market. This devaluation is due primarily to sudden and significant changes in legislation, environmental constraints or technological innovations that make the assets obsolete before they are fully depreciated.

Trucost Ltd conducts this analysis.

MAIN RESULTS

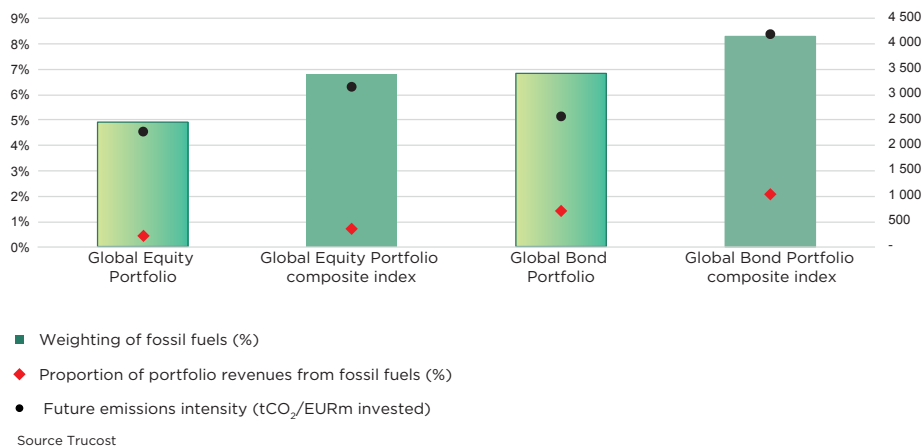
The Consolidated Equity and Bond Portfolios' exposure to fossil fuel extraction activities is lower than that of their respective composite indices.

Three indicators are used to describe this exposure:

- The weighting within the portfolio of companies involved in these sectors,
- Their contribution to the portfolio's revenues, and
- Future emissions financed per million euro invested.

The graph below summarises these key results.

FOSSIL FUEL EXPOSURE OF THE CONSOLIDATED EQUITY AND BOND PORTFOLIOS



The Consolidated Equity and Bond Portfolios' exposure to fossil fuels is lower than that of their respective composite indices

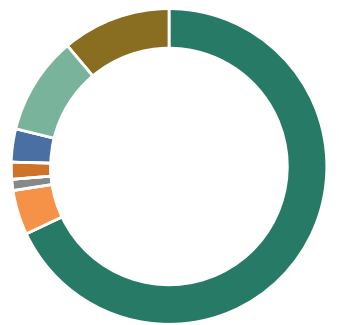
The weighting of the companies involved in these sectors is lower in the Consolidated Equity and Bond Portfolios than in their respective composite indices.

Likewise, the proportion of revenues derived from fossil fuel extraction activities is lower in the FRR's portfolios than in their respective indices.

These revenues are generated mostly from oil and natural gas extraction activities (68% for the Consolidated Equity Portfolio and 72% for the Consolidated Bond Portfolio).

The graph below breaks down the revenues of the Consolidated Equity and Bond Portfolios by activity.

GLOBAL EQUITY PORTFOLIO REVENUES FROM EXTRACTIVE FOSSIL FUEL ACTIVITIES, BY ACTIVITY (%)



- Crude petroleum and natural gas extraction
- Bituminous coal and lignite surface mining
- Natural gas liquid extraction
- Drilling oil and gas wells

GLOBAL BOND PORTFOLIO REVENUES FROM EXTRACTIVE FOSSIL FUEL ACTIVITIES, BY ACTIVITY (%)



- Bituminous coal underground mining
- Tar sands extraction
- Support activities for oil and gas operations

Source Trucost

After compiling the fossil fuel reserves published by companies and converting them into future CO2 emissions, it is apparent that, on average, the Consolidated Equity and Bond Portfolios finance a smaller volume of future emissions per million euro invested than their respective benchmark indices.

The table below lists the top 10 companies in the Consolidated Equity Portfolio in terms of future CO2 emissions related to fossil reserves and the type of reserve held.

MAIN CONTRIBUTORS TO FUTURE EMISSIONS OF THE CONSOLIDATED EQUITY PORTFOLIO

Company	Future emissions attributable to the portfolio ('000 TCO ₂)	Ratio of future emissions per EUR million invested ('000 tonnes/EURm)	Types of reserve	Value held (EURm)
Bukit Asam (Persero) Tbk PT	5 494.24,	8 419.89	Coal	0.65
Lukoil PJSC	3 287.85,	240.72	Oil; Natural gas	13.66
Total S.A.	2 757.49,	29.82	Oil; Natural gas	92.48
Diamondback Energy Inc	1 951.24,	768.71	Oil; Natural gas	2.54
Exxaro Resources	1 338.24,	3 259.54	Coal	0.41
KazMunaiGas EP JSC	1 312.45,	643.66	Oil	2.04
BP	1 230.14,	46.91	Oil; Natural gas	26.22
ConocoPhillips	1 135.84,	39.78	Oil; Natural gas	28.55
Gazprom PJSC	1 114.35,	544.65	Oil; Natural gas	2.05
Adaro Energy Tbk PT	1 105.27,	898.70	Coal	1.23

NB: Emissions attributable to the portfolio are obtained by applying the percentage interest in the company to the potential CO₂ emissions held in the fossil fuel reserves. These are then divided by the amount of value in the portfolio to estimate the volume of emissions financed per million euro invested ("Ratio of future emissions per EUR million invested").

MAIN CONTRIBUTORS TO FUTURE EMISSIONS OF THE CONSOLIDATED BOND PORTFOLIO

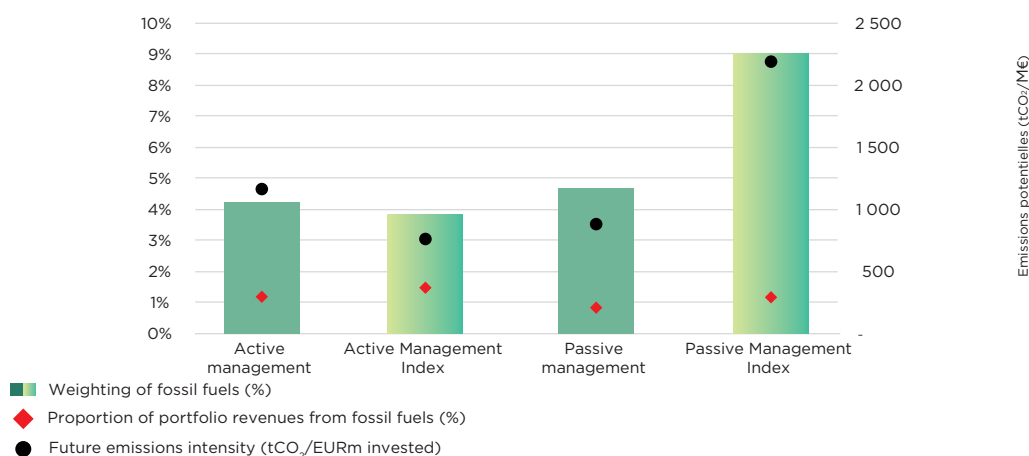
Company	Future emissions attributable to the portfolio ('000 TCO ₂)	Ratio of future emissions per EUR million invested ('000 tonnes/EURm)	Types of reserve	Value held (EURm)
BP	3 361.95,	45.10	Oil; Natural gas	74.54
Glencore Plc	3 116.23,	119.33	Coal; Oil	26.11
Total S.A.	2 748.39,	30.11	Oil; Natural gas	91.29
ENI SpA	1 658.57,	38.71	Oil; Natural gas	42.84
Gazprom PJSC	1 627.20,	544.65	Oil; Natural gas	2.99
Royal Dutch Shell PLC	893.08,	23.62	Oil; Natural gas	37.81
Anglo American Plc	888.48,	103.85	Coal	8.56
Black Hills Corp	645.33,	93.45	Coal; Oil; Natural gas	6.91
KazMunaiGas EP JSC	613.59,	676.41	Oil	0.91
Husky Energy Inc	557.75,	91.26	Oil; Natural gas	6.11

From an engagement standpoint, the strategies adopted by companies that hold fossil fuel reserves to ensure that their future profits are compatible with international climate targets is a crucial aspect of the analysis of these companies. Their ability to diversify their business and integrate future regulations into their economic forecasts (e.g. by

using an average price per tonne of carbon emitted) is a good indicator of the maturity of their approach.

The graph below shows the fossil fuel exposure of the Developed Market Equity Portfolio by management type.

FOSSIL FUEL EXPOSURE OF THE DEVELOPED MARKET EQUITY PORTFOLIO, BY MANAGEMENT TYPE



Analysis of the portfolio's exposure to coal

COAL WITHDRAWAL OBJECTIVES

The FRR has been firmly committed to the ecological and energy transition theme for the past three years. It has signed up to several international initiatives aimed at reducing its portfolio's greenhouse gas emissions. It has also joined a coalition of investors (Climate Action 100+) demanding greater transparency in how businesses approach energy transition.

To reflect this commitment, the FRR has implemented an ambitious policy aimed at reducing its portfolio's CO₂ emissions through low-carbon management. This is achieved through benchmarks that reduce CO₂ emissions by at least half relative to standard indices, and by asking passive investment managers on most of the other indices to implement a management process that seeks to reduce the portfolio's carbon footprint.

Going even further, in 2016 the FRR decided to exclude companies whose thermal coal

mining or coal-fired electricity, heat or steam generation business exceeds twenty percent (20%) of their total revenue, unless they use a carbon capture and storage process.

MAIN RESULTS

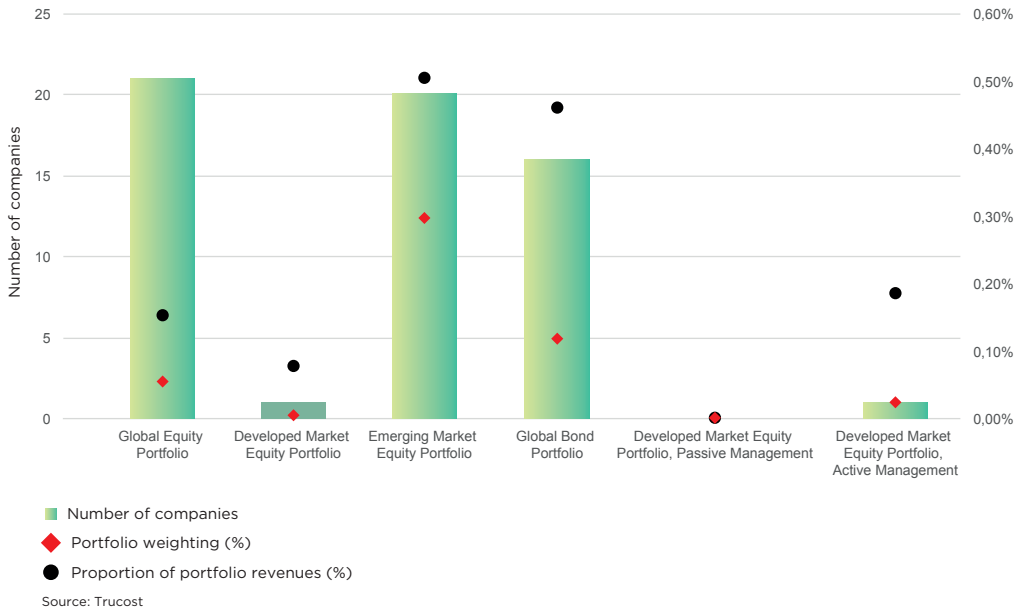
Trucost has identified the companies in the Consolidated Equity and Bond Portfolios that derive more than 20% of their revenue from coal extraction and coal-fired power generation activities.

Three indicators are used to describe this exposure:

- The number of companies deriving more than 20% of their revenue from these activities,
- Their weighting in the portfolio,
- The proportion of the portfolio's revenue that is at risk. This last indicator represents the percentage of each company's revenue attributable to the portfolio that is generated from coal-related activities.

The results for each of the portfolios are detailed in the graph below.

FOSSIL FUEL EXPOSURE OF THE DEVELOPED MARKET EQUITY PORTFOLIO, BY MANAGEMENT TYPE



The coal exposure of the FRR’s portfolios remains fairly limited in terms of the value invested (0.15% of the Consolidated Equity Portfolio and 0.46% of the Consolidated Bond Portfolio). The Consolidated Equity Portfolio contains 21 exposed companies; the Emerging Market Equity Portfolio has the

highest exposure in terms of the value invested in companies deriving more than 20% of their revenue from coal. This portfolio includes 20 companies with this degree of dependency, eight of which derive over 95% of their revenue from coal.

The portfolio's exposure to the energy transition

This section presents an analysis of the future carbon trajectories of the FRR's different portfolios and their alignment with a 2°C scenario.

For this analysis, Trucost Ltd was assisted by Grizzly Responsible Investment, which specialises in aligning portfolios with the 2°C scenario.

METHODOLOGY USED

To gain the best insights into the alignment of its portfolio, the FRR chose to analyse its entire portfolio using the methodology developed by Grizzly Responsible Investment, but also to apply a method developed by Trucost Ltd to take a closer look at companies in the power generation sector.

The analysis of the portfolio's power-producing companies is used to determine whether their activities are compatible with international climate targets. In this regard, the climate trajectories defined by the International Energy Agency are a very useful point of comparison, as they detail the energy mix of key countries/regions in a climate scenario where global warming is limited to 2 degrees Celsius.

Trucost applies the equity ownership proxy principle to the power generation of the utilities in the FRR's portfolios and is thus able to reconstruct the portfolios' energy mix and view them in the context of the 2-degree energy mix adopted by the Organisation for Economic Cooperation and Development (OECD).

Analysing an investment's carbon trajectory offers a new perspective that synthesises and supplements several existing techniques and considerations:

- The current carbon footprint, but viewed dynamically year after year;
- The matter of the budget for the level of emissions that would still be acceptable by 2050 from the perspective of a maximum increase in the world's average temperature of 2°C, and thus of a target to gradually reduce emissions and carbon intensity;
- The possibility of a non-index analysis, where each company, by virtue of its activity or activities, is compared and standardised against a specific point of reference and where the trajectory of the portfolio itself is therefore a weighted aggregation of companies' standardised trajectories.

With that in mind, a company's trajectory may be calculated as follows:

- Select a starting year which will serve as the baseline and will be rebased to 100: the year selected is in this case the one used in the work of the IPCC²¹, the International Energy Agency (IEA)²² and the SDA consortium²³, i.e. 2010;
- Match each sector and each activity with a standard trajectory as defined and calculated in a macroeconomic climate scenario. The main trajectories of the SDA consortium were used;
- Standardise (separate) a company's carbon intensity with (from) the carbon intensity of its business sector: this is done by setting a starting level in 2010 that is equal to 100 if the company has the same level of intensity as its benchmark sector, a starting level above 100 if the company's level is greater (higher emissions) than its sector, and below 100 if the company has a better level (lower emissions);
- Each year, the expected or observed carbon intensity is therefore standardised

²¹ Intergovernmental Panel on Climate Change

²² Energy Technology Perspective (IEA, 2014)

²³ Sectoral Decarbonization Approach (SDA): A method for setting corporate emission reduction targets in line with climate science (Science Based Targets Initiative, 2015)

- Against the baseline level of the benchmark sector as calculated in 2010, making it possible to estimate both company and sector performance;
- An “observed” performance is calculated from available historical data and an “expected” future performance is calculated for each sector and each company;
- The change expected can be described as an extension of the current curve, i.e. as the trend observed in past years and adjusted for information such as announcements of future investments and divestments, the commissioning or stranding of assets, the rollout of new technologies, etc.;
- While extending the trend is a useful tool, it has some limitations in that it generally reflects the efforts a company has recently made and cannot predict future efforts.

Advantages of the methodology

The trajectory has several major advantages, in particular:

- The trajectory eliminates the problem of double- and triple-counting insofar as it is possible to set a carbon budget for each scope. For each company, the scope 1 emissions trajectory is therefore defined in the carbon budget specific to the company’s business sector and the scope 2 emissions trajectory is defined in the carbon budget specific to the power producer sector. A company’s trajectory therefore corresponds to the aggregation of these two trajectories, weighted by the share of each scope in the company’s total emissions;
- The trajectory can be analysed without studying the impacts of allocation and selection, insofar as the performance is standardised with the benchmark sector(s) or activity/activities: a sector that is over- or underweighted can therefore no longer affect the performance of a portfolio relative to its benchmark index;
- The trajectory links the performance of a company, sector or fund to the ecological transition and to the 2050 expectations derived from scientific and economic research;
- Each sector has a different, potentially very binding target (utilities versus cement manufacturers, for example), and enables carbon bubble issues related to the use of fossil fuels to be taken into account: inves-

ting in fossil fuels is therefore equivalent to setting a very binding target for this sector and thus creates the risk of deviation from the trajectory.

Lastly, it should be noted that a portfolio’s trajectory is calculated relative to its real-time composition. A change in investments results in a change in the real and theoretical trajectories. The trajectory can therefore be seen as:

- A backward projection and extrapolation exercise, based on a set composition on a given date. That is the approach adopted here;
- A calculation on a given date of the real and theoretical trajectories updated whenever there is a change in the composition of the portfolio. So, while the portfolio trajectory may be highly volatile to changes in sector investments (as each sector has a specific expected trajectory), the crux of the analysis lies in the differences between the portfolio’s real and theoretical trajectories.

Drawbacks of the methodology

While studying the carbon trajectory allows for a forward-looking analysis of a portfolio’s carbon risks, it nevertheless has the significant methodological limitations highlighted below:

- The approach developed in this analysis is based on the projected carbon intensity of a company’s revenue, at constant revenue. It therefore does not account for either a change in revenue or a change in the products and services offered by the company. Including these two variables in the analysis would allow for a more accurate measurement of the company’s positioning in the energy transition and for further fine-tuning of its carbon trajectory;
- The quality of the estimated and reported data on changes in the products and services offered by the company as well as the time length of the series may, however, not be sufficient to be incorporated into the analysis;
- Projected data on future technologies, investments and divestments are fairly limited for the time being and are therefore difficult to incorporate;

- Growth and change assumptions only make sense if they systematically converge in the long term, in line with the scenarios developed through the SDA approach. In the absence of this assumption, the long-term viability of certain sectors or certain com-

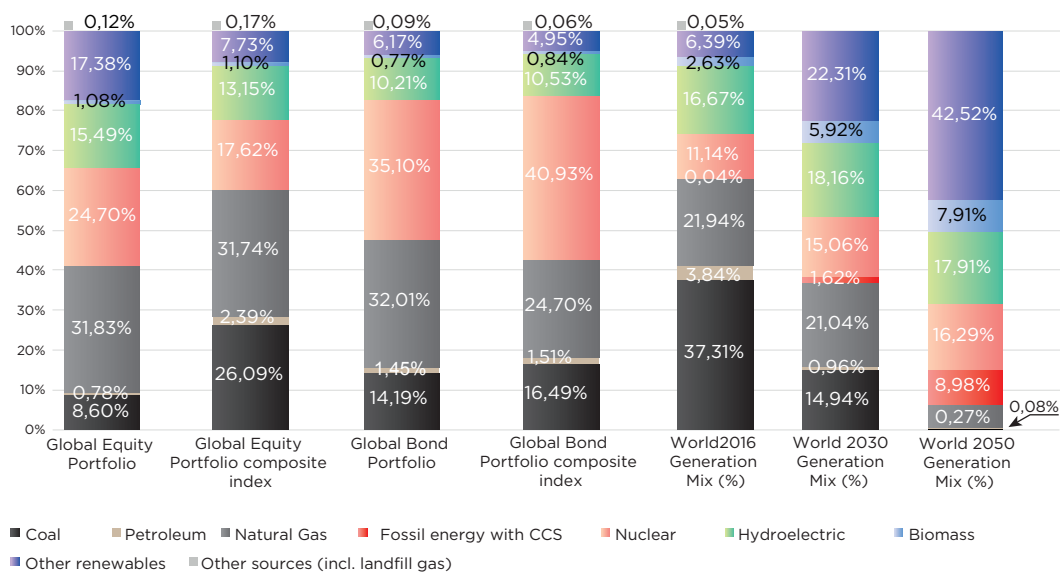
panies could be threatened;

- The weighting system (by percentage contribution to total emissions) is realistic but has the disadvantage of giving more weight to poor performers.

MAIN RESULTS

The results are set out in the graph below.

ENERGY MIX OF THE CONSOLIDATED EQUITY AND BOND PORTFOLIOS COMPARED WITH THE COMPOSITE INDICES AND ALIGNMENT WITH A 2-DEGREE SCENARIO



Source Trucost

The FRR portfolios are underweight on coal relative to their respective benchmarks.

Around one third of the energy mix is derived from the production of electricity using natural gas in the Consolidated Equity Portfolio and the Consolidated Bond Portfolio. As regards the Bond Portfolio, it should be noted that nuclear dominates the energy mix with 35% of the allocated output, whereas the Consolidated Equity Portfolio has a 25% nuclear holding and a 17% renewable energy holding. Renewable energy only accounts for 6% of the bond portfolio's energy mix.

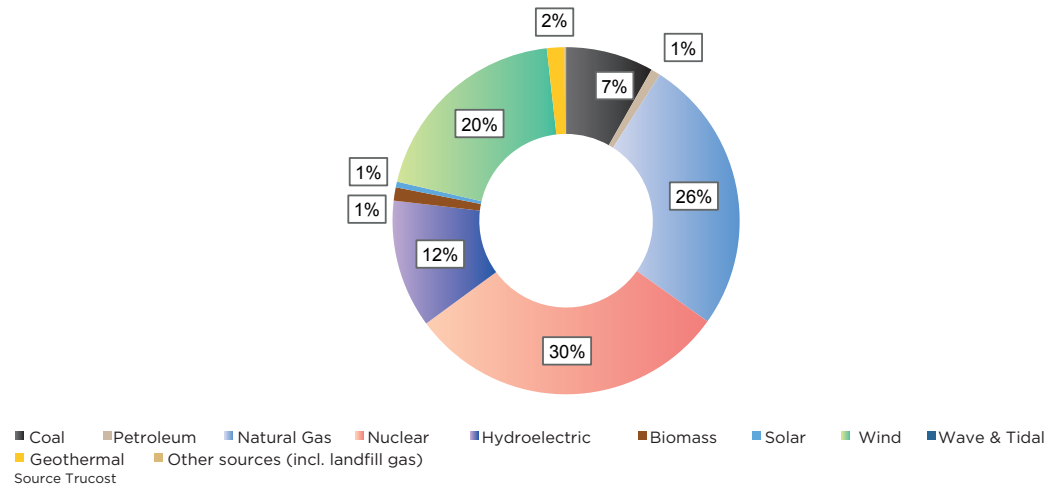
The two right-hand columns in the graph above show the change needed in the world energy mix to marginalise fossil fuels and give renewable energies an increasingly prominent role. Although these scenarios are based on increased availability of green technologies in the future (CO2 storage, for example), this comparison shows the energy mix

that companies in the consolidated portfolio should strive towards to align with a 2-degree scenario.

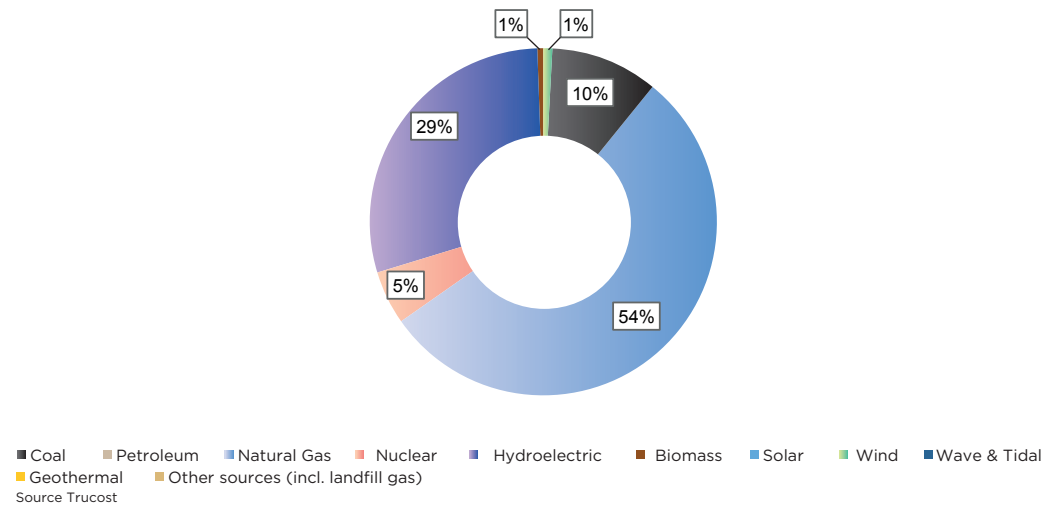
The exposure to coal of the Consolidated Equity Portfolio's energy mix derives mainly from the Emerging Market Equity Portfolio, where the energy mix consists mostly of natural gas (54%) and hydropower (29%). It

should be noted that the contribution of coal to the energy mix has fallen sharply since the last analysis - from 37% to 10% in the Emerging Market Portfolio. The Developed Market Equity Portfolio consists mostly of nuclear (30%) and natural gas (26%). These results are shown in the graphs below:

ENERGY MIX OF THE DEVELOPED MARKET EQUITY PORTFOLIO (%)



ENERGY MIX OF THE EMERGING MARKET EQUITY PORTFOLIO (%)



Priority should therefore be given to analysing the strategy of the power-producing companies in the portfolio (change in energy mix, deactivation of fossil units, etc.) to ensure the portfolio aligns with the policy objectives of limiting global warming.

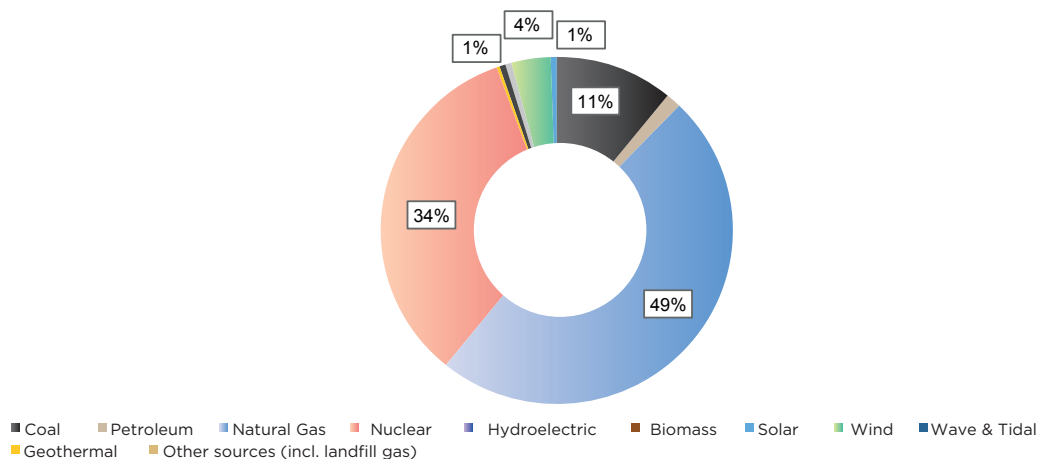
Active management performance

The Developed Market Equity Portfolio under active management is underweight on the utilities sector compared with the Developed Market Equity Portfolio under passive management (1% of the portfolio versus 5%). The challenge posed by the energy transition therefore seems more of a pressing concern for

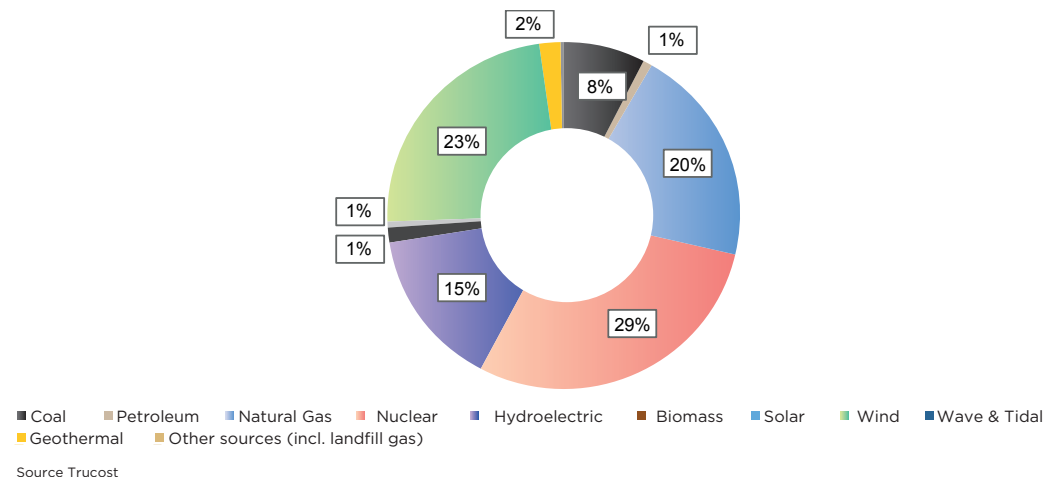
companies under passive management.

The energy mix of the Developed Market Equity Portfolio under active management is less diversified than that of the Developed Market Equity Portfolio under passive management. Around 49% of the energy mix is derived from natural gas, largely as a result of an investment of nearly EUR 18 million in Entergy Corp, which produced 73,463 Gwh of electricity using natural gas in 2016. Wind power dominates the energy mix of the developed market equity portfolio under passive management, accounting for 23% of total output, versus 4% for the active management portfolio.

ENERGY MIX OF THE DEVELOPED MARKET EQUITY PORTFOLIO UNDER ACTIVE MANAGEMENT (%)



ENERGY MIX OF THE DEVELOPED MARKET EQUITY PORTFOLIO UNDER PASSIVE MANAGEMENT (%)



Contribution to the energy transition and to climate targets

An analysis of the contribution to the energy transition and to climate targets should make it possible to determine the extent to which the activities financed by the FRR help to achieve this transition. A number of indicators are used for this purpose:

- The “green share” indicator shows the proportion of the financed activities that are linked to technologies identified as “green”;
 - The “climate contribution intensity” indicator shows whether the carbon performance of the issuer falls between the sector average and the best performance currently available;
 - The “avoided emissions” indicator quantifies the emissions avoided through green activities;
 - Lastly, the “2°C alignment” indicator, made up of a static and a dynamic component, assesses whether issuers’ trajectories are in line with the GHG emission trajectories that are required to ensure that climate change stays below 2°C.
- Power generation: inclusion of T&D activities and supplier activities (sale of electricity) in addition to generation activities per se;
 - Automotive manufacturers: as for other forms of passenger transport, light vehicles’ carbon performance is now compared with the passenger transport average across all modes of transport;
 - 2°C alignment indicator: as per the 2°C alignment analyses in the ACT project, two alignment analyses are carried out: one static alignment measurement (performance differential in 2016) and one dynamic alignment measurement (differential between the issuer’s theoretical annual trend and historic annual trend).

ANALYSIS OF THE GREEN SHARE AND AVOIDED EMISSIONS

An analysis of the contribution to the energy transition and climate targets should make it possible to determine the extent to which the activities financed by the FRR help to achieve this transition (the activities’ green share) and the amount of GHG emissions that are avoided through this contribution to the climate transition (avoided emissions).

Trucost Ltd was assisted by I Care & Consult, which specialises in analysing the green share of portfolios.

State-of-the-art thinking and calculation methods do not currently allow for a meaningful analysis of all economic sectors. In 2018, this analysis was carried out on the following sectors: power generation, automotive, passenger transport, goods transport, cement manufacturing, steel.

The “climate contribution intensity”, “avoided emissions” and “2°C alignment” indicators are relative indicators that compare an issuer’s performance with average sector performances or sector performance targets: by definition they therefore have a “physical” benchmark and do not necessarily need to be compared with a financial benchmark.

Lastly, it should be noted that a few changes were made to the methodology in 2018 to better reflect issuers’ contribution to the energy and climate transition:

Green Share

The “green share” was calculated as the share of issuers’ revenue corresponding to a green activity within the meaning of the Ecological and Energy Transition. It was calculated using a methodology designed specifically for each sector studied. For example, the green share for the automotive sector is defined as the share of revenue derived from the sale of electric and hybrid vehicles. For most automotive manufacturers, this indicator was between 0% and 2% in 2016. This “green share” indicator is of interest because it is used to identify a number of key technologies for the Ecological and Energy Transition, but has the disadvantage of having “technological biases” and of not evaluating the issuer’s climate performance as a whole.

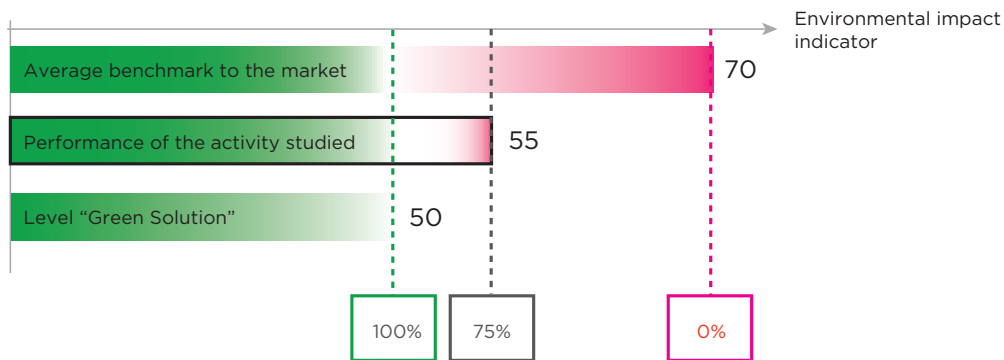
We are therefore proposing a second, more comprehensive, indicator: the “intensity of the contribution to climate transition”.

This indicator seeks to evaluate where a company’s performance stands on a scale of 0% to 100%:

100% if the activity’s climate performance is equal to that of green activities as defined by the TEEC label (renewable energies, electric vehicles, etc.);

0% if the activity’s environmental performance corresponds to the average of its sector;

Between 0% and 100% if the performance falls between these two ends of the scale.



The strengths of this method are as follows:

- It is based on the use of physical indicators that provide real information about a company’s climate performance with no financial biases;
- Because the climate performance indicator is on a scale of 0% to 100%, this method enables a comprehensive assessment of an activity’s climate performance and transcends the binary nature (0% or 100%) of defining a green activity while remaining true to the TEEC label framework.

Only emissions avoided by issuers for whom the intensity of their contribution to the Climate Transition is greater than zero are considered avoided emissions. “Excess emissions” related to issuers whose carbon performance is below the sector average are therefore not counted here.

Lastly, each issuer’s avoided emissions are recognised based on the % held by the investor.

Avoided emissions

Avoided emissions are defined as emissions avoided when a carbon performance is above the average performance of each sector. Here, the preferred definition of carbon performance is based on physical indicators (e.g. gCO₂/KWh), for both the issuer and the benchmark scenario, so as to avoid economic biases.

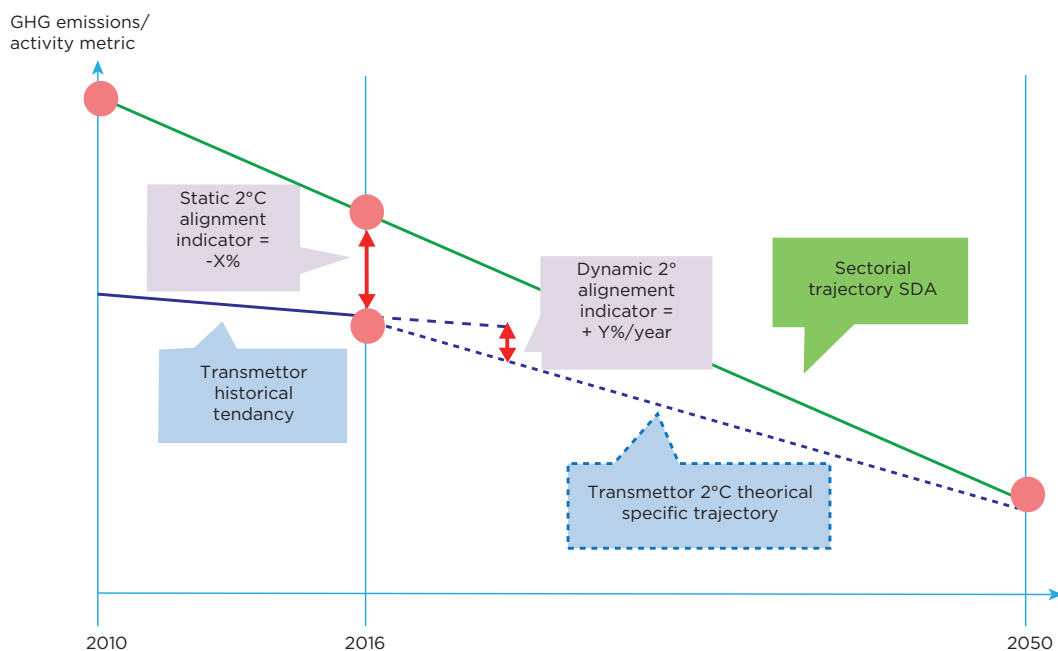
2°C ALIGNMENT

The 2°C alignment indicators will be an even more important strategic priority than other indicators in the years to come. The method developed by I Care & Consult and Grizzly RI for the 2018 analysis was adapted in response to both the feedback from the various international initiatives (including SDA and ACT) and the available data. It should be noted that this method will need to be adjusted in future years to make it even more relevant and robust.

The main comparative framework used is the SDA (Sectoral Decarbonization Approach) framework, which outlines 2°C trajectories between 2010 and 2050, including target levels of absolute carbon intensity in 2050 (tCO₂/unit of economic output) and annual rates of reduction in carbon intensity (annual %).

Based on this framework, we advocate using two 2°C alignment indicators:

- A static 2°C alignment indicator comparing the issuer's carbon intensity in 2016 with what the issuer's carbon intensity would have had to be in 2016 to stay in line with the 2°C trajectory. The first indicator therefore measures the initial level in 2016; it is a "static" snapshot.
- A dynamic 2°C alignment indicator comparing the trend in the annual change of the issuer's carbon intensity over the 2010-2016 period with the pace of reduction it would need to adopt to achieve the target carbon intensity by 2050. The second indicator summarises forward-looking trend analysis; it is a "dynamic" indicator showing the issuer's progress towards alignment with a 2°C scenario.



RESULTS FOR THE VARIOUS PORTFOLIOS

Consolidated Equity Portfolio

The Consolidated Equity Portfolio is made up of shares from around the world, and consists of the Developed Market Equity and Emerging Market Equity Portfolios under active and passive management.

	Securities covered by the sectors analysed	Green Share	Intensity of the Contribution to Climate Transition	Avoided emissions		2°C alignment	
	%	%	%	tCO ₂ /year	tCO ₂ /year/ EUR M invested	Static %	Dynamic %
Power generation	3.6%	25%	28%	344.108	748	-14%	7%
Automotive manufacturing	2.1%	3%	7%	2.871	11	21%	3%
Passenger transport	1.8%	11%	11%	2.302	10	-10%	-2%
Goods transport	1.0%	54%	27%	41.452	322	NA	3%
Cement manufacturing	0.4%	9%	8%	10.065	220	22%	1%
Steel manufacturing	0.5%	16%	16%	45.121	737	-5%	5%
TOTAL	9.3%	19%	18%	445.919	373	1%	4%

The sectors analysed represent 9.3% of the portfolio. The overall green share stands at 19% and the intensity of the contribution to climate transition stands at 18%. Avoided emissions per amount invested are substantial, amounting to 373 tCO₂e/year/million euro invested. Overall, the portfolio is nearly aligned with a 2°C trajectory from a static perspective, although the downward trend is not sufficiently marked to be in line with the targets for 2050.

In general, this aggregated portfolio is achieving good climate performance, primarily as a result of the electricity, goods transport and steel sectors. The performance of the automotive, passenger transport and cement manufacture sectors was less strong.

The amounts invested in selected energy producers generally favour those that perform well in terms of the share of renewable power generation and intensity of the contribution

to climate transition. Their strong performance overall in terms of carbon intensity is reflected in the avoided emissions per amount invested as well as better static 2°C alignment than the sector trajectory.

As we will see for the Developed Market Equity Portfolio and the Developed Market Equity Portfolio under active management, excellent performance by a few players in terms of green share and intensity of the contribution to climate transition is offset by that of other manufacturers. Certain issuers selling highly carbon-intensive vehicles are hampering the portfolio's static 2°C alignment.

Passenger transport has several facets: selected airlines are well-positioned in terms of 2°C alignment relative to their sector but they make no contribution to other indicators. Companies in the rail sector make the largest contribution to performance.

In terms of goods transport, as we will see for the Developed and Emerging Market Equity Portfolios, green share performance is driven by the maritime freight activities conducted by pure players and the logistics providers that rely on it; rail freight also contributed, albeit to a lesser degree. Logistics providers also rely on air freight, which hampers performance in terms of intensity of the contribution to climate transition.

The cement manufacturing component includes players that make limited use of alternative materials and fuels, which limits

performance in terms of the various indicators.

Lastly, the strong performance of steel, and the high levels of avoided emissions per amount invested in particular, are largely attributable to recycling specialists.

Developed market equity portfolio

The Developed Market Equity Portfolio is made up of shares from developed markets under active and passive management.

	Securities covered by the sectors analysed	Green Share	Intensity of the Contribution to Climate Transition	Avoided emissions		2°C alignment	
	%	%	%	tCO ₂ /year	tCO ₂ /year/ EUR M invested	Static %	Dynamic %
Power generation	4.0%	25%	29%	324,991	761	-19%	6%
Automotive manufacturing	2.3%	3%	7%	2,833	12	20%	2%
Passenger transport	1.8%	13%	13%	2,238	12	-5%	-3%
Goods transport	0.9%	48%	11%	32,301	331	N/A	3%
Cement manufacturing	0.1%	15%	8%	3,455	236	20%	1%
Steel manufacturing	0.4%	21%	21%	41,828	1,089	-18%	5%
TOTAL	9.5%	20%	18%	407,645	404	-2%	3%

Unsurprisingly, the power generation sector behaves in the manner observed for the developed market equity portfolio under passive management, but overall performance is slightly improved by issuers from the developed market equity portfolio under active management as regards the green share, intensity of the contribution to climate transition and avoided emissions per amount invested. At present, the selected companies outperform their sector as regards 2°C alignment, but reductions in carbon intensity are not yet in line with the trend required if these issuers are to meet the 2°C target by 2050.

The trend is reversed for automotive manufacturers: the strong performance of the Developed Market Equity Portfolio under active management, especially owing to the presence of Tesla, is even more severely diluted by the positions in the Developed Market Equity Portfolio under passive management. 2°C alignment, whether dynamic or static, is also dictated by the positions held in the Developed Market Equity Portfolio under passive management; selected issuers are not yet in line with their sectoral 2°C reference.

As regards passenger transport, Japanese

rail-industry players in the Developed Market Equity Portfolio under active management coupled with the sizeable Eurotunnel position in the Developed Market Equity Portfolio under passive management are boosting green share, intensity of the climate contribution and avoided emissions, whereas significant positions in airlines, airport operators and suppliers of airport services have a negative effect on this performance. Across both components of 2°C alignment, the portfolio achieves slightly higher performance than one would expect for the sector and issuers owing to the low carbon intensity of the airlines selected and efforts on the part of rail-industry players to reduce carbon intensity in order to bring their operations into line with the trend required to ensure 2°C alignment by 2050.

The high green share for goods transport players is due to the heavy use of maritime freight by logistics providers and specialised players. Lower performance was achieved as regards intensity of the contribution to climate transition because the use of air freight by logistics providers is rendering their activities more carbon intensive. The issuers are also falling slightly short of the carbon intensity

reductions they will need to implement over the long term.

The cement sector owes its performance in terms of green share to issuers from the Developed Market Equity Portfolio under active management that make heavy use of alternative materials and fuels. However, their high carbon intensity hinders their performance in terms of intensity of the contribution to climate transition and they are also a long way from where they should be in terms of the 2°C sector trajectory. However, the carbon intensity reduction trend is broadly consistent with 2°C alignment being achieved by 2050.

As for the Developed Market Equity Portfolio under passive management, the performance of steel producers is driven by players that make heavy use of by-products and recycled materials as manufacturing inputs. The strong performance achieved by these players has an effect in terms of carbon intensity and their position vis-à-vis their business sector results in static 2°C alignment outperformance. Dynamic 2°C alignment has not been achieved.

Developed Market Equity Portfolio, Active Management

The Developed Market Equity Portfolio under active management is made up of shares from developed markets under active management.

	Securities covered by the sectors analysed	Green Share	Intensity of the Contribution to Climate Transition	Avoided emissions		2°C alignment	
	%	%	%	tCO ₂ /year	tCO ₂ /year/ EUR M invested	Static %	Dynamic %
Power generation	1.4%	5%	20%	39.651	629	-2%	5%
Automotive manufacturing	0.4%	28%	14%	91	5	12%	4%
Passenger transport	1.3%	18%	17%	1.698	28	0%	-3%
Goods transport	0.9%	36%	14%	31.329	745	NA	1%
Cement manufacturing	0.2%	20%	9%	3.182	313	22%	1%
Steel manufacturing	0.5%	7%	4%	1.766	83	4%	7%
TOTAL	4.7%	17%	15%	77.717	360	3%	1%

The sectors analysed represent 4.7% of the portfolio, which is low compared with other portfolios: this is primarily because of the low weighting of the power generation and automotive manufacturing sectors. The green share and the intensity of the contribution to climate transition stand at 17% and 15%, respectively. Avoided emissions per amount invested are boosted by the power generation and goods transport sectors. The portfolio has yet to achieve 2°C alignment; the key reason for this is that the electricity sector did not perform as well in this portfolio as it did in other portfolios.

The selected power generation players' general lack of involvement in renewable energy results in a reduced green share. However, certain issuers with a high weighting within this portfolio have relatively low carbon intensity per kilowatt-hour, leading to strong performance in terms of intensity of the contribution to climate transition (this is true

of Entergy and Nextera Energy, for example) and limited 2°C alignment.

The high green share for the automotive manufacturing segment and relatively strong performance in terms of intensity of the contribution to climate transition were mainly driven by Tesla and, to a lesser extent, by Toyota. Tesla's low vehicle sales figure means that its impact was diluted by that of other manufacturers. Avoided emissions were therefore only small and Tesla's impact was matched by that of Toyota, which sold high numbers of vehicles with slightly lower-than-average emissions. Despite Tesla's positive contribution to static 2°C alignment, its weighting in the portfolio means that its impact does not offset that of other issuers whose carbon intensity is higher than the sector average.

The passenger transport component of the portfolio is primarily composed of airlines

that make no contribution to the green share and intensity of the contribution to climate transition indicators, as well as Japanese rail operators that make a very significant contribution to performance in terms of these two indicators. Low exposure to these operators dilutes this positive contribution, leading to poor performance in terms of avoided emissions per amount invested. However, the airlines are well-positioned relative to their sector in terms of carbon intensity (with the exception of US airlines) as well as their carbon intensity reduction trajectory.

As regards goods transport, over half of the portfolio's exposure to this sector is derived from logistics providers that make heavy use of maritime and rail freight as well as pure players in these industries; this explains the portfolio's high green share. Conversely, the portfolio has limited exposure to air freight via logistics providers whose carbon intensity prevents it from achieving positive performance in terms of intensity of the contribution to climate transition. The same is true of road transport operators. The portfolio's positive performance in terms of intensity of the contribution to climate transition was due to pure players in maritime and rail freight; the resulting high levels of avoided emissions per amount invested were mainly fuelled by maritime freight operator Clarkson. This mode of

transport results in high levels of avoided emissions and the FRR's stake in this player is relatively substantial, leading to high avoided emissions per amount invested in the portfolio in relation to this sector.

The cement manufacturers in this portfolio make significant use of alternative materials and fuels, leading to a high green share. The intensity of the contribution to climate transition is slightly positive. Conversely, the carbon intensity of these issuers is well beyond what is now expected for this sector as regards 2°C alignment, as seen by the +22% figure for static alignment.

In terms of issuers involved in steel manufacturing, two players make substantial use of recycled materials as manufacturing inputs but their weighting in the portfolio is limited; this has consequences for performance in terms of the green share and intensity of the contribution to climate transition indicators, as well as the resulting avoided emissions.

Developed Market Equity Portfolio, Passive Management

The Developed Market Equity Portfolio under passive management is made up of shares from developed markets under passive management

	Securities covered by the sectors analysed	Green Share	Intensity of the Contribution to Climate Transition	Avoided emissions		2°C alignment	
	%	%	%	tCO ₂ /year	tCO ₂ /year/ EUR M invested	Static %	Dynamic %
Power generation	6.1%	29%	30%	285.340	785	-22%	7%
Automotive manufacturing	3.4%	1%	7%	2.741	12	21%	1%
Passenger transport	2.2%	11%	11%	540	4	-11%	2%
Goods transport	0.9%	57%	9%	972	17	NA	5%
Cement manufacturing	0.1%	1%	6%	273	61	3%	4%
Steel manufacturing	0.3%	39%	42%	40.063	2.334	-30%	4%
TOTAL	12.9%	20%	19%	329.928	417	-3%	4%

The sectors analysed represent 12.9% of the portfolio. The green share and the intensity of the contribution to climate transition stand at 20% and 19%, respectively. The portfolio's overall performance is boosted by the strong performance of the power generation sector; significant exposure to this sector (almost half of the analysed portfolio), results in a high avoided emissions per amount invested ratio, which stands at 417 tCO₂e/year/billion euro invested for the portfolio as a whole. The portfolio as a whole is now aligned with the 2°C target but the emissions reduction trend falls slightly short of the trend that is required if these issuers are to reach the 2°C target by 2050.

In terms of electricity, the ten issuers from this sector with the largest portfolio weightings almost all perform well as regards green share and intensity of the contribution to climate transition (including, for example, *De Portugal*, *Acciona* and *Iberdola*) as well as in terms of the positioning of their current carbon intensity relative to the 2°C trajectory.

The issuers from the automotive manufacturing sector held within the portfolio contribute little to its overall performance despite their not inconsiderable weighting. French players Renault and Peugeot make a positive contribution to performance in terms of the contribution to climate transition indicator; this is largely as a result of the fact that the average emissions of the vehicles they sell are lower than the average for the industry. The portfolio's significant exposure to the makers of vehicles with high average emissions, including *BMW*, *Daimler*, *Porsche* and *Ferrari*, means that it falls far short of 2°C alignment in relation to this sector.

The low figure for avoided emissions per million euro invested in the passenger transport sector was linked to the characteristics of issuers from this sector in the portfolio: nearly three-quarters of the weighting for this sector is made up of airlines and airport infrastructure operators and service providers. However, the selected airlines are well-positioned relative to the expected position for the passenger air transport sector as regards the 2°C trajectory.

The goods transport sector performance is boosted by the issuer *Deutsche Post (DHL)*, which accounts for half of the portfolio's weighting in this sector. DHL's heavy use of maritime freight explains its sizeable green share, whereas the player's lower performance as regards other indicators is due to air transport and, to a lesser extent, to road transport. The intensity of the contribution to climate transition and the resulting avoided emissions for this sector are due to the rail freight players held in the portfolio.

The cement manufacturers in the portfolio disclose very little data on their business activities; faced with this lack of information, we chose to favour a cautious scenario by assigning them a green share and intensity of the contribution to climate transition of zero. Only one issuer with limited portfolio weighting - *CRH* - makes a marginal positive contribution to the portfolio's overall performance.

The performance of the steel manufacturing sector across all indicators is noteworthy and largely due to the selection of players that make heavy use of by-products and recycled materials as manufacturing inputs (e.g. *Sims Metal Management Ltd.*, which is a pure player in steel recycling). This results in particularly high levels of avoided emissions for this sector.

Emerging Market Equity Portfolio

The Emerging Market Equity Portfolio is made up of shares from emerging markets under active and passive management.

	Securities covered by the sectors analysed	Green Share	Intensity of the Contribution to Climate Transition	Avoided emissions		2°C alignment	
	%	%	%	tCO ₂ /year	tCO ₂ /year/ EUR M invested	Static %	Dynamic %
Power generation	1.5%	24%	20%	19.118	577	34%	12%
Automotive manufacturing	1.2%	0%	1%	38	1	27%	10%
Passenger transport	1.9%	3%	3%	64	1	-62%	3%
Goods transport	1.4%	75%	77%	9.151	295	NA	0%
Cement manufacturing	1.4%	8%	6%	6.610	213	22%	1%
Steel manufacturing	1.0%	8%	8%	3.293	145	14%	5%
TOTAL	8.3%	19%	19%	38.274	204	18%	7%

The sectors analysed represent 8.3% of the portfolio. The breakdown of issuers within this portfolio from the analysed sectors is relatively homogenous. The portfolio's average green share stands at 19%, as does the intensity of the contribution to climate transition. However, its 2°C alignment is significantly worse than that of the other portfolios owing to the poor 2°C alignment of electricity companies.

Power generation players fall into two issuer categories: those in the first group have high green shares and an energy mix leading to moderate carbon intensity, which results in positive performance in terms of the intensity of the contribution to climate transition and better static 2°C alignment than the sector average; those in the second category have a small or non-existent green share, and coal or fuel oil account for a significant proportion of their energy mix, leading to high carbon intensity, zero performance in terms of the intensity of the contribution to climate transition and a substantial lack of alignment relative to the current sector target. The second category has a slightly lower weighting in the

portfolio, which is why the overall performance was positive. However, the largest position is in Power Grid Corp. Of India and this single holding accounts for almost a quarter of the portfolio's exposure to this sector. These players are responsible for the portfolio's poor 2°C alignment.

A few of the issuers in the portfolio offer rechargeable electric and hybrid vehicles, but these only account for a tiny fraction of their sales and this fraction is then reduced further when adjusted to reflect portfolio allocation. The carbon intensity of the vehicles brought to market only makes an infinitesimal contribution to performance in terms of the contribution to climate transition, resulting in negligible avoided emissions per amount invested.

Almost three quarters of the passenger transport component is made up of airlines, airport management companies, suppliers of airport services and motorway operators. These make no contribution to performance in terms of green share, climate contribution intensity or avoided emissions. The slight

positive performance of the sector is due to a passenger rail transport operator and rail infrastructure manufacturers. However, the selected airlines outperform their sector in terms of carbon intensity and therefore achieve good performance as regards static 2°C alignment.

In terms of goods transport, four issuers account for almost 80% of the sector's presence within the portfolio. These are maritime transport companies and port infrastructure management companies (Pacific Basin Shipping, DP World and Wilson), as well as a rail freight player (Container Corp. Of India). This explains the portfolio's excellent performance in relation to these indicators.

Within cement manufacturing, a few players with sizeable weightings in the portfolio make use of alternative materials and fuels, leading to a not insignificant green share. This fact also boosts their performance as

regards intensity of the contribution to climate transition, which results in significant avoided emissions per amount invested. It should nevertheless be noted that these players mostly fall quite far short of the current 2°C trajectory for the sector.

Lastly, steel manufacturers follow a similar pattern to cement manufacturers across all indicators: green share is boosted by a few players that use by-products or recycled materials as manufacturing inputs, while climate contribution intensity and avoided emissions are boosted by a few players with low carbon intensity such as Hyundai Steel, Posco and Ternium. The sector is not currently close to its 2°C trajectory.

Consolidated Non-Sovereign Bond Portfolio

This portfolio is made up of corporate bonds from around the world.

	Securities covered by the sectors analysed	Green Share	Intensity of the Contribution to Climate Transition	Avoided emissions		2°C alignment	
	%	%	%	tCO ₂ /year	tCO ₂ /year/ EUR M invested	Static %	Dynamic %
Power generation	5,9%	18%	25%	462,518	904	-11%	5%
Automotive manufacturing	4,3%	1%	6%	1,977	5	17%	1%
Passenger transport	1,0%	0%	0%	0	0	2%	-3%
Goods transport	0,5%	20%	3%	486	11	na	0%
Cement manufacturing	0,6%	13%	20%	30,301	624	5%	2%
Steel manufacturing	0,1%	14%	3%	1,628	172	18%	8%
TOTAL	12,3%	11%	15%	496,908	462	3%	3%

The sectors analysed represent 12.3% of the portfolio, with the electricity and automotive sectors having particularly high weightings. Despite the fact that overall performance is limited in terms of green share (11%) and intensity of the contribution to climate transition (15%), this portfolio has the highest level

of avoided emissions per amount invested owing, primarily, to the particularly high score for the electricity sector. Strong performance by electricity sector players across almost all indicators is offset by considerably weaker performance by the selected issuers from the automotive sector. The weightings of these

two sectors mean that they partially balance each other out and the resulting performance dictates the portfolio's overall performance, which is average for most indicators.

In terms of power generation, around 10 issuers account for over half of the portfolio's exposure to the sector. These players, which include *EDF*, *Enel*, *Iberdrola* and *E.ON*, have sizeable green shares and perform well in terms of intensity of the contribution to climate transition. The ratio of avoided emissions per million euro invested in corporate bonds is particularly high. The selected issuers are mostly well-positioned relative to the current 2°C trajectory for their sector.

Among automotive manufacturers, four issuers account for over three-quarters of the portfolio's exposure to the sector: *Volkswagen*, *Daimler*, *Ford* and *Renault*. The first three of these achieve moderate overall performance in terms of the green share and intensity of the contribution to climate transition indicators, and the resulting avoided emissions. *Renault* performs slightly better across all of these indicators. Overall, the average carbon intensity of the vehicles brought to market by the selected issuers is relatively high (excluding Tesla), resulting in a lack of 2°C alignment at portfolio level in static terms at this time.

Passenger transport within the portfolio is largely made up of airlines and airport operators, in addition to two vehicle rental companies. These modes of transport do not have a green share and their performance in terms of intensity of the contribution to climate transition is zero, as are their avoided emissions. The issuers seem to be broadly aligned with the 2°C target, but this masks two realities: low-cost airlines such as *easyJet* and *Ryanair* have lower carbon intensities than other airlines because they transport more passengers per plane on average (in economy class only) and operate a newer fleet on average, whereas traditional airlines offer several passenger classes and have an older fleet. This is particularly true of US airlines such as those held in the portfolio (*American Airlines*, *United Continental* and *Delta Airlines*).

The goods transport component includes maritime and rail freight specialists but the

amounts invested are relatively small compared with those invested in issuers in the logistics and air freight sectors. The green share is due to logistics providers that also make use of maritime and rail freight. The use of air freight by these players completely cancels out all positive performance in terms of intensity of the contribution to climate transition and almost all avoided emissions.

The cement manufacturers in the portfolio all make use of alternative materials and/or fuels to a non-negligible extent and the issuer with the best performance for this indicator, *HeidelbergCement*, has the largest portfolio weighting. The portfolio performs very well in terms of the contribution to the climate transition indicator and issuers with high output, including *LafargeHolcim*, *CRH* and *HeidelbergCement*, secure high volumes of avoided emissions. Nevertheless, the issuer *Cemex*, which is highly carbon intensive, prevents the portfolio from achieving 2°C alignment for the sector.

The performance of the steel manufacturing sector matches that of *ArcelorMittal* because this issuer accounts for almost all of the portfolio's sector weighting. *ArcelorMittal* makes non-negligible use of by-products and recycled materials as manufacturing inputs, which increases the green share. The intensity of the contribution to climate transition and avoided emissions of the portfolio are derived from a recycled steel specialist, although this performance is diluted by the weighting of *ArcelorMittal*, which makes no contribution to these indicators. The portfolio's overall carbon intensity from steel issuers falls far short of what is expected if the sector is to achieve 2°C alignment.

Analysis of physical risks

Economies and financial markets worldwide will inevitably suffer severe disruption due to climate change. Caused by one-time phenomena or long-term trends, the effects of climate change can take the form of commodity shortages, price fluctuations, or damage to or loss of infrastructure. Article 173 of the Law on Ecological and Energy Transition requires reporting on climate risks, including physical risks, in investors' portfolios.

These risks associated with natural disasters and environmental hazards are not new, but investors have not yet adopted a standard approach to systematically integrating the physical effects of climate change on corporate assets and value chains. This lack of established norms presents an opportunity to innovate and create new indicators to capture the multifaceted effects that climate has on the economy and the financial markets.

For this analysis, Trucost Ltd was assisted by Four Twenty Seven (427), a research firm specialising in climate risk, which has developed a method to evaluate the effects of climate change on equity portfolios.

METHOD APPLIED BY FOUR TWENTY SEVEN: ANALYSIS OF SECTOR RISKS

Climate risks are a combination of localised risks (which relate to the assets) and risks related to the value chain (which relate to the sector and markets). The climate risk score assigned by Four Twenty Seven is designed to determine companies' relative exposure to climate risks based on a breakdown of their assets around the world and the activities and sectors on which they depend the most. The 2018 report (based on 2017 data) provides the results of the sector risk analysis. While the effects of climate change are generally localised, the risks are cross-border and follow international trade flows due to the globalisation of supply chains. Climate risks can therefore arise not only from products and services provided but also from the countries where they originate. The 427 methodology therefore measures three business sector-related risks: exposure to climate risks based on the geographic location of the value chain; their consumption of natural resources; and their sensitivity to weather variability. These three risk factors determine the exposure of the world's major economic sectors.

Indicators of risk linked to the supply chain

While the effects of climate change are localised, the associated risks are cross-border and follow international trade flows due to the globalisation of supply chains. The Four

Twenty Seven methodology can therefore be used to measure two risks linked to the supply chain: exposure to climate risks arising from the geographic origin of products in the supply chain, and the consumption of natural resources over the lifecycle of the product.

Risk indicators	Definition	Calculation method	Data source
Country of origin	Measures the current and future level of climate risks of countries contributing to the output of the sector and to export activities	Modelling of trade flows specific to each industry and assignment of a risk score to the countries of origin based on the 427 Country Risk Index	Trucost; un comtrade (2015) ²⁴ , 427 Country Risk Index ²⁵
Natural resources	Measures the sector's dependence on natural resources: water, energy, and land use	Modelling of the intensity of natural resource consumption specific to each industry to represent the consumption of resources that will be affected by climate change	Trucost, Multi-Regional Input-Output (MRIO) world database ²⁶ , compiled by KGM Associates

Market risk indicators

Climate change is not only an issue facing companies: it also affects consumers and the economic fabric of every region in the world, generating macroeconomic risk that will threaten growth and company sales. The 427 methodology can therefore be used to mea-

sure two separate aspects of market risk: on the one hand, risk linked to the countries in which the company generates revenue – this risk is heightened when revenue-generation is focused on a single country – and, on the other hand, the sensitivity of revenue to weather variability.

Risk indicators	Definition	Calculation method	Data source
Country of Sale	Measures the current and future level of climate risks of countries contributing to the company's revenue	Assignment of a risk score to the countries of sale based on the 427 Country Risk Index	Factset GeoRev™, 427 Country Risk Index
Weather sensitivity	Measures the sector's sensitivity to weather variability	Quantification of the economic impacts associated with changes in temperature and precipitation by industry, based on historical economic and weather data	WeatherBill (2008) ²⁶ , Larsen et al. (2006) ²⁷ , Lazo et al. (2011) ²⁸

24 UN Comtrade (2015). United Nations Commodity Trade Statistics Database. URL: <http://comtrade.un.org>.

25 Four Twenty Seven: Assessing Physical Climate Risk in the Financial Sector, forthcoming (June 2017)

26 Weatherbill, (2008) Global Weather Sensitivity; a Comparative Study, published by Weatherbill.

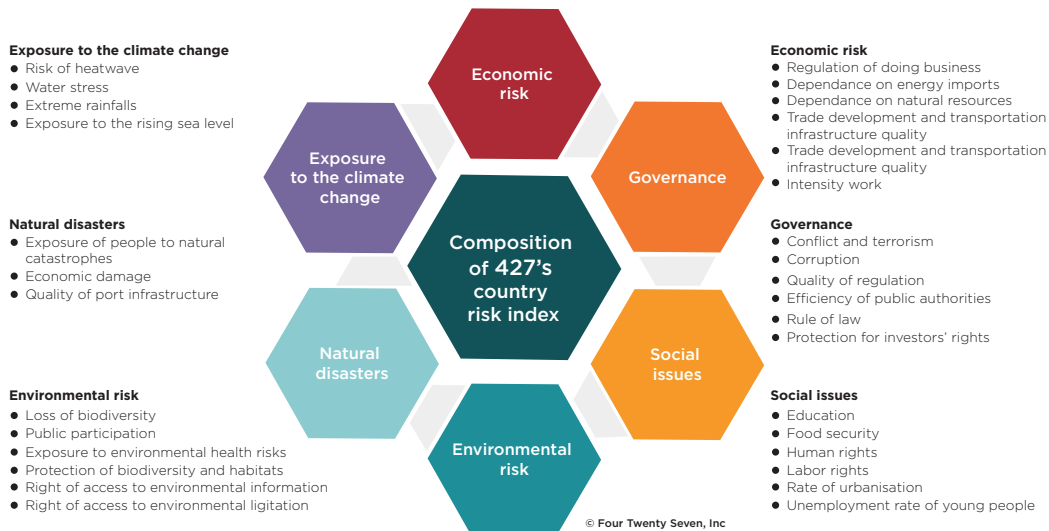
27 Larsen, P. H., Lawson, M., Lazo, J. K., & Waldman, D. M. (2007). Sensitivity of the US economy to weather variability. Boulder: Research Applications Laboratory, NCAR.

28 Lazo, Jeffrey K., et al. (2011). "US economic sensitivity to weather variability". Bulletin of the American Meteorological Society 92.6 709-720

Country risk is assessed and scored taking account of each country's exposure to climate risk and its ability to resist and respond to physical impacts. 427's Country Climate Risk Index includes 31 indicators organised into six categories (economic, social, environ-

mental and governance risk, and risks associated with natural disasters). Countries are scored on a scale of 0 to 100; the climate change exposure of the regions that make the largest contribution to a country's economic activity are given greater weighting.

COMPOSITION OF 427'S COUNTRY RISK INDEX

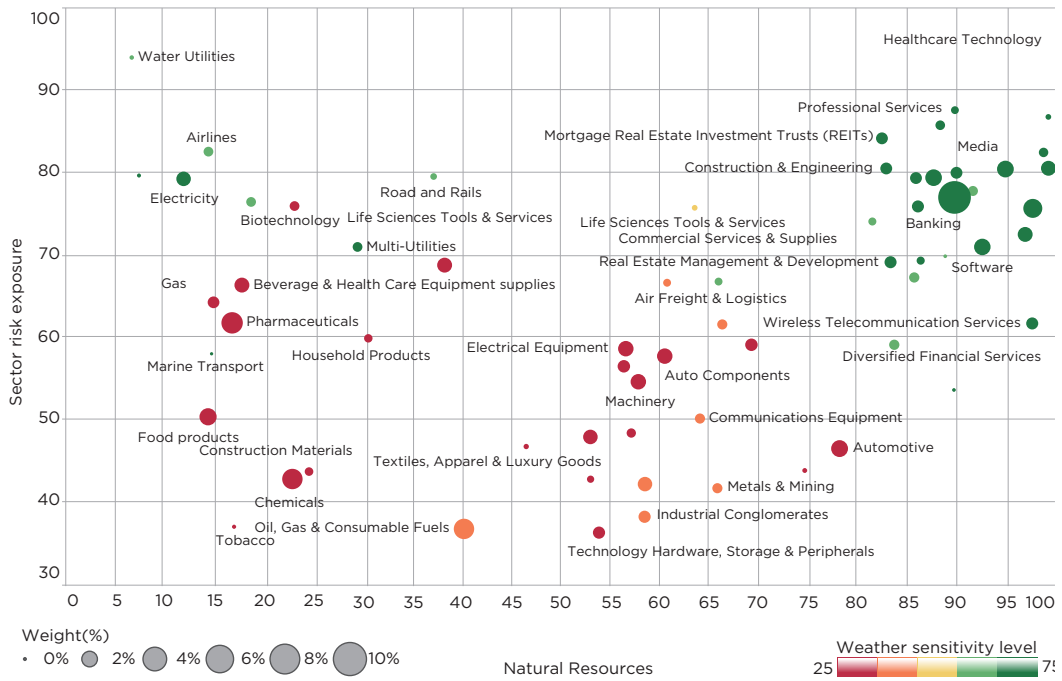


Sector risk matrix: the most exposed sectors

Sector risk indicators are designed to represent the physical risks associated with certain industrial or extractive economic activities; accordingly, services sectors, such as finance and telecommunications, achieve the best performance. In contrast, sectors with highly natural resource-intensive production processes, such as the materials sector (metals and mining, construction materials), oil and

chemicals, and the food product, tobacco and beverages industry, have the lowest scores. The sectors that depend on a complex globalised logistics chain, such as the automotive industry, the consumer staples sector and the pharmaceuticals industry, are also assigned low scores. Real estate has low sector risk scores; however, its real exposure lies in its physical assets. The graph below presents a detailed mapping of the risks by GICS industry for the FRR's consolidated Equity Portfolio.

SECTOR RISK SCORES BY GICS INDUSTRY (PORTFOLIO 1)



Note: This scatter diagram shows the natural resources score on the x-axis, and the Country of Origin score on the y-axis. The colour of the dots represents the weather sensitivity score and the size of the dots represents the weighting of that sector's securities in the Global Equity Portfolio. The riskiest sectors are represented by the red dots concentrated in the bottom left-hand corner of the graph. Source: Four Twenty Seven.

COMPANY SCORING

Les entreprises émettrices de titres sont notées en fonction de la ventilation de leurs revenus par secteur (sur la base des données Trucost).

Le score final est la moyenne du risque sectoriel des secteurs d'activité pondérée par le pourcentage de chiffre d'affaires dans chacune de ces branches d'activités.

EXAMPLE OF THE SCORING OF A COMPANY'S SECTOR RISK

Industrials	Percentage of revenue	Sector risk
IT and electronics manufacturing	29%	57.0
IT storage peripherals manufacturing	26%	56.6
Computer terminal and other peripheral computing equipment	20%	60.7
Design of IT systems and associated services	18%	33.6
Software publishers	3%	27.0
Rental and leasing of commercial and industrial machinery and equipment	3%	28.4
Total	100%	51.6

Note: This company generates 75% of its revenues from manufacturing different types of IT products and the remaining 25% from service and software development activities, which have a much lower risk. It is assigned a score of 51.6, which is the weighted average of the scores of these six business sectors. Source: Four Twenty Seven

To allow for portfolio synthesis and analysis, we are presenting the results by grouping companies by GICS sector. However, within each portfolio and benchmark index, the underlying sector composition varies by company and activity, to the extent that the average risk score within a single GICS sector may differ from one portfolio to another.

All securities supplied by Trucost are covered by sector scores with the exception of two (out of over 6,000 securities).

Methodology changes between 2016 and 2017

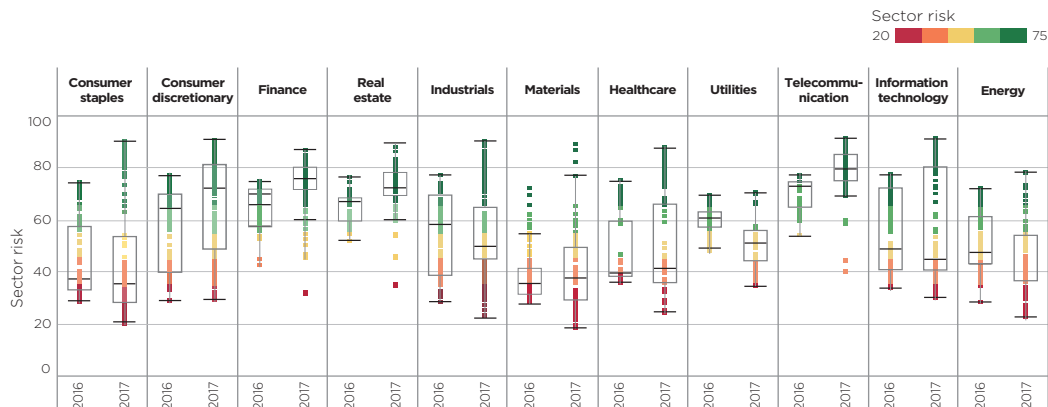
Methodology changes were made between 2016 and 2017. These changes altered the scores across the two years. However, it is difficult to measure the impact of these methodology changes because they are not the only factors behind scoring variations.

The differences between 2016 and 2017 scores were mainly due to two factors: improvements to the 427 scoring method and the updating of the data used to carry out these calculations. First of all, the 2017 scores were calculated with an extra risk category in addition to those used in 2016: the "Country of Sale" category. Furthermore, improvements were made to the system for processing the raw data. Specifically, MRIO (Multi-Regional Input-Output) data was used, which provides more granular information on the consumption of natural resources at country level. The scoring range was broadened so that companies could achieve scores of between 0 and

100²⁹. Lastly, in addition to these changes within the 427 methodology itself, the data on the portfolio breakdowns and company revenue was updated, and this had an impact on scoring. It is difficult to isolate the impact of these changes on the differences between the 2016 and 2017 scores.

For the purposes of carrying out comparative analysis, a version of the 2017 scores using the 2016 indicators (Weather Sensitivity, Natural Resources and Country of Origin) was generated. This comparison makes it possible to identify generally similar trends for all portfolios.

YEAR-ON-YEAR COMPARISON WITH NO COUNTRIES OF SALE



Change in the Consolidated Equity Portfolio's score between 2016 and 2017. To facilitate this comparative analysis, the 2017 scores here were generated using the 2016 indicators: Natural Resources, Weather Sensitivity and Country of Origin. Source: Four Twenty Seven.

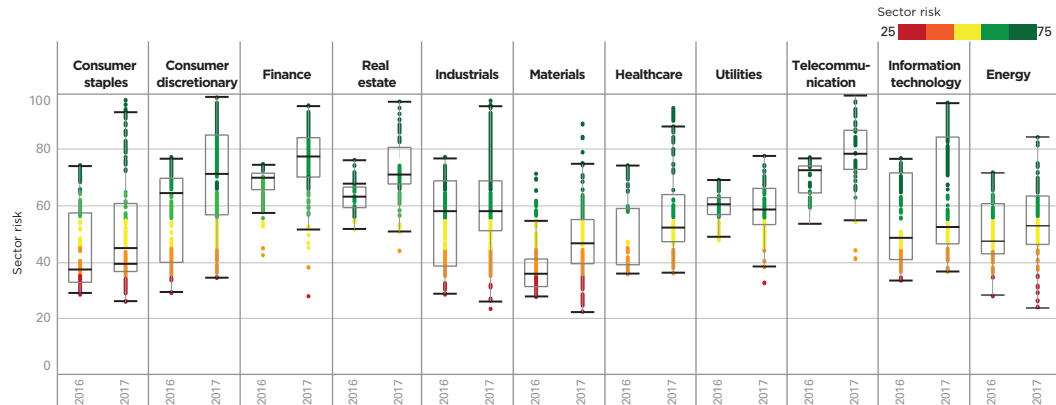
On average, the consumer discretionary, finance, real estate, materials and telecommunications sectors have lower exposure to physical risk than they did last year. Conversely, the IT, utilities and industry sectors have higher risk exposure in most portfolios than they did in 2016. These differences are the result of a change in the composition of the portfolios and/or improvements in the data used by 427 to create the underlying indicators, especially in terms of calculating the Natural Resources score.

Country of Sale indicator

The Country of Sale indicator was added to the company scoring process in 2017. This indicator is used to ensure that the country risk for the countries in which the companies make their sales is included in the analysis. To measure the impact of the introduction of this new indicator on the calculation of the scores, the following graph shows the 2016 scores without the Country of Sale indicator and the 2017 scores with the Country of Sale indicator for the Consolidated Equity and Emerging Market Equity Portfolios.

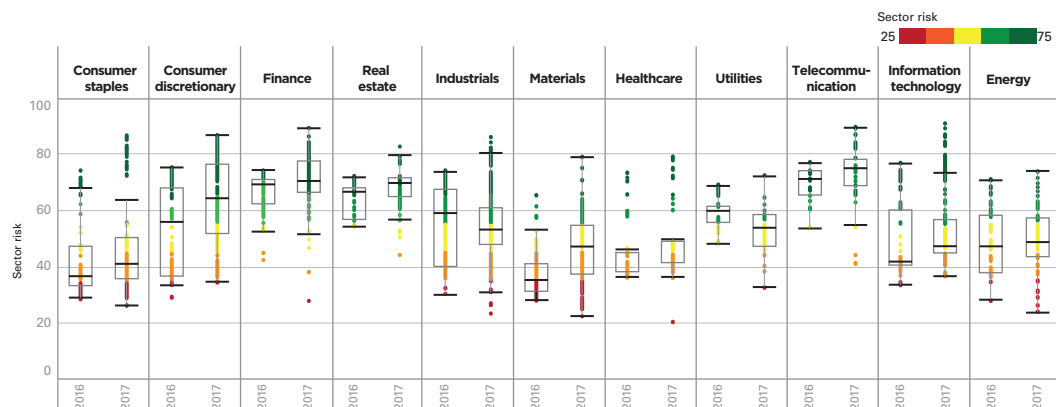
²⁹ In 2016, scores were limited to between 25 and 75 owing to uncertainty regarding certain data sources, which has now been resolved.

CHANGE IN THE DISTRIBUTION OF SCORES 2016/2017 - CONSOLIDATED EQUITY PORTFOLIO



Change in the distribution of the Consolidated Equity Portfolio's scores between 2016 and 2017. The 2016 scores do not include the Country of Sale indicator. The Consolidated Equity Portfolio performed better in almost all sectors in 2017 than it did in 2016. Source: Four Twenty Seven.

CHANGE IN THE DISTRIBUTION OF SCORES 2016/2017 - EMERGING MARKET EQUITY PORTFOLIO



Change in the distribution of the Emerging Market Equity Portfolio's scores between 2016 and 2017. The 2016 scores do not include the Country of Sale indicator. Source: Four Twenty Seven.

The majority of the companies in the analysed portfolios generated most of their revenue in developed markets. Given that developed markets are generally less exposed to the impacts of climate change than emerging markets, the addition of the Country of Sale indicator led to an increase in their scores across almost all sectors. Conversely, companies making most of their sales in emerging markets received lower perfor-

mance scores. As a result, the Emerging Market Equity Portfolio, which mainly comprises emerging market securities, received lower sector scores in 2017, especially as regards the industry and utilities sectors. The main consequence of the addition of the Country of Sale indicator was therefore to underscore the difference in the risk exposure associated with developed and emerging markets.

MAIN RESULTS

SCORES FOR THE PORTFOLIOS AND THEIR BENCHMARK INDICES

No.	Portfolio type		Geographic region/ asset class	Active/ Passive	Score (portfolio)	Benchmark index	Weighting	Score (index)
1	Equity	Physical	Global	A+P	67.42	S&P Emerging Plus BMI	13.8%	61.71
						S&P Developed Ex-Eurozone BMI	43.2%	69.89
						S&P Eurozone BMI	43.0%	65.30
						Total	100%	66.79
2	Equity	Physical	Developed	A+P	68.84	S&P Developed Ex-Eurozone BMI	50.1%	69.89
						S&P Eurozone BMI	49.9%	65.30
						Total	100%	67.58
3	Equity	Physical	Developed	A	71.38	S&P Europe SmallCap	25.5%	71.04
						S&P France MidSmallCap	11.7%	73.65
						S&P United States Large-MidCap or S&P 500	36.2%	72.07
						S&P Japan BMI	11.9%	61.58
						S&P Developed ex-Korea LargeMidCap	14.7%	69.03
Total	100%	70.32						
4	Equity	Physical	Developed	P	66.58	S&P Eurozone LargeMidCap	67.4%	64.77
						S&P France LargeMidCap	18.7%	64.33
						S&P Europe LargeMidCap	7.2%	63.57
						S&P Asia Pacific Ex-Japan LargeMidCap	6.7%	65.47
Total	100%	64.64						
5	Equity	Physical	Emerging	A+P	61.69	S&P Emerging Plus BMI	100%	61.71
7	Bond	Physical	Global non-Sovereign	A+P	75.42	S&P Eurozone Investment Grade Corporate Bond Index	51.6%	70.19
						S&P U.S. Investment Grade Corporate Bond 1-10 Year Index	30.0%	73.80
						S&P US High Yield	9.1%	77.95
						Iboxx Euro High Yield	9.3%	67.90
Total	100%	71.82						

The average sector score across all of the FRR's equity portfolios is about 67. This strong performance (limited exposure to physical risk) demonstrates a high degree of diversification across equity portfolios and sectors. While certain sectors and certain securities have a relatively high level of risk, this is largely offset by the presence of other

securities with low levels of risk. The portfolios and their benchmark indices tend to have similar scores, but most portfolios have a lower average level of risk than their benchmark indices and a higher portfolio score. The differences for each portfolio are analysed in the following section.

COMPARISON OF THE FRR'S PORTFOLIOS: SECTOR RISKS

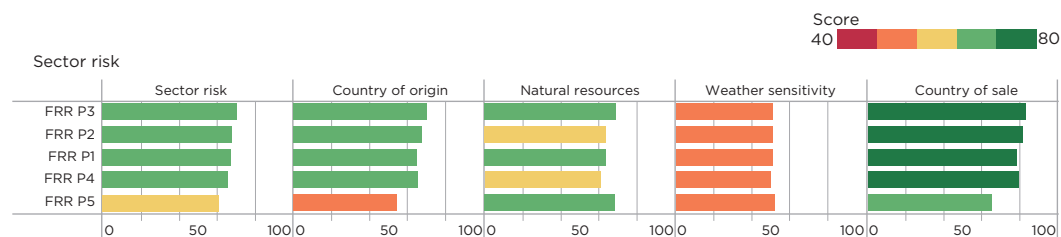


Table legend:

P1: Global Equity Portfolio;

P2: Developed Market Equity Portfolio;

P3: Developed Market Equity Portfolio, Active Management;

P4: Developed Market Equity Portfolio, Passive Management;

P5: Emerging Market Equity Portfolio

P7: Bond Portfolio

The portfolios have different sector risk scores. The emerging market equity portfolio has the lowest score because its companies were concentrated in emerging markets, which are often more vulnerable to climate change. This is reflected in the Country of Origin and Country of Sale scores. This is therefore the portfolio with the greatest climate risk exposure. Conversely, the Developed Market Equity Portfolio under active management was the least exposed, with a sector risk score of over 70. The Developed Market Equity Portfolio and the Developed Market Equity Portfolio under active management received the lowest scores in the Natural Resources category. These discrepancies were the result of the different sector weightings and the climate risk derived from each sector for each portfolio.

This is why the Emerging Market Equity Portfolio had heightened exposure to each of these sectors. For example, the IT sector for this portfolio contains more companies that make hardware, whereas the Developed Market Equity Portfolio, Developed Market Equity Portfolio under active management and Developed Market Equity Portfolio under passive management contain more software companies with lower exposure to physical risk. For the Developed Market Equity Portfolio under active management, it is also important to note the lower exposure to the energy and materials sectors, which mathematically reduced its overall exposure to physical risk. Moreover, the Developed Market Equity Portfolio under active management contains fewer securities in the consumer staples and utilities sectors, which both have high levels of exposure to climate risk. It should also be noted that the bond portfolio is overweight on low-risk sectors, including the financial sector, and even within the sectors with the greatest exposure, such as materials, the companies themselves have a low-risk profile.

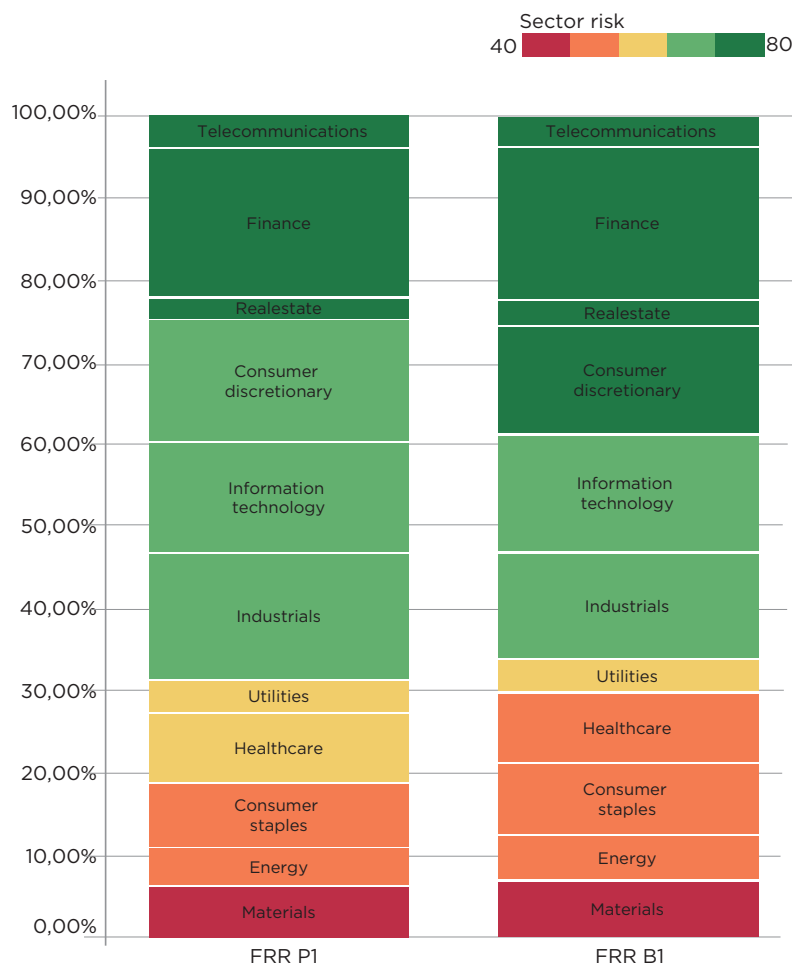
SCORES FOR THE CONSOLIDATED EQUITY PORTFOLIO (P1) AND THE INDICES THAT MAKE UP THE COMPOSITE BENCHMARK INDEX

	Weighting	Country of origin	Natural resources	Country of sale	Weather sensitivity	Sector risk
Portfolio Developed and Emerging Market Equities, Active and Passive Management	100.0%	65.2	64.7	78.7	51.1	67.4
Total Benchmark index	100.0%	65.2	64.7	78.7	51.1	67.4
Emerging Market Index	13.8%	53.9	68.7	64.8	53.5	61.7
Developed Market Index	43.2%	67.9	64.0	84.7	51.0	69.9
Eurozone Index	43.0%	63.2	60.7	79.2	48.9	65.3
Total	100%	64.0	63.2	79.6	50.4	66.8

The Global Equity Portfolio achieved a slightly better score than its benchmark, denoting a lower level of exposure to physical risk. This

relationship is constant across the four criteria assessed apart from the Country of Sale criterion.

COMPARISON OF THE SECTOR RISK OF THE CONSOLIDATED EQUITY PORTFOLIO AND THAT OF ITS BENCHMARK

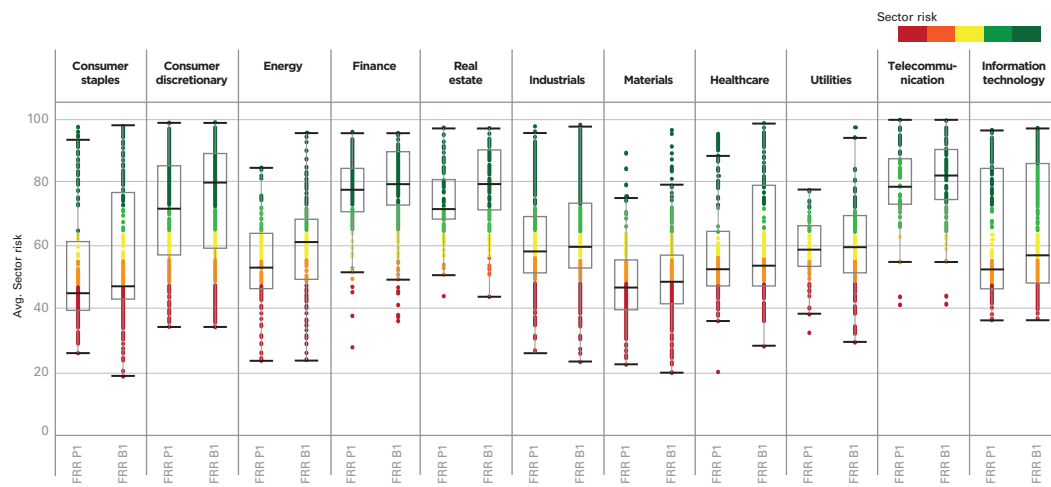


This outperformance is partly due to lower risk exposure in the healthcare sector. Relative to the index, the portfolio's healthcare component contains fewer companies from the pharmaceuticals industry (which is a risky industry) and more companies from the healthcare products and services industry (which is less exposed). It also contains more companies from the high-performing Industrial sector and fewer companies from sec-

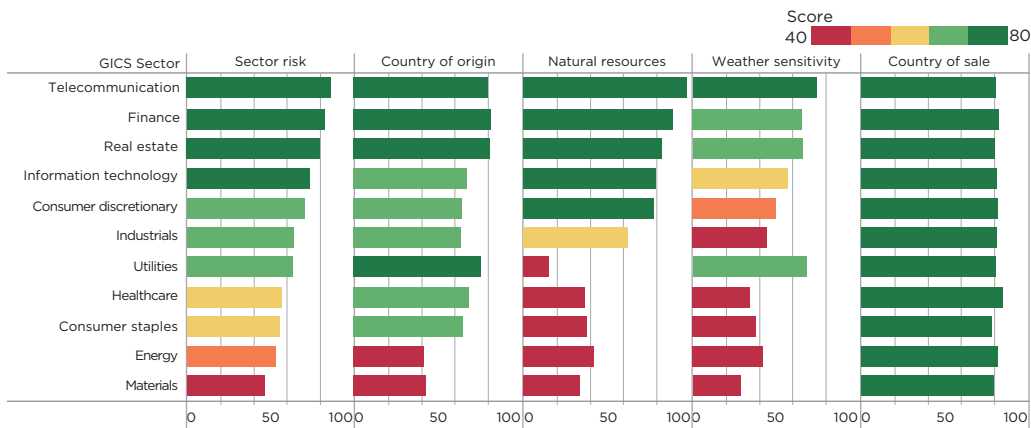
tors with worse performance, such as materials, energy and consumer goods.

However, the index achieves better performance in the consumer discretionary sector as a result of the high concentration of low-risk companies in this sector. This is offset by the higher weighting of this sector, which is generally low risk, in the Consolidated Equity Portfolio.

COMPARISON OF THE PORTFOLIO AND THE COMPOSITE BENCHMARK INDEX BY SECTOR



PHYSICAL RISK SCORES BY SECTOR AND BY INDICATOR, FOR THE CONSOLIDATED EQUITY PORTFOLIO



The 10 riskiest companies – Consolidated Equity Portfolio

This table shows the 10 companies with the highest exposure to physical risk in the Consolidated Equity Portfolio. Six of these ten companies are from the materials sector and five are from the construction materials industry. The materials sector has particularly high exposure to physical risk owing to its high levels of consumption of natural resources that are under threat from climate

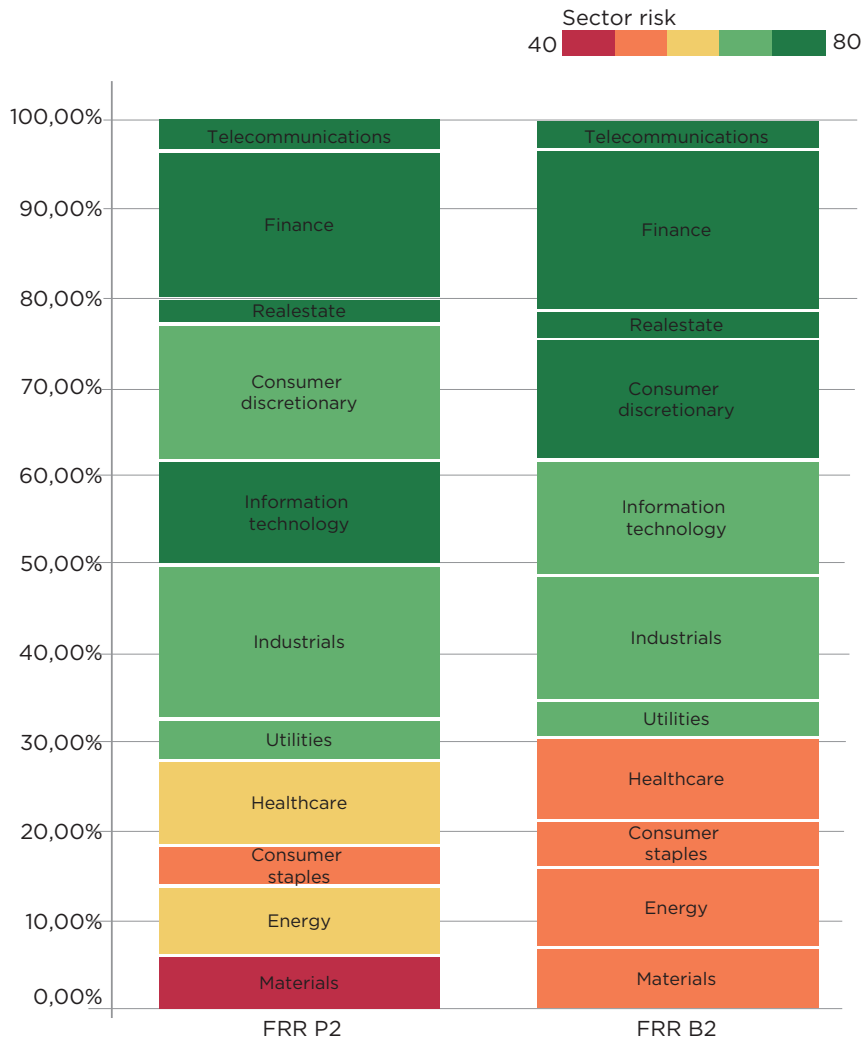
change and the concentration of its manufacturing in at-risk countries. The riskiest company within the portfolio is a pharmaceuticals company. In addition to high levels of consumption of natural resources that are under threat from climate change, this company generates almost all of its revenue in Bangladesh, which is highly exposed to climate change. It therefore receives the lowest score in the Country of Sale and Market Risk categories.

Company name	GICS sector	GICS industry	Sector risk	Market risk	Country of sale	Weather sensitivity	Value chain	Country of origin	Natural resources	Weighting
SQUARE Pharmaceuticals Ltd.	Healthcare	Pharmaceuticals	20	0	0	25.0	39.9	66.4	14.6	0.01%
PT Semen Indonesia (Persero) Tbk	Materials	Construction Materials	22	29.9	44.3	25.3	14.5	15.4	15.1	0.01%
San Miguel Corp.	Industrials	Industrial Conglomerates	23	25.3	31.6	31.2	20.9	27.3	16.0	0.00%
Petron Corp.	Energy	Oil, Gas & Consumable Fuels	24	26.5	39.3	25.3	20.7	27.7	15.1	0.00%
Thai Oil Public Co. Ltd.	Energy	Oil, Gas & Consumable Fuels	24	28.2	41.9	25.2	20.1	27.1	14.5	0.01%
PT Wijaya Karya Beton Tbk	Materials	Construction Materials	24	29.6	43.5	25.7	18.7	23.4	15.6	0.00%
PTT Global Chemical Plc	Materials	Chemicals	25	29.0	43.0	25.3	20.2	27.0	14.9	0.01%
TPI Polene PCL	Materials	Construction Materials	25	27.9	41.7	25.0	21.4	29.8	14.6	0.00%
The Ramco Cements Ltd.	Materials	Construction Materials	25	35.7	52.4	25.8	14.0	15.1	14.4	0.03%
PT Semen Baturaja (Persero) Tbk Class B	Materials	Construction Materials	25	29.1	43.5	25.0	21.4	29.8	14.6	0.00%

Developed Market Equity Portfolio, Active and Passive Management

	Weighting	Country of origin	Natural resources	Country of sale	Weather sensitivity	Sector risk
Portfolio Developed Market Equities, Active and Passive Management	100.0%	67.5	64.0	81.6	50.8	68.6
Benchmark index Developed Market Index	50.1%	67.9	64.0	84.7	51.0	69.9
Eurozone Index	49.9%	63.2	60.7	79.2	48.9	65.3
Total	100.0%	65.6	62.4	81.9	50.0	67.6

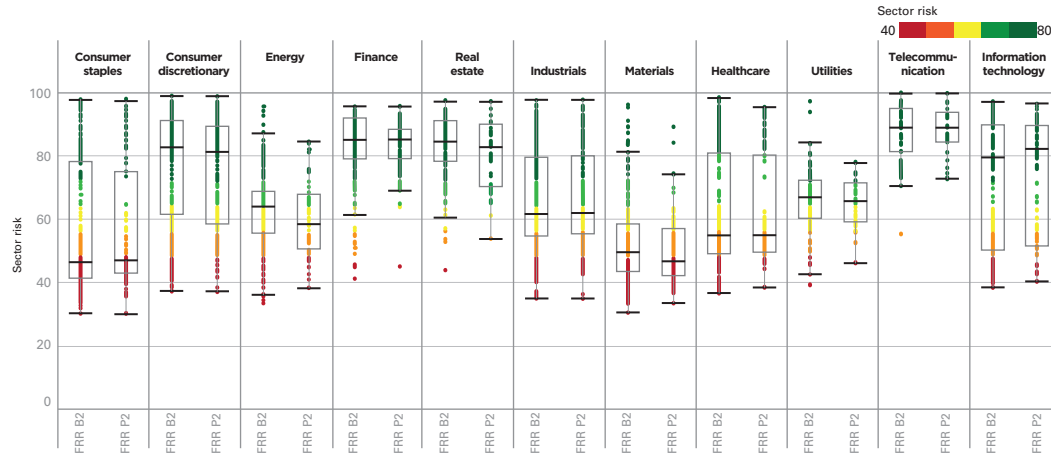
COMPARISON OF THE SECTOR RISK OF THE DEVELOPED MARKET EQUITY PORTFOLIO AND THAT OF ITS BENCHMARK



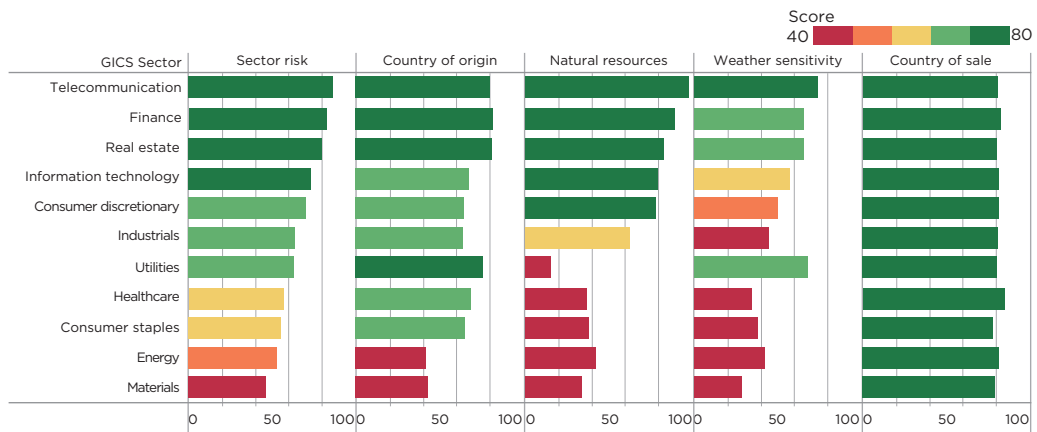
The Developed Market Equity Portfolio achieved a higher performance score than its benchmark. This relationship is constant across the four criteria assessed apart from the Country of Sale criterion. It therefore has lower exposure to physical risk than its benchmark.

The portfolio achieved better performance in the consumer staples sector, owing in particular to the absence of tobacco companies and the lower weighting of the beverage industry relative to that seen in the benchmark. It also obtained a better performance score in the IT sector because the companies in this sector are more concentrated in IT services than in manufacturing.

COMPARISON OF THE DEVELOPED MARKET EQUITY PORTFOLIO AND THE BENCHMARK BY SECTOR



PHYSICAL RISK SCORES BY SECTOR AND BY INDICATOR - DEVELOPED MARKET EQUITY PORTFOLIO



The 10 riskiest companies - Developed Market Equity Portfolio

The table below shows the 10 companies with the highest levels of exposure to physical risk in the Developed Market Equity Portfolio. Seven of these ten companies belong to the consumer staples sector; of these seven, the three companies with the highest ranking belong to the food products industry. The consumer staples sector is particularly risky

owing to its high levels of consumption of natural resources that are under threat from climate change. In general, these companies make sales in countries with low risk exposure but their production chains are located in countries with higher levels of risk. However, the opposite trend is observed for the company from the beverage industry (Heineken Holding NV).

THE 10 RISKIEST COMPANIES – DEVELOPED MARKET EQUITY PORTFOLIO

Company name	GICS sector	GICS industry	Sector risk	Market risk	Country of sale	Weather sensitivity	Value chain	Country of origin	Natural resources	Weighting
Uni-President China Holdings Ltd.	Consumer staples	Food products	30	40	59	25.0	20.2	28.6	13.2	0.01%
Tingyi (Cayman Islands) Holding Corp.	Consumer staples	Food products	30	40.0	59.2	25.6	20.6	28.6	14.1	0.02%
Want Want China Holdings Ltd.	Consumer staples	Food products	31	39.7	59.2	25.0	21.6	31.4	13.2	0.02%
Lenzing AG	Materials	Chemicals	33	47.9	70.9	25.7	18.8	23.5	15.6	0.01%
Mitsubishi Belting Ltd.	Industrials	Machinery	35	47.7	71.3	25.0	22.1	31.0	14.6	0.01%
Heineken Holding NV	Consumer staples	Beverages	36	29.1	43.5	25.0	42.0	71.8	13.2	0.23%
Kao Corp.	Consumer staples	Personal Products	36	49.4	73.8	25.0	22.3	31.4	14.6	0.02%
Ajinomoto Co., Inc.	Consumer staples	Food products	36	50.6	72.0	28.6	21.4	24.7	19.6	0.01%
Prima Meat Packers, Ltd.	Consumer staples	Food products	36	49.3	73.6	25.0	23.0	34.3	13.2	0.04%
Asahi Glass Co., Ltd.	Industrials	Construction Materials	36	48.2	72.1	25.0	24.5	27.9	22.5	0.02%

Developed Market Equity Portfolio, Active Management

SCORES FOR THE DEVELOPED MARKET EQUITY PORTFOLIO UNDER ACTIVE MANAGEMENT AND THE BENCHMARKS

	Weighting	Country of origin	Natural resources	Country of sale	Weather sensitivity	Sector risk
Portfolio Developed Market Equities, Active Management	100.0%	70.1	68.3	83.6	51.8	71.4
Benchmark index						
Europe SmallCap index	25.5%	71.0	67.7	81.3	52.8	71.0
France MidSmallCap index	11.7%	74.4	70.1	82.2	55.3	73.6
United States index	36.2%	70.0	65.2	87.9	51.9	72.1
Japan index	11.9%	57.8	61.9	75.2	45.0	61.6
Developed ex-Korea LargeMidCap index	14.7%	66.8	63.1	84.0	50.7	69.0
Total	100.0%	68.9	65.7	83.5	51.5	70.3

The Developed Market Equity Portfolio under active management achieved a higher score than its benchmark. This relationship is

constant across the four criteria assessed. It is therefore less risky than its composite benchmark.

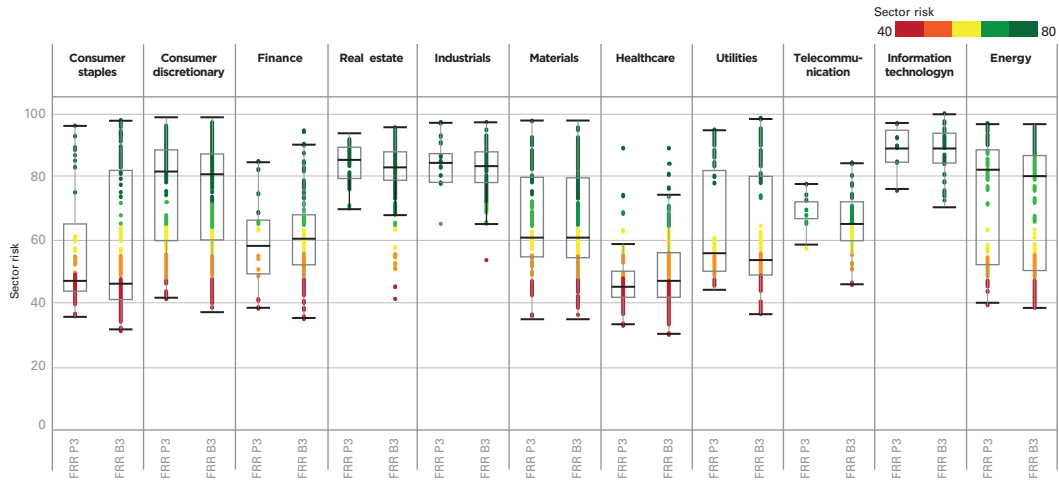
COMPARISON OF THE SECTOR RISK OF THE DEVELOPED MARKET EQUITY PORTFOLIO UNDER ACTIVE MANAGEMENT AND THAT OF ITS BENCHMARK



The sector scores achieved by the portfolio and its benchmark are very similar. However, the portfolio's scores were slightly higher than or equal to those of the benchmark for 8 of the 11 sectors. Moreover, the three remaining sectors are among the sectors with the lowest weightings (real estate, energy and utilities).

The portfolio achieves better performance in the healthcare sector in particular because it includes more companies from the service provision industry and fewer from the pharmaceuticals industry. It also achieved higher scores in the consumer staples sector owing to the absence of companies from the tobacco industry and fewer companies from the beverage industry.

COMPARISON OF THE DEVELOPED MARKET EQUITY PORTFOLIO UNDER ACTIVE MANAGEMENT AND THE COMPOSITE BENCHMARK INDEX BY SECTOR



PHYSICAL RISK SCORES BY SECTOR AND BY INDICATOR



The 10 riskiest companies – Developed Market Equity Portfolio, Active Management

This table shows the 10 companies with the highest levels of exposure to physical risk in the Developed Market Equity Portfolio under active management. Four of these ten companies belong to the consumer staples sector and three belong to the materials sector. These 10 companies are all exposed to risk

because of their high levels of consumption of natural resources that are under threat from climate change. The majority of them also have production processes that are concentrated in countries considered high risk and significant weather sensitivity (denoted by a low score). However, these 10 companies have little risk exposure derived from countries of sale because these are mostly developed markets.

THE 10 RISKIEST COMPANIES – DEVELOPED MARKET EQUITY PORTFOLIO, ACTIVE MANAGEMENT

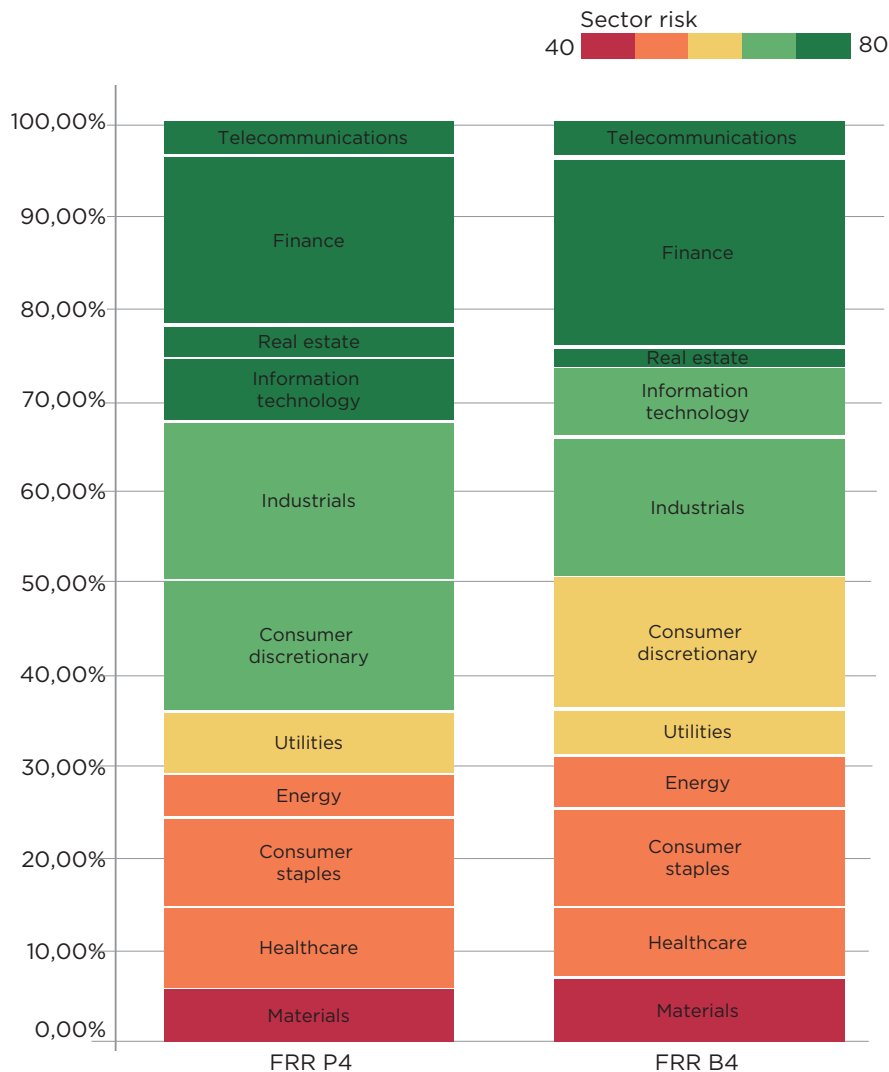
Company name	GICS sector	GICS industry	Sector risk	Market risk	Country of sale	Weather sensitivity	Value chain	Country of origin	Natural resources	Weighting
Lenzing AG	Materials	Chemicals	33	48	71	25.7	18.8	23.5	15.6	0.03%
Mitsuboshi Belting Ltd.	Industrials	Machinery	35	47.7	71.3	25.0	22.1	31.0	14.6	0.03%
Kao Corp.	Consumer staples	Personal Products	36	49.4	73.8	25.0	22.3	31.4	14.6	0.04%
Prima Meat Packers, Ltd.	Consumer staples	Food products	36	49.3	73.6	25.0	23.0	34.3	13.2	0.09%
Asahi Glass Co., Ltd.	Industrials	Construction Materials	36	48.2	72.1	25.0	24.5	27.9	22.5	0.06%
Royal DSM NV	Materials	Chemicals	37	50.7	74.4	26.4	22.3	30.1	15.9	0.03%
Mondelez International, Inc.	Consumer staples	Food products	37	54.0	80.7	25.0	19.2	26.6	13.2	0.35%
Asahi Group Holdings Ltd.	Consumer staples	Beverages	37	50.2	74.2	25.7	23.3	33.3	14.6	0.05%
TOCALO Co., Ltd.	Materials	Chemicals	37	49.7	74.2	25.0	23.9	34.7	14.6	0.02%
Shikoku Chemicals Corp.	Materials	Chemicals	37	49.7	74.3	25.0	23.9	34.7	14.6	0.06%

Equity Portfolio, Developed Markets, Passive Management

SCORES FOR PORTFOLIO 4 AND BENCHMARK INDICES

	Weighting	Country of origin	Natural resources	Country of sale	Weather sensitivity	Sector risk
Portfolio Developed Market Equities, Passive Management	100,0 %	65,4	60,7	80,1	50,1	66,6
Benchmark index						
Eurozone LargeMidCap index	67,4 %	62,8	55,6	80,2	46,8	63,6
France LargeMidCap index	18,7 %	63,0	58,7	81,0	45,7	64,3
Europe LargeMidCap index	7,2 %	62,8	55,6	80,2	46,8	63,6
Asia Pacific Ex-Japan Large-MidCap index	6,7 %	58,5	69,0	71,7	54,2	65,5
Total	100,0 %	62,6	57,1	79,8	47,1	63,8

COMPARISON OF THE SECTOR RISK OF THE PORTFOLIO AND THAT OF ITS BENCHMARK



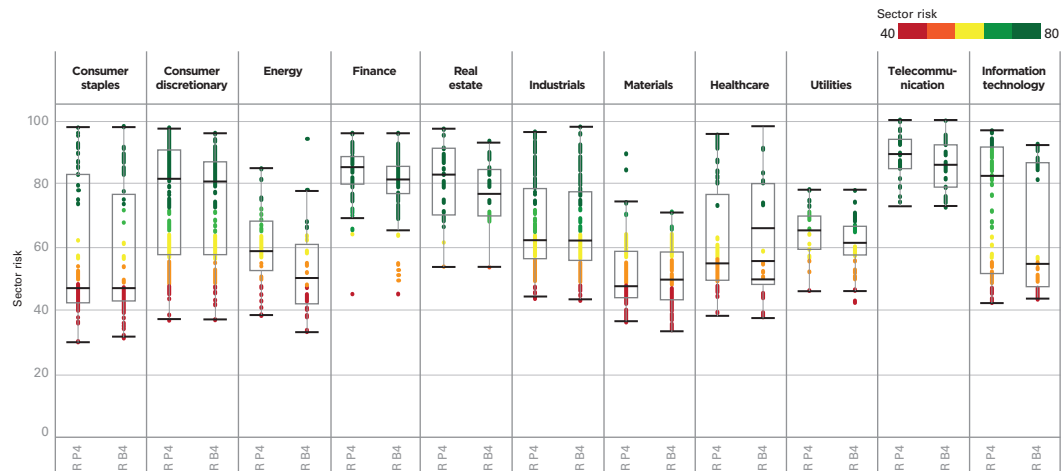
The Developed Market Equity Portfolio under passive management has a higher sector risk score than its benchmark, and this relationship is constant across the four criteria assessed. It therefore has lower exposure to physical risk.

The portfolio achieved lower scores than those of its benchmark in just two sectors out of eleven (energy and telecommunications). Moreover, these two sectors account for a small proportion of the overall composition of the portfolios.

In particular, it outperformed its benchmark in the consumer discretionary sector as a result of its high concentration in companies in the media industry in this sector (a low-risk industry).

Lastly, it contained fewer companies in the riskiest sectors including materials, consumer staples and energy.

COMPARISON OF THE DEVELOPED MARKET EQUITY PORTFOLIO UNDER PASSIVE MANAGEMENT AND THE COMPOSITE BENCHMARK INDEX BY SECTOR



PHYSICAL RISK SCORES BY SECTOR AND BY INDICATOR - DEVELOPED MARKET EQUITY PORTFOLIO, PASSIVE MANAGEMENT



The 10 riskiest companies - Developed Market Equity Portfolio, Passive Management

Eight of these ten companies belong to the consumer staples sector and five of these eight belong to the food products industry. The two remaining companies belong to the materials sector and chemicals industry. Companies from these sectors are particularly risky owing to their high levels of consumption of natural resources that are under threat from climate change. With the exception of companies from the beverage industry, they also have production processes

that are concentrated in countries considered high risk and significant weather sensitivity (denoted by a low score). However, all of these 10 companies have little risk exposure derived from countries of sale because these are mostly developed markets. Lastly, three of these companies (Heineken Holding NV, Royal DSM NV and Akzo Nobel NV) account for a relatively large proportion of the Developed Market Equity Portfolio under passive management. This means that the 10 riskiest companies collectively account for a little over 1% of the portfolio.

THE 10 RISKIEST COMPANIES – DEVELOPED MARKET EQUITY PORTFOLIO, PASSIVE MANAGEMENT

Company name	GICS sector	GICS industry	Sector risk	Market risk	Country of sale	Weather sensitivity	Value chain	Country of origin	Natural resources	Weighting
Uni-President China Holdings Ltd.	Consumer staples	Food products	30	40	59	25.0	20.2	28.6	13.2	0.02%
Tingyi (Cayman Islands) Holding Corp.	Consumer staples	Food products	30	40.0	59.2	25.6	20.6	28.6	14.1	0.03%
Want Want China Holdings Ltd.	Consumer staples	Food products	31	39.7	59.2	25.0	21.6	31.4	13.2	0.03%
Lenzing AG	Materials	Chemicals	36	29.1	43.5	25.0	42.0	71.8	13.2	0.41%
Mitsuboshi Belting Ltd.	Industrials	Machinery	36	49.4	73.8	25.0	22.3	31.4	14.6	0.01%
Heineken Holding NV	Consumer staples	Beverages	36	50.6	72.0	28.6	21.4	24.7	19.6	0.02%
Kao Corp.	Consumer staples	Personal Products	37	50.7	74.4	26.4	22.3	30.1	15.9	0.28%
Ajinomoto Co., Inc.	Consumer staples	Food products	37	54.0	80.7	25.0	19.2	26.6	13.2	0.03%
Prima Meat Packers, Ltd.	Consumer staples	Food products	37	50.2	74.2	25.7	23.3	33.3	14.6	0.01%
Asahi Glass Co., Ltd.	Industrials	Construction Materials	37	51.5	76.9	25.0	22.7	32.2	14.6	0.20%

Emerging Market Equity Portfolio

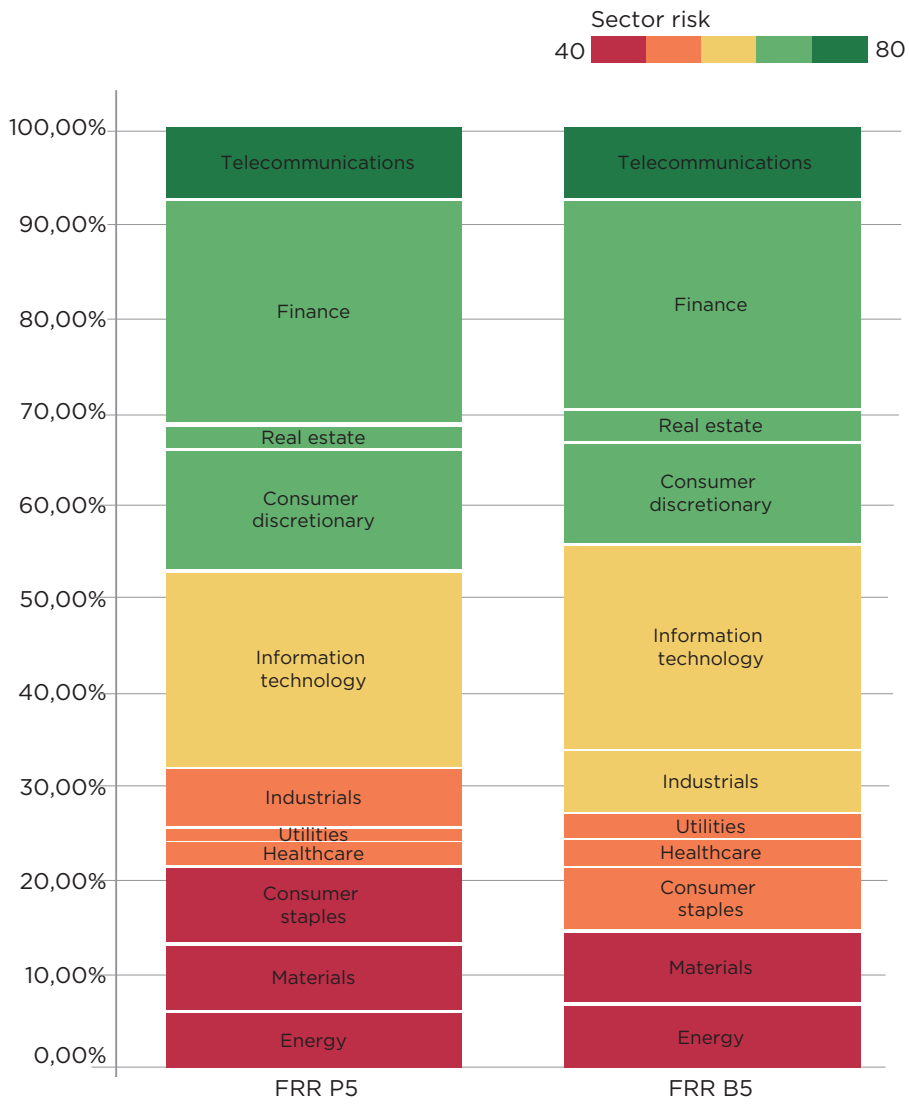
SCORES FOR THE EMERGING MARKET EQUITY PORTFOLIO AND BENCHMARK INDICES

SCORES FOR THE EMERGING MARKET AND BENCHMARK INDICES						
	Weighting	Country of origin	Natural resources	Country of sale	Weather sensitivity	Sector risk
Portfolio						
Emerging Market Equities, Active and Passive Management	100.0%	54.6	68.1	65.6	52.7	61.7
Benchmark index						
S&P Emerging Plus BMI	100.0%	53.9	68.7	64.8	53.5	61.7

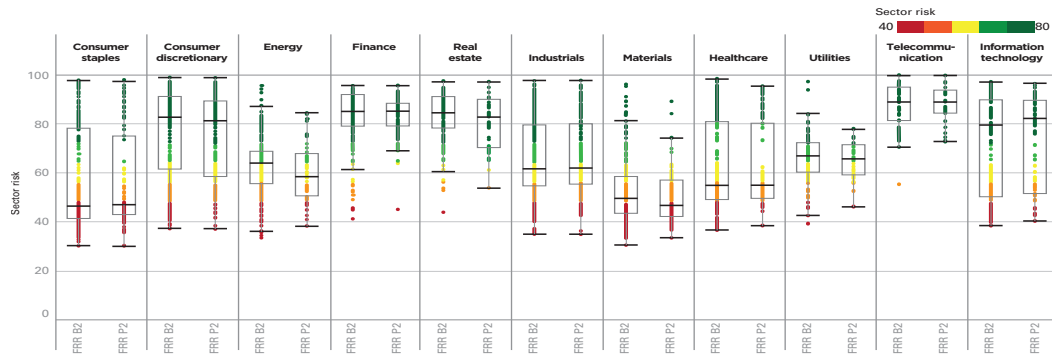
The Emerging Market Equity Portfolio has a sector climate risk score similar to that of its benchmark. Its lower scores for the Natural Resources and Weather Sensitivity criteria are offset by higher scores for the Country of Origin and Country of Sale criteria.

The sector comparison reveals that the portfolio has higher risk exposure in the consumer goods and industry sectors. However, these lower scores are offset by the lower weighting of the riskiest sectors (energy and materials) as well as the higher weighting of less risky sectors (consumer discretionary and finance).

COMPARISON OF THE SECTOR RISK OF THE EMERGING MARKET EQUITY PORTFOLIO AND THAT OF ITS BENCHMARK



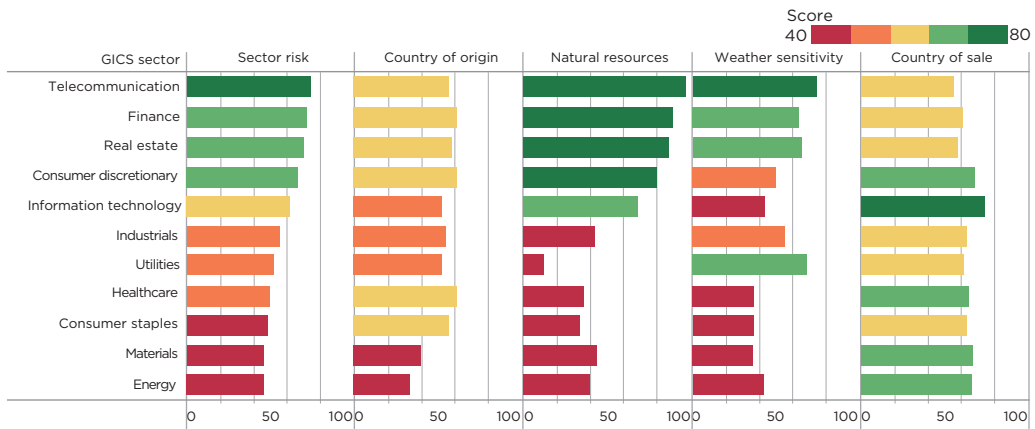
COMPARISON OF THE EMERGING MARKET EQUITY PORTFOLIO AND THE COMPOSITE BENCHMARK INDEX BY SECTOR



Comparing the portfolio with its benchmark, which is focused on emerging economies, helps to isolate this characteristic. Compared with its benchmark index, the Emerging Market Equity Portfolio does not have particularly high risk exposure. However, it is the

portfolio with the highest level of risk compared with the FRR's other portfolios. This proves that its higher concentration of emerging market companies is in fact the root cause of its having greater risk exposure than the FRR's other portfolios.

PHYSICAL RISK SCORES BY SECTOR AND BY INDICATOR - EMERGING MARKET EQUITY PORTFOLIO



The 10 riskiest companies - Emerging Market Equity Portfolio

Six of these ten companies belong to the materials sector and five of these six belong to the construction materials sector. The four remaining companies belong to the energy, industry and healthcare sectors. Companies from these sectors are particularly risky owing to their consumption of natural resources that are under threat from climate change. The majority of them also have production processes that are concentrated in countries considered high risk and significant

weather sensitivity (denoted by a low score). The most risky company belongs to the pharmaceuticals industry. This company's manufacturing is concentrated in countries with little exposure to climate risk. However, almost all of its sales are made in Bangladesh, which has very high climate change exposure. Lastly, compared with the other portfolios, P5 has the worst performance scores in the Country of Sale category. Once again, this reflects the fact that the companies in the Emerging Market Equity Portfolio are concentrated in emerging markets.

THE 10 RISKIEST COMPANIES - PORTFOLIO 5

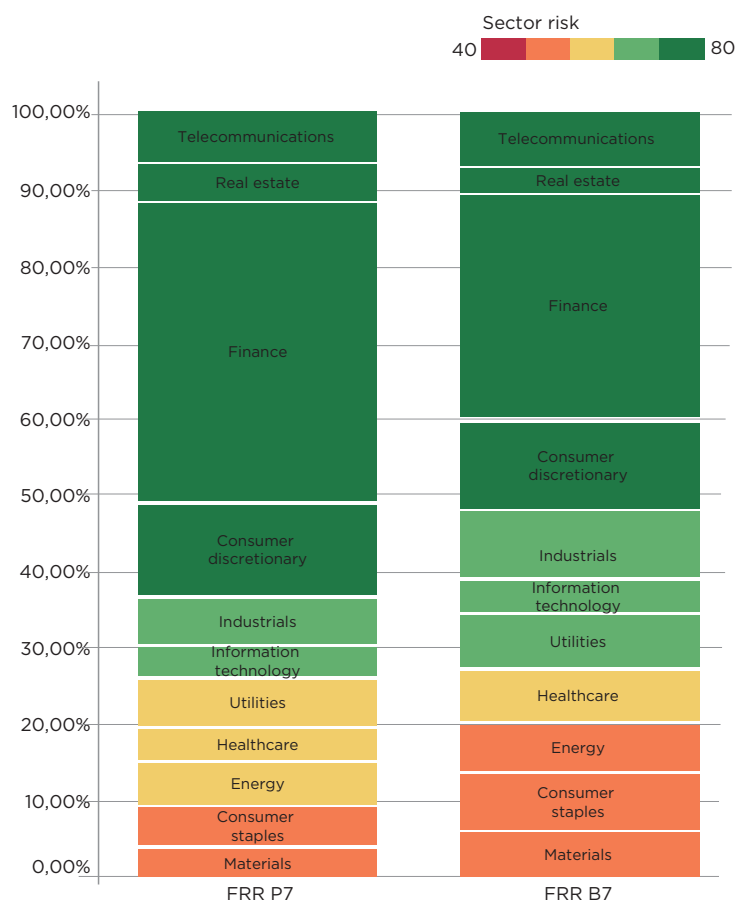
Company name	GICS sector	GICS industry	Sector risk	Market risk	Country of sale	Weather sensitivity	Value chain	Country of origin	Natural resources	Weighting
SQUARE Pharmaceuticals Ltd.	Health-care	Pharmaceuticals	20	0	0	25.0	39.9	66.4	14.6	0.05%
PT Semen Indonesia (Persero) Tbk	Materials	Construction Materials	22	29.9	44.3	25.3	14.5	15.4	15.1	0.04%
San Miguel Corp.	Industrials	Industrial Conglomerates	23	25.3	31.6	31.2	20.9	27.3	16.0	0.01%
Petron Corp.	ENERGY	Oil, Gas & Consumable Fuels	24	26.5	39.3	25.3	20.7	27.7	15.1	0.00%
Thai Oil Public Co. Ltd.	ENERGY	Oil, Gas & Consumable Fuels	24	28.2	41.9	25.2	20.1	27.1	14.5	0.06%
PT Wijaya Karya Beton Tbk	Materials	Construction Materials	24	29.6	43.5	25.7	18.7	23.4	15.6	0.00%
PTT Global Chemical Plc	Materials	Chemicals	25	29.0	43.0	25.3	20.2	27.0	14.9	0.06%
TPI Polene PCL	Materials	Construction Materials	25	27.9	41.7	25.0	21.4	29.8	14.6	0.00%
The Ramco Cements Ltd.	Materials	Construction Materials	25	35.7	52.4	25.8	14.0	15.1	14.4	0.20%
PT Semen Baturaja (Persero) Tbk Class B	Materials	Construction Materials	25	29.1	43.5	25.0	21.4	29.8	14.6	0.00%

Consolidated Non-Sovereign Bond Portfolio

SCORES AND BENCHMARKS – CONSOLIDATED NON-SOVEREIGN BOND PORTFOLIO

	Weighting	Country of origin	Natural resources	Country of sale	Weather sensitivity	Sector risk
Portfolio						
Global non-Sovereign Bond	100.0%	73.2	72.0	84.3	58.0	75.4
Benchmark index						
Eurozone Investment Grade index	51.6%	68.2	63.8	81.2	55.4	70.2
U.S. Investment Grade index	30.0%	72.6	67.2	87.2	54.3	73.8
US High Yield index	9.1%	74.6	72.5	89.4	59.0	78.0
Euro High Yield index	9.3%	61.4	67.3	80.1	52.1	67.9
Total	100.0%	69.5	65.9	83.6	55.1	71.8

COMPARISON OF THE SECTOR RISK OF THE CONSOLIDATED NON-SOVEREIGN BOND PORTFOLIO AND THAT OF ITS BENCHMARK INDEX



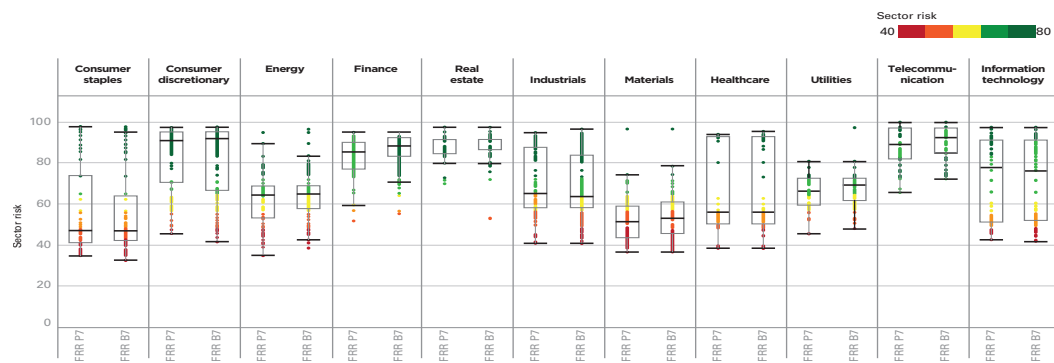
The consolidated non-sovereign bond portfolio has a performance score substantially higher than that of its benchmark, and this relationship is constant across the four criteria assessed.

The sector comparison reveals that the portfolio's risk exposure was lower than or similar to that of its benchmark in nine of eleven sectors. The benchmark only has higher perfor-

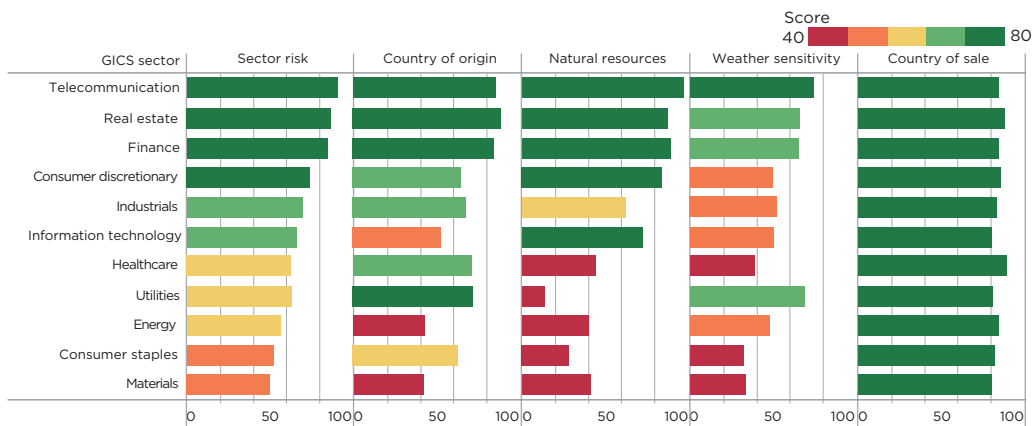
mance scores than the portfolio for the IT and utilities sectors.

The graph opposite also demonstrates the lower weighting of high-risk sectors in the portfolio (materials, consumer staples, healthcare) and the higher weighting of finance, which is a low-risk sector.

COMPARISON OF THE PORTFOLIO AND THE BENCHMARK BY SECTOR - GLOBAL NON-SOVEREIGN BOND PORTFOLIO



PHYSICAL RISK SCORES BY SECTOR AND BY INDICATOR - CONSOLIDATED NON-SOVEREIGN BOND PORTFOLIO



The 10 riskiest companies – Consolidated Non-Sovereign Bond Portfolio

Seven of these ten companies belong to the consumer staples sector and the food product, beverage and tobacco group of industries. The three remaining companies belong to the chemicals industry and the oil, gas and consumable fuels industry. Companies from these sectors are particularly risky owing to

their consumption of natural resources that are under threat from climate change. The majority of them also have production processes that are concentrated in countries considered high risk because of their weather sensitivity (denoted by a low score). The most risky company has low weather sensitivity (high score), but its overall score is low owing to its high levels of consumption of natural resources.

THE 10 RISKIEST COMPANIES – GLOBAL NON-SOVEREIGN BOND PORTFOLIO

Company name	GICS sector	GICS industry	Sector risk	Market risk	Country of sale	Weather sensitivity	Value chain	Country of origin	Natural resources	Weighting
Kernel Holding SA	Consumer staples	Food products	35	55	47	60.3	14.2	24.0	5.9	0.00%
Reliance Industries Ltd.	Energy	Oil, Gas & Consumable Fuels	35	46.1	64.9	29.0	23.2	26.3	21.6	0.00%
Bunge Ltd.	Consumer staples	Food products	35	53.1	79.4	25.0	16.3	20.8	13.2	0.05%
Heineken Holding NV	Consumer staples	Beverages	36	29.1	43.5	25.0	42.0	71.8	13.2	0.03%
Royal DSM NV	Materials	Chemicals	37	50.7	74.4	26.4	22.3	30.1	15.9	0.05%
Mondelez International, Inc.	Consumer staples	Food products	37	54.0	80.7	25.0	19.2	26.6	13.2	0.02%
Asahi Group Holdings Ltd.	Consumer staples	Beverages	37	50.2	74.2	25.7	23.3	33.3	14.6	0.10%
Philip Morris International, Inc.	Consumer staples	Tobacco	37	45.2	67.5	25.0	28.5	45.0	13.2	0.02%
Minerva SA	Consumer staples	Food products	37	50.8	75.9	25.0	22.9	34.1	13.2	0.00%
LANXESS AG	Materials	Chemicals	38	51.9	77.2	25.3	23.8	33.9	15.0	0.03%

Measuring physical climate risk in the financial sector: operational risks

FROM SECTOR RISKS TO OPERATIONAL RISKS

Sector risk modelling and risk mapping are useful informative tools for identifying the sectors and companies that are the most vulnerable to certain effects of climate change. However, the hotspot maps are only the first step in assessing the physical risks to which financial portfolios are exposed. This approach does not estimate the maximum potential loss of a given portfolio. Moreover, it is not accurate enough to allow portfolio managers to select securities and change the composition of a portfolio to reduce its exposure to climate risk.

This report therefore includes an analysis of the operational risks for part of the passive portfolio (P4) and its benchmarks. This new analysis allows scores to be assigned to each company based on the exposure of its physical assets (production sites, facilities, stores, etc.) to the physical effects of climate change (cyclones, sea level rise, extreme precipitation, heat stress and water stress). The scores assigned to companies based on localised and sector risks allow for a much more detailed analysis and help when faced with decisions, for example, about whether to eliminate the riskiest components of each portfolio or engage in a dialogue with senior management of securities-issuing companies to better understand their resilience strategy.

A better measure of climate risk will ultimately make it possible to incorporate climate risk vulnerability into the scoring of companies on the markets.

Operational risk methodology

Operational risk is assessed through detailed analysis of each of the company's sites and facilities. The sites – factories, warehouses, offices, operating sites, stores, hotels, etc. – are individually assessed and the company is scored based on its overall exposure across all of its sites.

Operational risk indicators

Climate change affects companies' activities in five main ways, which we assess using risk indicators taken from the IPCC's climate models. For each indicator, we measure the difference between historic conditions (1975-2005) and forecasts for the 2020-2030 period (or 2040 in the case of sea level rise). 427 also takes socio-economic context into account when conducting site analyses.

Each indicator is standardised on a 0 to 100 scale so that it is easy to compare very different risk measurements and identify the companies with the greatest exposure in terms of the location of their sites and production activities.

427 OPERATIONAL RISK METHODOLOGY

Risk indicator	Impact on companies and their value chains	Data sources	Scale
Extreme precipitation	Risk of temporary and one-off flooding threatening companies' facilities as well as their ability to continue operating, and receiving and processing goods and services, affecting the majority of companies' assets.	IPCC (CMIP5) and NASA models	25km ²
Sea level rise	Risk of permanent and/or recurrent flooding at coastal sites.	Climate Central	Site (30m ²)
Cyclones, hurricanes and storms	Historic exposure to cyclones, hurricanes and storms that are predicted to rise in frequency and intensity as a result of climate change.	World Meteorological Organization ³¹	25km ²
Heat stress	The risk of heat waves affecting workers, consumers and materials in the infrastructure, construction and tourism industries. Heat also affects energy consumption, which is a decisive cost factor for many sites (across all sectors) where large quantities of energy are required to cool equipment and supply the machine or equipment network.	IPCC (CMIP5) and NASA models	25km ²
Water stress	The risk of drought, particularly in relation to agriculture and extractive industries, but also in relation to manufacturing, data centres, power plants, etc.	WaterGAP3, University of Frankfurt and Aqueduct (WRI)	Drainage basin
Socio-economic risks	Socio-economic risks are calculated by following the method used to calculate the country risk index and excluding the country climate change exposure indicator.	See country risk index methodology	Country

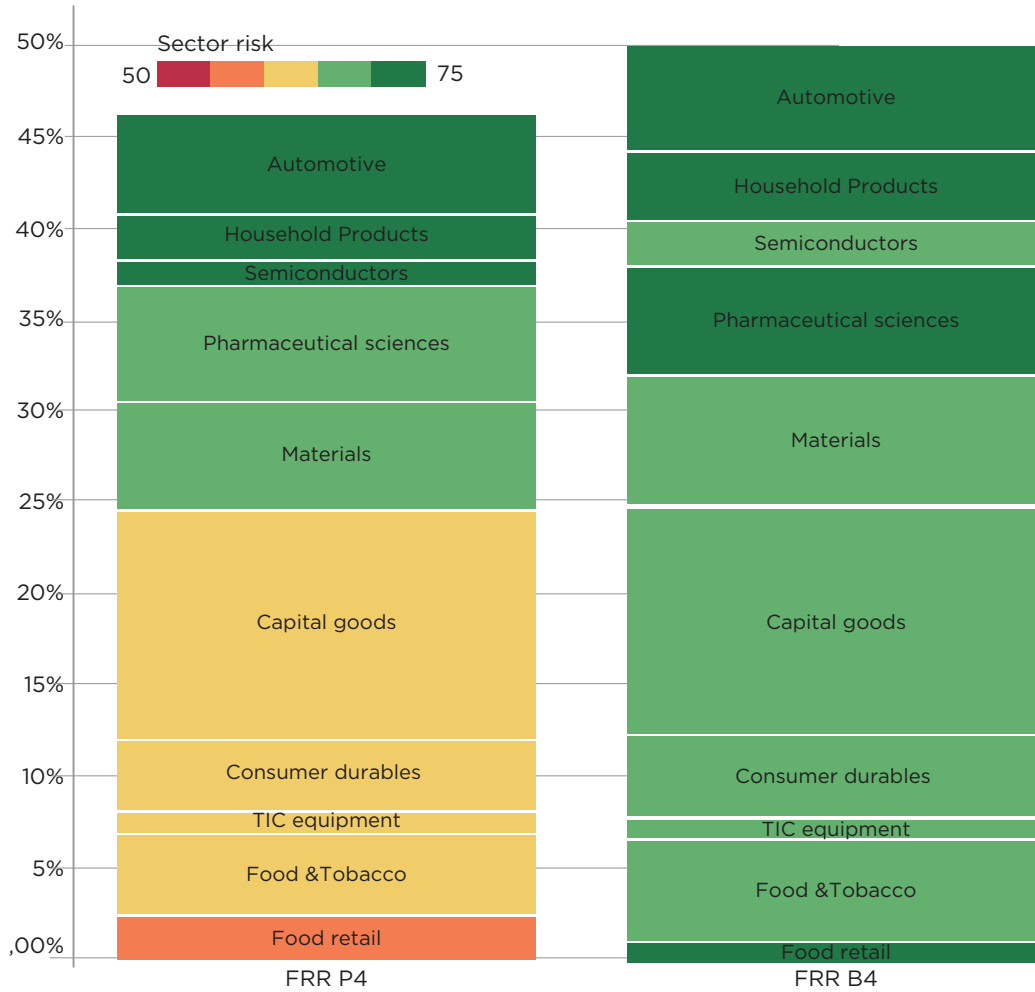
Operational risk results – Developed Market Equity Portfolio, Passive Management

The Developed Market Equity Portfolio under passive management was chosen for this analysis because it was the portfolio for which Four Twenty Seven had the best coverage rate at the time of writing (coverage rate of 76%). 427 selected companies from the

portfolio belonging to the 10 groups of industries best covered by its data³⁰. In total, the companies from these 10 groups of industries account for 47% of the portfolio's investments (and around 51% of those of its benchmark). All comparisons between the portfolio and its benchmark were only carried out in relation to the companies for which 427 had an operational risk score (and underlying data regarding facilities).

³⁰ These 10 groups of industries were: automobiles and automotive parts; capital goods; consumer durables and apparel; materials; IT materials and hardware; food products, beverages and tobacco; domestic and personal care products; pharmaceutical, biotechnological and biological sciences, semi-conductors and semi-conductor equipment, and retail sales of food products and staples.

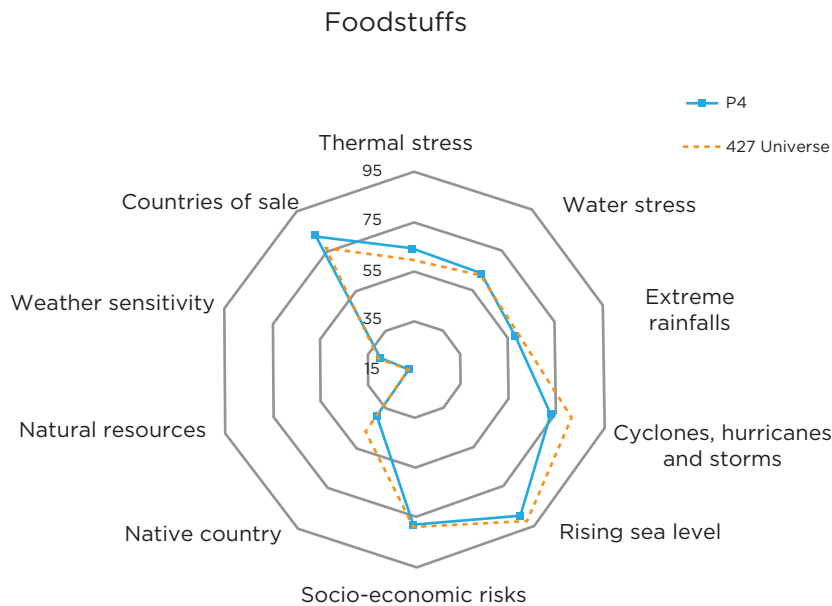
COMPARISON OF THE SECTOR RISK OF THE DEVELOPED MARKET EQUITY PORTFOLIO UNDER PASSIVE MANAGEMENT AND THAT OF ITS BENCHMARK



The portfolio has slightly higher exposure to operational risk than its benchmark. Its operational score is 65, whereas the benchmark scored 70. This discrepancy is mainly due to higher exposure within each group of industries. For example, the group of industries from the capital goods sector in the portfolio has higher exposure to operational risk. This

finding was due to the proportionally higher weighting of companies in this sector located in South America and South and Southeast Asia. These geographical regions have greater exposure to cyclones, flooding and heat and water stress. The group of industries from the capital goods sector is also the most well-represented group in this analysis.

THEMATIC RISK DISTRIBUTIONS FOR THE DEVELOPED MARKET EQUITY PORTFOLIO UNDER PASSIVE MANAGEMENT VERSUS THE 427 UNIVERSE

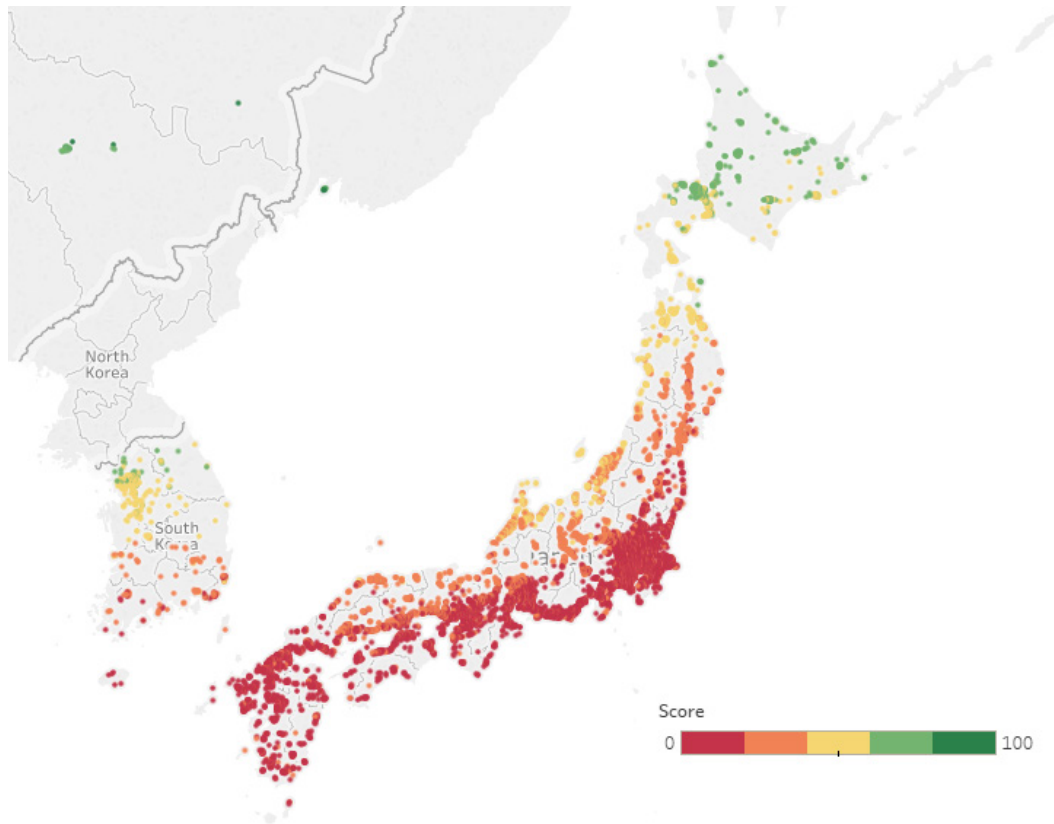


The companies in the portfolio from the group of industries from the food, beverage and tobacco products sector also have higher exposure. The portfolio is exposed to greater risk from the beverage industry owing to the presence of Asahi Group Holdings and Kirin Holdings Co. Being located in Japan means that these two companies have high exposure to the risk of cyclones, hurricanes and storms as well as the risk of extreme precipitation. P4 is also overweight on Coca-Cola Amatil, which has a preponderance of sites in Indonesia, Malaysia and Australia and is therefore exposed to heat and water stress.

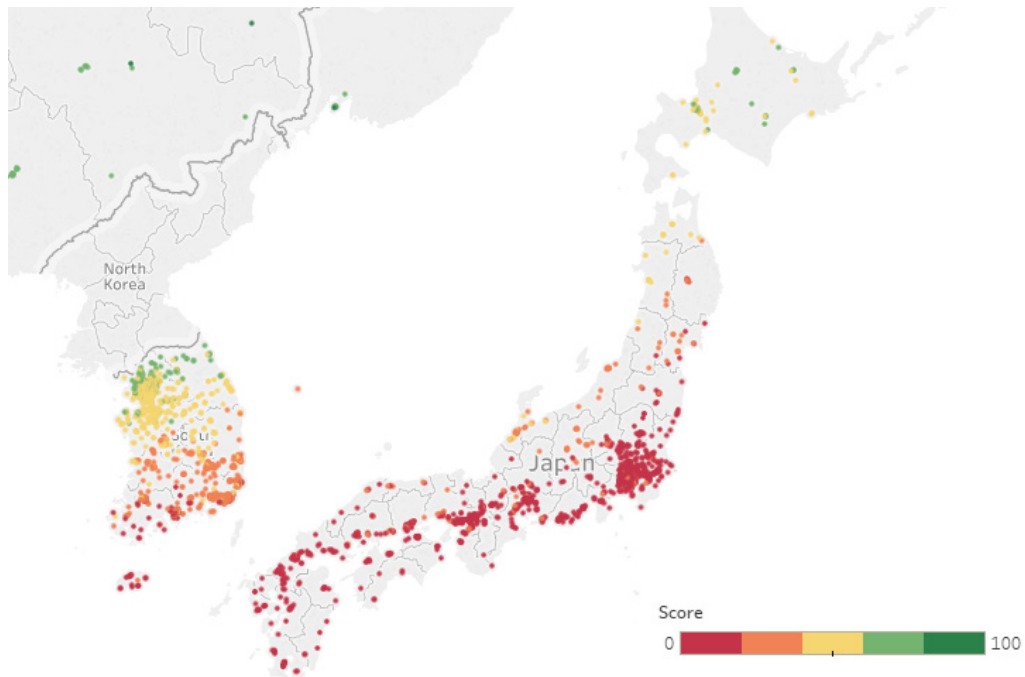
Compared with all of the companies in the 427 database, the food products industry also represents greater risk. While the sector

score differential is relatively small, the sites of the companies in the Developed Market Equity Portfolio under passive management have greater exposure to the risk of cyclones, storms and hurricanes, sea level rise and extreme precipitation. The reason for these results is that the companies in the portfolio have a preponderance of sites in East Asia, particularly Japan, southern China, the Vietnamese coastline and the south-eastern United States. This means that 45% of the portfolio companies' food production sites are exposed to the risk of cyclones and 15% to the risk of sea level rise. Overall, the companies operate sites that are more concentrated in Asia, with over 10 times the number of sites in Japan and around double the number of sites in India, for example (see maps below).

CYCLONE RISK MAP - JAPAN AND SOUTH KOREA - PORTFOLIO



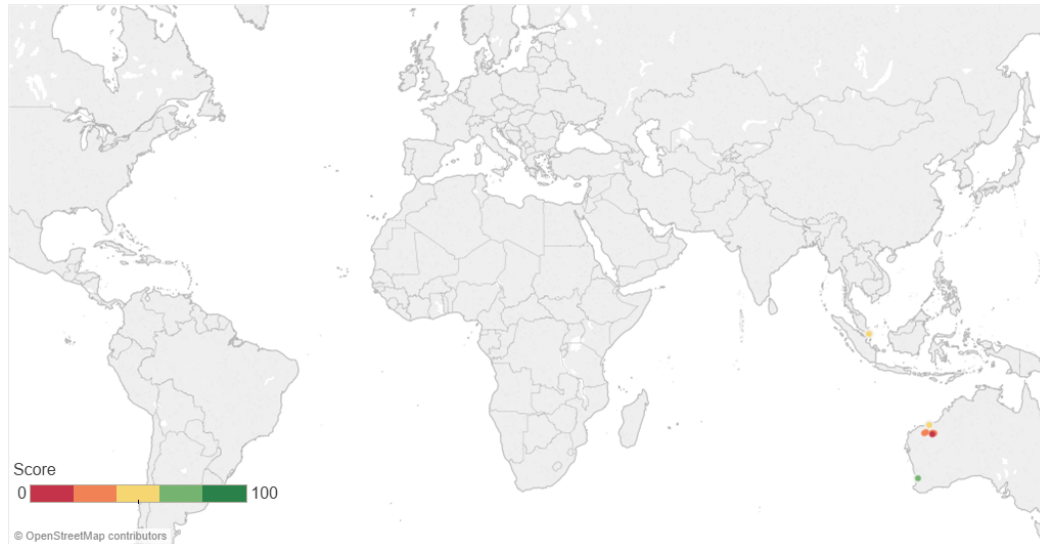
CYCLONE RISK MAP - JAPAN AND SOUTH KOREA - BENCHMARK



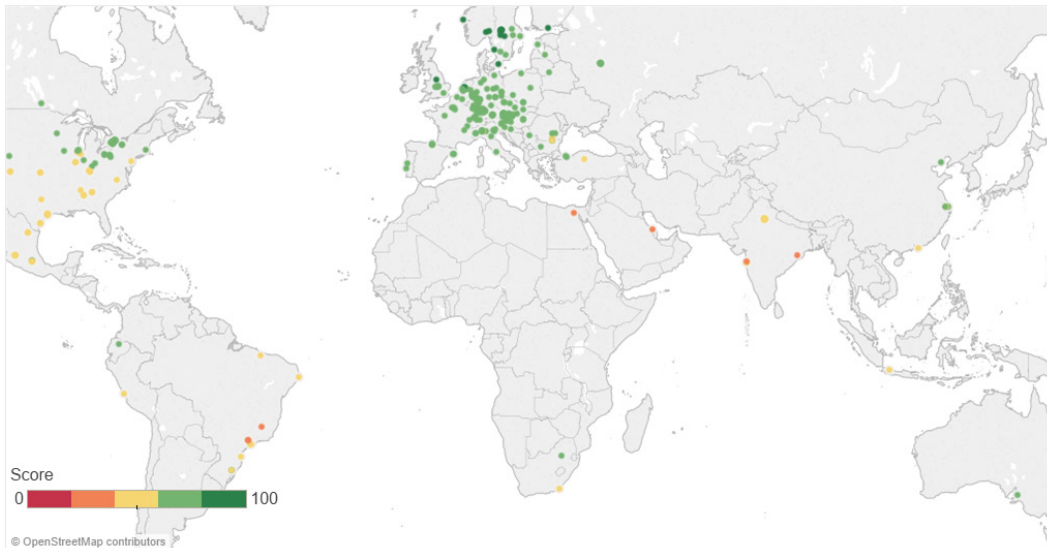
In the pharmaceuticals sector, if we compare one of the least-exposed companies (Orkla) with one of the most-exposed companies (Ajinomoto), it is clear that the former's sites are mainly located in northern Europe whereas those of the latter are primarily concentrated in Vietnam and Indonesia.

However, P4 performs better in the materials sector. The portfolio's higher level of exposure to the chemicals industry is offset by the higher weighting of the low-risk paper and forest products industry and the lower weighting of the high-risk containers and packaging industry.

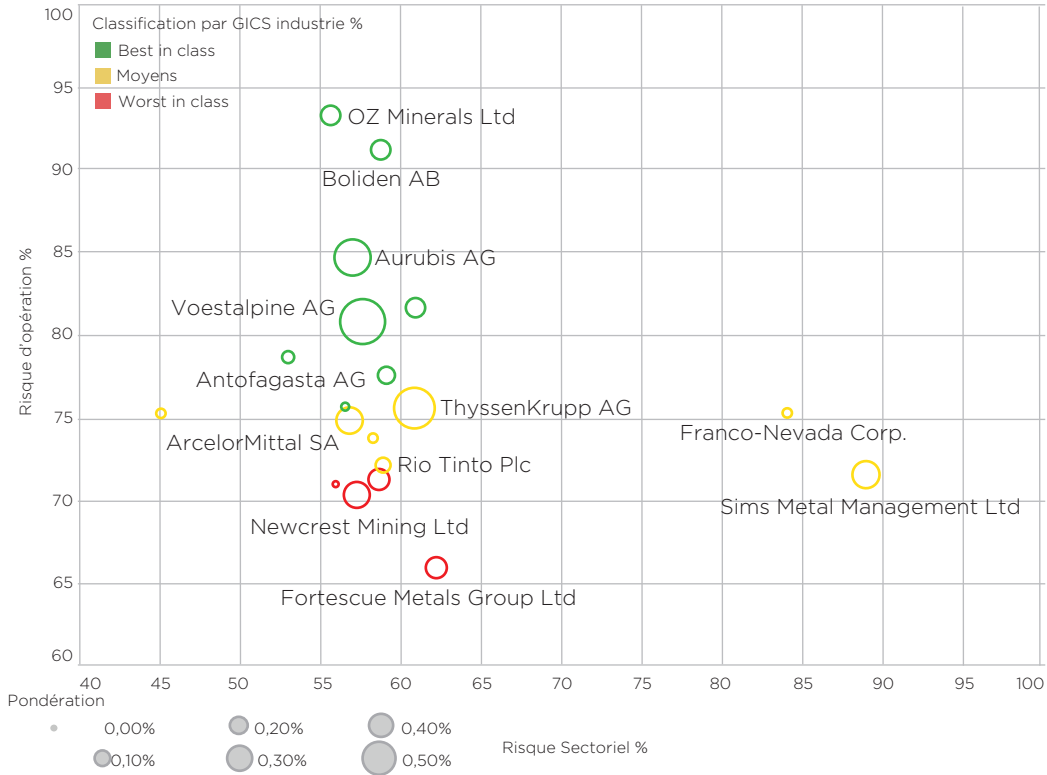
HEAT STRESS BY COMPANY - FORTESCUE METALS GROUP



HEAT STRESS BY COMPANY - VOESTALPINE AG



OVERALL RISK BY COMPANY

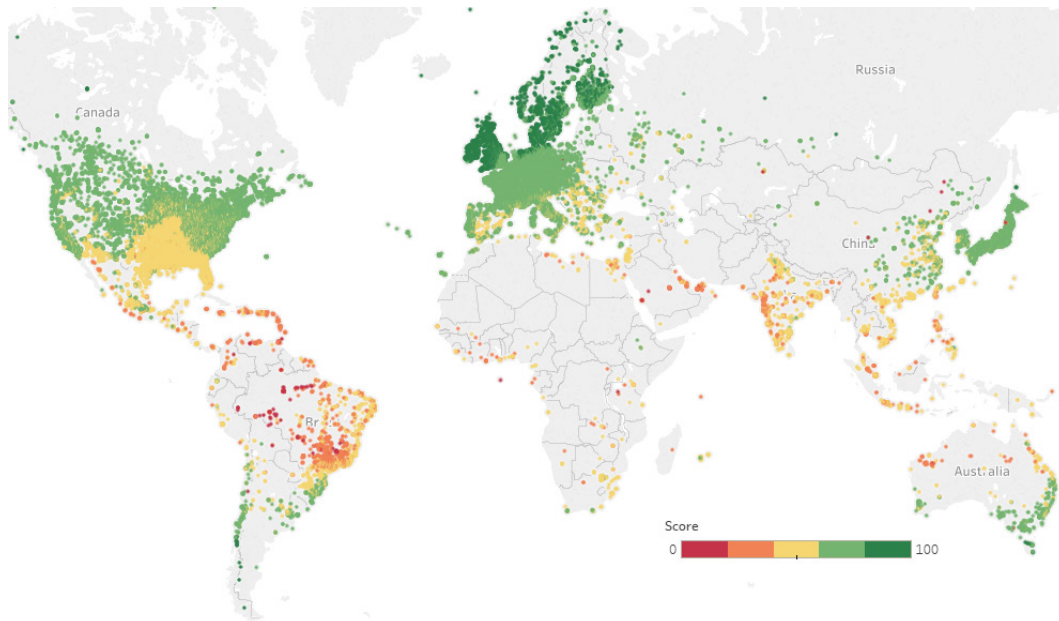


The portfolio also achieved a better score in relation to the metals and mining industry. This industry is especially vulnerable to heat waves owing to the high proportion of manual labour required for associated activities. Sites' level of heat wave risk is a decisive factor when calculating the final operational score of companies in this industry. Therefore, a low operational score was given to Fortescue Metals Group, which has most of its sites in arid areas of Western Australia. Conversely, the company with the lowest risk, Voestalpine, has sites that are more widely dispersed geographically. Its presence in the

Middle East, India and Brazil is offset by the large numbers of its sites that are located in Europe.

Lastly, the companies in the portfolio also have a larger proportion of their sites in Latin America and Brazil in particular. These geographic regions have particularly high exposure to cyclones, the risk of flooding linked to extreme precipitation, water stress and heat stress.

HEAT STRESS - PORTFOLIO



The 10 riskiest companies

The following table shows the 10 companies with the highest levels of exposure to operational risk in the Developed Market Equity Portfolio under passive management³¹. The consumer staples sector is overrepresented, with five companies out of ten belonging to this sector. Of these five companies, three belong to the food products industry, which reflects the high sensitivity of the agri-food sector to climate change. The IT sector appears in the table three times. We should also note that the companies with few sites are classed as being most risky. Indeed, these companies have sites that are exclusively concentrated in at-risk regions and do not

benefit from their sites being spread out across other regions, including those with lower levels of risk. Lastly, geographical analysis of the 10 companies with the highest operational score once again reveals the overrepresentation of Asia and Japan in particular, owing to its high level of exposure to cyclones, hurricanes and storms.

It is important to note that exposure and sensitivity are key aspects of vulnerability to climate change, but they say nothing about each company's ability to anticipate and prepare for any potential impacts.

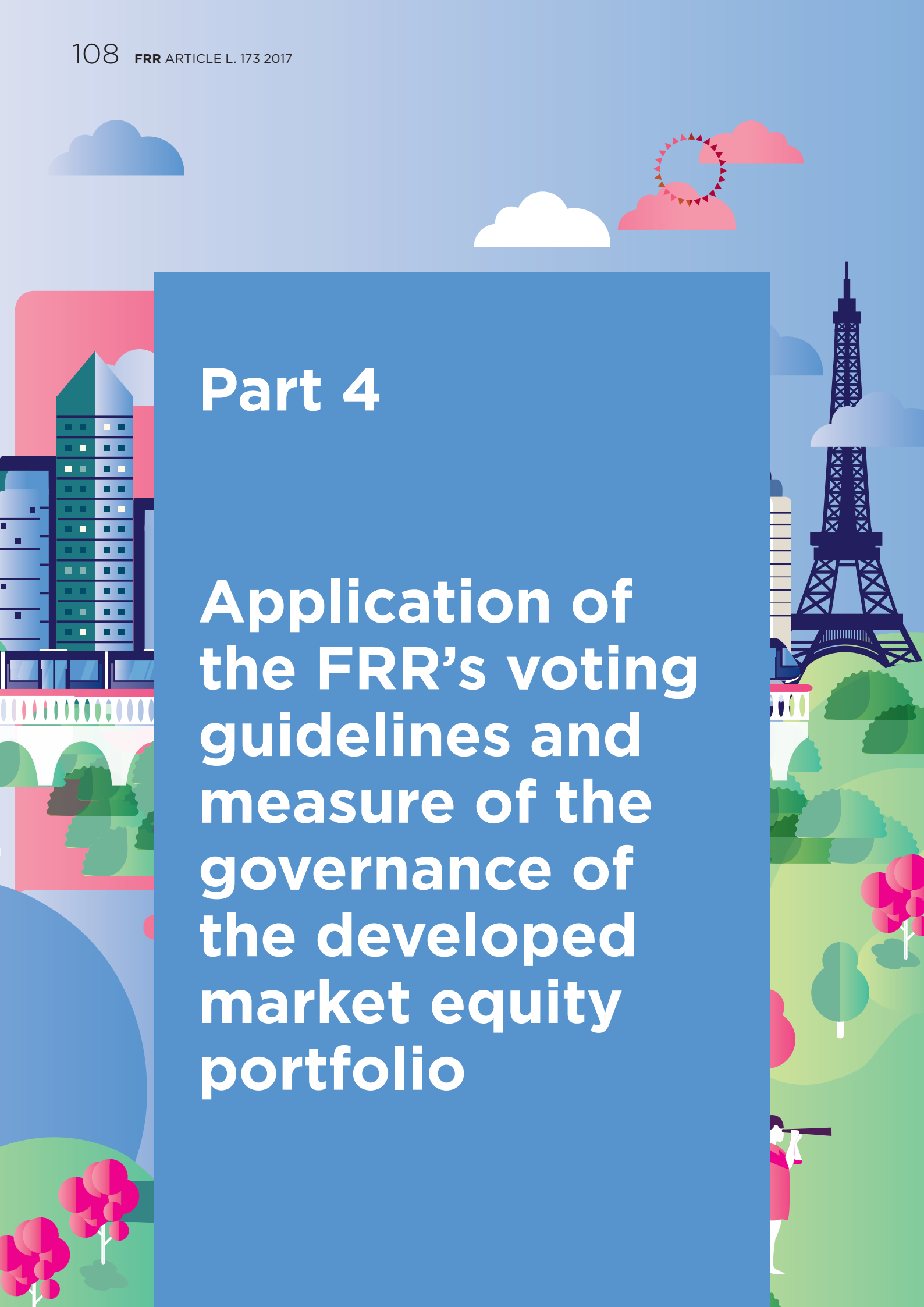
³¹ This ranking does not include companies classed as "industrial conglomerates" as data on the geographic location of their sites was not available.

**THE 10 COMPANIES WITH THE HIGHEST EXPOSURE TO OPERATIONAL RISK -
DEVELOPED MARKET EQUITY PORTFOLIO UNDER PASSIVE MANAGEMENT**

Company name	GICS Industry	GICS sector	Operational risk	Sea level rise	Cy-clones, hurricanes and storms	Water stress	Heat stress	Extreme precipitation	Socio-economic risks	Sector risk	Weighting	Number of sites
China Mengniu Dairy Co., Ltd.	Food products	Consumer staples	23	60.0	10.7	74.1	54.8	25.7	48.2	29	0.02%	1.0
Uni-President China Holdings Ltd.	Food products	Consumer staples	25	60.0	14.3	74.1	58.5	24.7	48.2	27	0.02%	1.0
Want Want China Holdings Ltd.	Food products	Consumer staples	36	73.3	33.5	66.9	62.2	28.8	48.2	34	0.03%	3.0
Semiconductor Manufacturing International Corp.	Semiconductors & Semiconductor Equipment	Information technology	36	100.0	15.1	58.6	57.2	34.5	48.2	40	0.02%	2.0
Yue Yuen Industrial (Holdings) Ltd.	Textiles, Apparel & Luxury Goods	Consumer discretionary	40	74.3	58.3	68.3	44.7	30.6	48.6	42	0.04%	7.0
Sun Art Retail Group Ltd.	Food & Staples Retailing	Consumer staples	41	80.0	41.1	62.1	64.2	32.3	48.2	51	0.07%	4.0
Asahi Kasei Corp.	Chemicals	Materials	44	59.4	43.5	58.3	55.0	62.2	76.6	45	0.00%	21.0
VTech Holdings Ltd.	Communications Equipment	Information technology	49	74.4	52.0	67.6	61.2	43.6	68.6	50	0.06%	16.0
AAC Technologies Holdings, Inc.	Electronic Equipment, Instruments & Components	Information technology	49	80.4	55.5	56.4	57.7	52.4	59.9	51	0.05%	23.0
Lion Corp.	Household Products	Consumer staples	49	79.4	27.7	62.9	64.8	58.8	83.6	47	0.00%	88.0

Part 4

Application of the FRR's voting guidelines and measure of the governance of the developed market equity portfolio



Exercise of voting rights

The FRR's responsible investor policy requires shareholder approval at every general meeting. Given the wide-ranging and international nature of the FRR's investments, its voting guidelines incorporate three dimensions:

- The benefits for the FRR of working actively to improve the governance of the companies in which it invests. Governance aims to promote the balance of power within companies' management bodies and clarity about these powers, as well as the quality of the information provided to shareholders and respect for their rights and for the integrity of their votes. Accordingly, it is one of the factors that play an important role in the long-term survival of the corporate community, in the continuity of the strategy that companies pursue, and in the way they fulfil their responsibilities to all their stakeholders. All these factors contribute directly to strong future valuations.
- The fact that the FRR is a long-term investor. It has chosen to prioritise, in its portfolio structure and the management mandates that reflect the asset allocation strategy set by the Supervisory Board, an active approach based on an analysis of the fundamental valuation outlook for equity and debt securities issued by various categories of issuers. It therefore stands to reason that investment managers would take this horizon into consideration in their application, on a case-by-case basis, of the guidelines included in the voting rights principles, in particular when assessing the appropriateness of financial transactions that affect corporate capital.
- Lastly, efforts to improve corporate governance, whether made by the companies themselves, lawmakers or regulators, have intensified in recent years and must conti-

nue. The active exercise of the FRR's voting rights must, however, realistically consider the specific conditions in each market, mainly based on the issuers' capitalisation, and the significant differences that may exist in corporate law and in terms of the corporate governance practices in the relevant countries.

The FRR's guidelines on the exercise of voting rights incorporate all of these factors and must therefore be broad enough to account for particular national circumstances (in France and internationally). The FRR therefore aims to capitalise on investment managers' knowledge and their ability to understand the practices in force in various financial centres. Investment managers may also rely on these practices for subjects not covered by the FRR's guidelines.

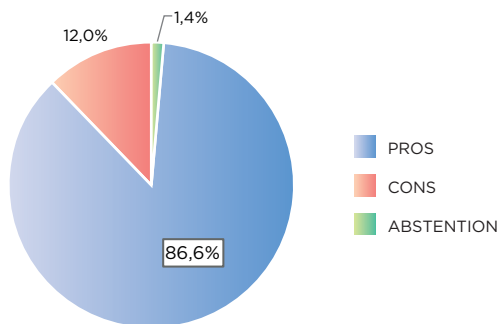
The FRR is working on a system to score the quality of the governance of its portfolio of developed market equities. This new analytical approach will improve the FRR's understanding of the key elements of this portfolio's governance.

In accordance with its founding texts, the FRR's voting rights are exercised by the asset managers it has selected and they do so in the best interests of the Fund. Voting at shareholders meetings has been one of the FRR's historic principles as a socially responsible investor since 2005. Conducted through its asset managers, this allowed it to vote on 37,258 motions in 2017, spread over the 32 countries that make up its developed market equity portfolio.

The FRR is exposed to emerging market equities through units that it holds in collective investment schemes. Unlike portfolio management mandates, these UCITS have their own voting policy, which does not necessarily tally with the FRR's guidelines.

The statistics presented below illustrate the positioning of the developed market equity portfolio in 2017.

Positioning of the developed market equity portfolio on shareholders meetings in 2017

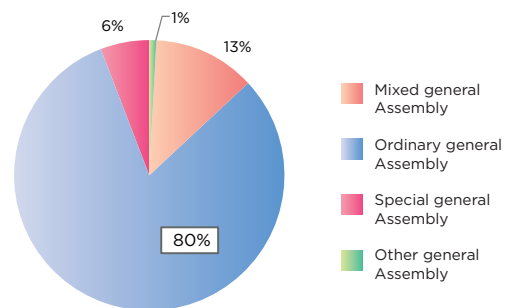


With 86.6% of votes in favour of (FOR) the motions submitted at shareholders meetings, this portfolio is acting in much the same way as the one analysed in 2016.

Most of the votes against related to motions on pay, the election and appointment of directors, and operations changing the company's capital. Areas of contention are often the same from one year to the next, and it is not so much the motion itself that is contested as the lack of transparency over its implementation.

Regarding pay, for example, while the amount may be debatable, it is first and foremost the management's lack of transparency and communications that will be sanctioned. Indeed, the lack of information and transparency means that shareholders are unable to consider whether this (fixed or variable) pay is reasonable, proportionate and sustainable. Through its investment managers, the FRR encourages the virtuous circle of transparency and communications.

Breakdown by type of general meeting



Similarly, regarding capital changes, disputes often arise when the management wishes to go beyond the reasonable, rational limits of such an operation. For example, consent is requested including during public offer periods ("poison pill").

Lastly, as regards external resolutions or those pertaining to environmental, social or governance questions, the FRR pays close attention to its managers' voting proposals.

It ensures that its investment managers are committed to their consideration, especially supporting requests to gain a better understanding of how the company's business is responding to change as well as to environmental, social and climate issues

Measurement of the governance of the developed market equity portfolio

PRESENTATION OF THE QUALITYSCORE® METHODOLOGY

QualityScore® is an analytical tool used to identify risks associated with the governance of companies in a portfolio. The analysis covers only:

- Composition of the board of directors;
- Compensation practices;
- Shareholder rights;
- Audit.

The four QualityScore® categories are based on sub-categories, each composed of around

220 criteria tailored to reflect specific governance characteristics in the countries covered. Each criterion is weighted for the impact of governance practices and standards specific to each region. The methodology selected is the same as that used to establish the voting framework in the ISS policy.

Once the analysis is completed, each of the four categories is assigned a score ranging from 1 (good score) to 10 (bad score).

Issuers are invited to review and verify the data included in the ISS system.

Board structure	Compensation practices	Shareholder rights	Audit
<ul style="list-style-type: none"> • Board structure • Composition of committees • Board practices • Board policies • Related party transactions 	<ul style="list-style-type: none"> • Pay for performance • Non-performance based pay • Equity risk mitigation • Communications and disclosure • Termination • Controversies • Other compensation issues 	<ul style="list-style-type: none"> • One share one vote • Takeover defences • Meeting and voting related issues • Other shareholder rights issues 	<ul style="list-style-type: none"> • External auditor • Auditing and accounting controversies • Other audit issues

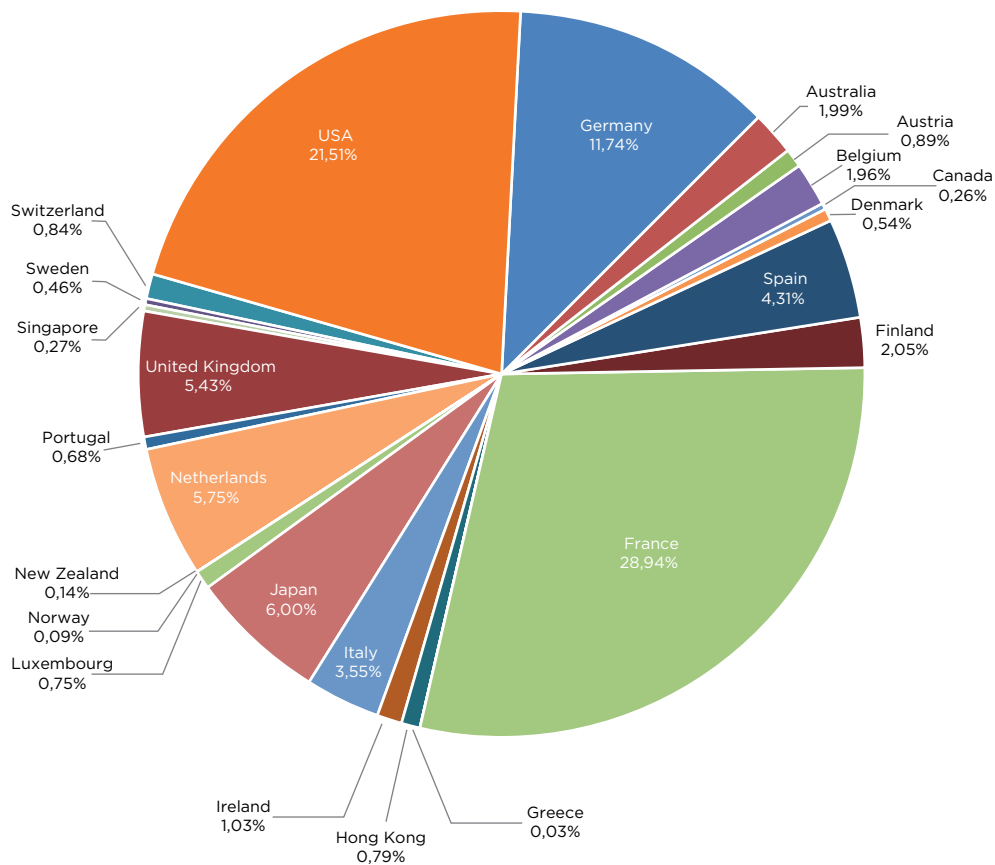
The QualityScore® analysis covers just over 5,600 companies listed in 30 markets. The analysis also covers the main regional indices.

COVERAGE OF THE FRR'S PORTFOLIO

21.21% of the securities in the reference portfolio are not covered by the QualityScore® analysis, i.e. 366 companies representing just over EUR 1 billion in assets under management.

The analysis conducted by QualityScore® covered the 24 countries in the FRR's equity portfolio as opposed to the 32 countries that are normally present in the portfolio. The breakdown below was carried out on the basis of portfolio weighting. This is the portfolio as per the QualityScore® analysis.

WEIGHTINGS OF HOLDINGS ANALYSED (BY ISS) BY COUNTRY IN THE FRR'S PORTFOLIO AS AT 31/12/2017



OVERALL SCORE OF ANALYSED EQUITY PORTFOLIOS BY COUNTRY

Score by country across all sectors	Weightings of countries in the portfolio as at 31/12/2017	Overall score across all themes
Germany	11.7%	5.5
Australia	2.0%	4.2
Austria	0.9%	6.0
Belgium	2.0%	5.1
Canada	0.3%	5.0
Denmark	0.5%	5.1
Spain	4.3%	3.8
Finland	2.0%	4.0
France	28.9%	5.9
Greece	0.0%	9.0
Hong Kong	0.8%	5.8
Ireland	0.8%	6.0
Italy	3.6%	4.3
Japan	6.0%	4.9
Luxembourg	0.8%	7.1
Norway	0.1%	6.0
New Zealand	0.1%	4.6
Netherlands	5.7%	2.4
Portugal	0.7%	6.3
United Kingdom	5.4%	4.9
Singapore	0.3%	1.4
Sweden	0.5%	5.9
Switzerland	0.8%	4.3
USA	21.5%	5.2
Total amount	100%	5.01

The QualityScore® analysis covers 24 business sectors.

The table below shows the weighting of the portfolio's positions in each business sector based on the amount invested and the number of lines held. The first question to answer is whether the amount invested in a sector is reflected by the number of lines held (concentration). On this point, the

differences proved to be small. We can therefore say that the higher the amount invested in a sector, the higher the number of lines (selected securities). The overall average of the QualityScore® scores weighted by holdings naturally follows the same pattern.

The scores assigned by QualityScore® across all sectors in relation to the audit committee are all lower than 3. This means that this information is generally reported in a transparent manner in all countries. A few exceptions aside, scores are no higher than 3. It would seem that audit committees across Europe are increasingly subject to close observation by shareholders, especially where they are in a position to affect remuneration.

Scores relating to shareholders' rights are generally good and lower than 5. These scores range from 3.5 (the best scores) to 5 (less good).

The most controversial subjects are those pertaining to remuneration and board composition.

These points are set out in the table (below).



SECTOR ANALYSIS OF THE PORTFOLIO GOVERNANCE

Business sector	Number of companies in the portfolio	Weight of assets in the portfolio (31/12/2017)	Average score by sector for the category: Board of directors	Average scores by sector for the category: Compensation	Average scores by sector for the category: Shareholder rights	Average scores by sector for the category: Audit
Food and consumer goods	28	2.1%	5.2	5.5	4.7	2.8
Food, beverages and Tobacco	51	3.8%	5.9	5.0	4.6	2.5
Insurance	68	4.9%	4.4	4.3	3.8	2.2
Automotive and components	48	4.7%	5.8	5.3	5.1	2.7
Other financial services	72	3.8%	4.8	5.2	4.5	2.3
Banks	69	8.9%	3.3	3.1	4.2	2.9
Capital goods	156	11.8%	5.2	4.7	4.7	2.2
Consumer durables and apparel	57	3.6%	5.8	5.8	4.5	1.8
Retail	44	2.2%	5.6	6.2	4.1	1.9
Energy	62	5.2%	4.7	4.2	4.4	1.7
Equipments & Technology	34	2.4%	4.6	4.9	4.1	1.4
Real estate	71	2.9%	5.4	4.1	5.1	1.4
Real estate	40	2.6%	4.9	4.6	4.3	2.0
Pharmaceuticals, Biotechnology	57	6.2%	4.9	5.2	4.9	2.4
Software and services	83	6.9%	5.6	5.7	4.4	2.0
Materials	103	6.1%	5.0	4.5	4.3	2.2
Media	42	2.6%	6.1	6.5	4.4	1.9
Household and personal products	19	1.7%	5.7	6.1	4.8	1.6
Semiconductors & Semiconductor Equipment	21	1.1%	5.0	4.4	3.9	1.1
Consumer services	39	1.3%	5.9	5.6	3.8	2.1
Utilities	45	4.2%	4.2	4.6	4.2	1.9
Healthcare equipment and services	65	4.4%	5.7	5.3	4.7	1.5
Telecommunications	34	3.3%	4.9	4.9	4.6	2.2
Transportation	52	3.1%	5.1	5.1	4.9	1.8
Total amount	1 360	100%	5.1	4.9	4.5	2.1

Scores of the major European countries analysed by QualityScore®

The **15 countries** that are members of the European Union (plus Norway and Switzerland (outside the EU and the eurozone)) analysed by QualityScore® represent **69%** of the portfolio's assets analysed by QualityScore® and **45%** of the analysed portfolio securities (618 out of 1,360).

Despite the markedly different local regulatory provisions in each country, the standardisation promoted by Europe makes it possible to establish a foundation of shared values. This regulatory proximity bodes well for greater consistency as regards the "comparability" of scores, whether among countries or among the various business sectors. Based on this assumption, we will carry out a comparative sector analysis on these 17 countries.

NB: sector scores depend on the concentration of investments in a given sector (amount of assets invested in each security). A low number of securities automatically means

that extreme scores have greater weight (i.e. positive scores that are close to 1 and negative scores that are close to 10). If a sector is particularly controversial, or if a company in a sector is particularly controversial in a given country, and the FRR has a low level of investment in that country or sector, the score will automatically be shifted towards the ends of the spectrum.

Hence the fact that there are 153 French lines in the portfolio means that extreme scores will be cancelled out and France is likely to receive a higher average quality score than countries that may have more restrictive (and thus better) governance policies. Even within certain sectors, countries can shift the average up or down to a greater or lesser extent. This is why it is essential to carry out a country/sector analysis. A commentary on the country concentration of a particular holding will be required in order to explain an extremely good or extremely bad score. Whatever the reasons may be, the results obtained using this methodology must be contextualised.

COUNTRY REPRESENTING OVER 50% OF THE FRR'S INVESTMENTS, ANALYSED BY QUALITYSCORE®

France

France	Weight of assets in the portfolio in %	Overall average score
Pharmaceuticals, Biotechnology	6.8%	7.43
Consumer durables and apparel	6.8%	7.33
Food, beverages and Tobacco	3.9%	7.29
Household and personal products	2.1%	7.00
Semiconductors & Semiconductor Equipment	0.0%	7.00
Healthcare equipment and services	4.2%	6.71
Materials	2.3%	6.71
Consumer services	1.5%	6.60
Transportation	2.8%	6.50
Food and consumer goods	1.7%	6.50
Trade industry	6.0%	6.27
Software and services	8.4%	6.23
Other financial services	2.0%	6.17
Telecommunications	2.6%	6.00
Capital goods	15.2%	5.52
Automotive and components	6.5%	5.43
Utilities	2.9%	5.20
Retail	1.1%	5.00
Media	3.7%	4.78
Insurance	4.3%	4.25
Energy	3.8%	4.00
Equipments & Technology	0.9%	3.67
Real estate	3.9%	3.57
Banks	6.7%	2.33
Total France	100%	5.9

QualityScore® analysis was carried out on **153 French securities** from 24 business sectors of the 179 securities in the FRR's portfolio at 31/12/2017. This represents 85.4% of the French companies in the initial portfolio.

Of the 153 French securities analysed, the FRR decided to focus on companies whose total score was 7/10 or above. Applying this filter leaves 42 companies from the French equity component, i.e. 30% of the portfolio holdings analysed by QualityScore®.

Average overall score across all themes	Average score for the theme: Board structure	Average score for the theme: Compensation	Average score for the theme: Shareholder rights	Average scores for the theme: Audit
5.86	5.92	5.86	5.52	2.29

Applying a selective filter of 7/10 to the average overall score reveals five sectors with controversial governance:

- Food, beverages and tobacco;
- Consumer durables and apparel;
- Pharmaceuticals, biotechnology;
- Household and personal products;
- Semiconductors and Equipment.

Business sector	Number of companies in the portfolio	weight of the sector in the portfolio (31/12/2017)	Average scores across all themes	Average score by sector for the category: Board of directors	Average scores by sector for the category: Compensation	Average scores by sector for the category: Shareholder rights	Average scores by sector for the category: Audit
Food and consumer goods	2	1.7%	6.50	8.00	6.50	4.50	1.00
Food, beverages and Tobacco	7	3.9%	7.29	7.57	6.71	6.86	3.29
Insurance	4	4.3%	4.25	4.25	4.50	3.25	2.00
Automotive and components	7	6.5%	5.43	5.43	5.29	6.00	1.57
Other financial services	6	2.0%	6.17	6.17	5.33	5.50	2.33
Banks	3	6.7%	2.33	3.33	1.00	2.00	4.00
Capital goods	21	15.2%	5.52	5.67	5.33	5.62	2.52
Consumer durables and apparel	9	6.8%	7.33	6.78	7.78	6.11	3.22
Retail	4	1.1%	5.00	4.50	7.00	4.75	4.00
Energy	3	3.8%	4.00	4.67	4.00	3.00	1.00
Equipments & Technology	3	0.9%	3.67	3.67	5.00	4.33	2.33
Real estate	7	3.9%	3.57	4.57	3.00	3.00	1.00
Trade industry	11	6.0%	6.27	6.18	6.09	6.45	2.09
Pharmaceuticals, Biotechnology	7	6.8%	7.43	7.43	7.00	6.57	1.57
Software and services	13	8.4%	6.23	6.23	6.08	5.69	2.23
Materials	7	2.3%	6.71	7.00	6.43	6.43	3.29
Media	9	3.7%	4.78	4.22	7.11	4.44	1.44
Household and personal products	2	2.1%	7.00	8.00	6.00	4.50	3.00
Semiconductors & Semiconductor Equipment	1	0.0%	7.00	7.00	7.00	4.00	1.00
Consumer services	5	1.5%	6.60	6.80	7.20	4.40	1.80
Utilities	5	2.9%	5.20	6.00	3.80	5.60	2.60
Healthcare equipment and services	7	4.2%	6.71	6.14	6.86	7.14	3.29
Telecommunications	2	2.6%	6.00	5.50	6.50	6.50	1.00
Transportation	8	2.8%	6.50	6.38	6.13	7.00	1.50
Total amount	153	100%	5.86	5.92	5.86	5.52	2.29

United States

United States	Weight of assets in the portfolio in %	Overall average score
Media	2.0%	8.55
Equipment & Technology	0.0%	7.00
Household and personal products	1.3%	6.29
Food, Beverages and Tobacco	3.9%	6.14
Other financial services	6.0%	6.00
Consumer durables and apparel	0.6%	5.79
Real estate	1.1%	5.76
Software and services	12.0%	5.58
Automotive and components	0.9%	5.56
Energy	7.9%	5.48
Retail	5.6%	5.43
Food and consumer goods	1.8%	5.40
Pharmaceuticals, Biotechnology	7.7%	5.21
Telecommunications	3.2%	5.20
Equipment & Technology	5.4%	5.14
Capital goods	6.8%	5.06
Materials	3.5%	5.05
Healthcare equipment and services	7.3%	4.66
Insurance	2.5%	4.41
Trade industry	0.4%	4.25
Banks	11.7%	4.00
Pharmaceuticals, Biotechnology	0.1%	4.00
Transportation	2.3%	3.90
Consumer services	0.8%	3.82
Semiconductors & Semiconductor Equipment	2.0%	3.67
Utilities	2.9%	2.82
Total United States	100%	5.2

Germany

Germany	Weight of assets in the portfolio in %	Overall average score
Food, Beverages and Tobacco	0.6%	10.00
Consumer durables and apparel	3.2%	8.33
Food and consumer goods	0.6%	8.00
Telecommunications	3.0%	7.67
Healthcare equipment and services	4.1%	7.60
Automotive and components	10.2%	7.57
Retail	2.7%	7.50
Household and personal products	2.6%	7.50
Software and services	6.0%	6.20
Semiconductors & Semiconductor Equipment	1.0%	6.00
Transportation	5.2%	5.67
Pharmaceuticals, Biotechnology	6.6%	5.50
Trade industry	0.4%	5.50
Other financial services	4.0%	5.25
Capital goods	15.9%	5.00
Materials	12.2%	4.00
Insurance	8.2%	4.00
Media	3.4%	4.00
Utilities	2.9%	4.00
Real estate	4.3%	2.67
Banks	2.8%	1.50
Total Germany	100%	5.5

Eight business sectors representing 27% of the assets of the German component (EUR 302 million) are made up of securities with a score above 7/10.

- Food, beverages and tobacco;
- Consumer durables and apparel;
- Food and consumer goods;
- Telecommunication services;
- Healthcare equipment and services;
- Automotive and components;
- Retail;
- Household and personal products.

Conclusion

Despite not being subject to the Law on Ecological and Energy Transition, the FRR once again chose to publish a report based on the requirements of Article 173 this year. Hence, we have been in a position to make a number of observations and reach conclusions on the measures implemented since last year.

First and foremost, we have seen that there are a plethora of methodologies that each give rise to differing interpretations. These methodologies are also changing (for example via changes to thresholds or an expansion of the research scope) and it is therefore not always possible to compare two years side by side. It is thus crucially important for results to be analysed precisely so as not to give rise to erroneous comparisons while we wait for the standardisation of methodologies that may occur in future.

An analysis of the results set out in the two reports on Article 173 (2016 and 2017) nevertheless sheds light on the implementation of the various measures planned by the FRR. For example, it is clear that the withdrawal of tobacco from the portfolio, as advocated by the Supervisory Board in 2016, was implemented over the course of 2017 and the start of 2018. The FRR continues to engage in dialogue and reflect on exclusions, including the exclusion of controversial weapons, and above all on the withdrawal of coal and allocation changes.

Also, in accordance with the TCFD's recommendations, the FRR is committed to incorporating socially responsible criteria, across its entire portfolio, when selecting its asset managers and the securities in which they invest. The FRR is particularly focused on this point insofar as it relates to its active management mandates in European and French small caps and US stocks; managers of these mandates have a duty to demonstrate the integration of ESG considerations into their management processes.

To that end, the FRR is, for example, asking for increasingly detailed reporting on the inclusion of ESG criteria in the investment assessment process and the dialogue with companies.