



Guide to sustainable
quant equities investing

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Foreword

Given that sustainability has become mainstream, the financial industry is now seen as having an important role to play in advancing issues critical to the well-being of society. While it is not our task alone to change the world, we need to play our part, just like governments, regulators, consumers and companies. Collectively, we must step up our efforts and take responsibility.

This shift in sentiment towards sustainability is leading many asset managers to change their strategies to capitalize on the growing opportunity potential. As we have embraced sustainability from as early as the 1990s, it is fully engrained in our DNA. Our vision is that safeguarding economic, environmental and social assets is a prerequisite of a healthy economy and of attractive returns in the future, allowing us to build a proven, long track record in this area.

As sustainable investing is now a prominent feature in the asset management industry, we believe it is important to highlight the complexities around constructing a strong capability. From our experience, it takes a lot of research, an accumulation of institutional knowledge, putting the right systems in place, and getting the right people on board. Even as pioneers, we continue to learn every single day.

Indeed, sustainability is an ever-evolving field that requires ongoing education to keep up with developments. A decade ago, we talked about integrating ESG across our entire investment process rather than having an isolated team of sustainable investing specialists. Nowadays, we are focusing on the complexities of carbon data, calculating Scope 3 trajectories towards 2030, and discussing how to measure the real-world impact of our portfolios.

This is a whole new ball game, and one thing is for sure: we have not seen the last of these changes. But dealing with such challenges is nothing new for us at Robeco. Our research-driven approach has always been at the core of everything we do, making sustainability the perfect secular trend for us. This is also the reason I am confident we will continue to play a leading role in this area in the coming decades.

As a way to share some of our expertise in this area, this publication outlines our view on sustainable Quantitative Equities (Quant Equities) investing. Again, our approach is the result of continuous research and investments in infrastructure and people – we began integrating sustainability in our Quant Equities models as far back as 2010.

In the first section, we broadly touch on the key sustainability dimensions by introducing the concepts and highlighting why they matter for investors. In the second section, we detail how these dimensions are integrated in our Quant Equities investment process. In the third section, we provide an overview of our Quant Equities product range from a sustainability lens and discuss how our Quant Equities platform can cater to client-specific sustainability preferences.

‘Sustainability is an ever-evolving field that requires ongoing education to keep up with developments’



Victor Verberk
CIO Fixed Income and Sustainability



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Different dimensions of sustainability

Different dimensions of sustainability

The watershed moment in sustainable investing was the release of the report titled 'Our Common Future'¹ by the United Nations (UN) World Commission on Environment and Development – known as the Brundtland Commission in 1987. It coined the term 'sustainable development' which it defined as the "development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

1. United Nations World Commission on Environment and Development, October 1987, "Report of the World Commission on Environment and Development: Our Common Future", United Nations.

As a society, it is clear that we face numerous environmental, economic and social challenges. To solve these issues, companies and governments have to alter the ways in which they operate, and investors can play a role in influencing this change. By purposefully mobilizing their capital, they can shift society towards a more sustainable future. On the other hand, deficits in environmental protection, governance and social issues compromise this objective.

Indeed, investors are increasingly placing more importance on sustainability when making investment decisions. On top of financial returns, aligning with positive environmental and social impact are now key considerations. Moreover, governments and regulators are also playing their part in confronting some of the economic, environmental and social challenges we face, catalyzing investor action for sustainable investing.

For example, the Sustainable Finance Action Plan (SFAP) is a major policy objective set by the European Union (EU) to promote sustainable investment across the 27-nation bloc. It was laid out in response to the adoption of the Paris Agreement and the UN Sustainable Development Goals (SDGs) in 2015.

The SFAP has three main objectives:

- To reorient capital flows towards sustainable investment and away from sectors contributing to global warming such as fossil fuels
- To manage financial risks stemming from climate change, resource depletion, and environmental degradation
- To foster greater transparency and long-termism in financial and economic activity in order to achieve sustainable and inclusive growth.

The SFAP is part of a wider sustainable finance framework backed by regulations such as the Sustainable Finance Disclosure Regulation (SFDR) and EU Taxonomy. The SFDR aims to better classify the sustainability credentials of investment funds in order to provide more transparency on sustainability by promoting comparability and preventing greenwashing.

The EU Taxonomy aims to define what economic activities are 'green' by measuring whether companies (i) substantially contribute to one of six environmental objectives;² (ii) do no significant harm to the other environmental objectives; and (iii) comply with minimum social safeguards.

2. The six environmental objectives are: (1) climate change mitigation; (2) climate change adaptation; (3) sustainable and protection of water and marine resources; (4) transition to a circular economy; (5) pollution prevention and control; (6) protection and restoration of biodiversity and ecosystems.

Against this backdrop, this section of the publication delves into the key dimensions of sustainability that investors can focus on with regards to integration. These are namely environmental, social and governance (ESG) factors, the SDGs, climate and environmental footprints, and active ownership. This chapter broadly discusses these concepts and highlights their importance to investors.

1.1 Environmental, social and governance

The term ESG was coined in a 2005 study titled 'Who cares wins'.³ While socially responsible investing existed beforehand, it largely focused on the use of negative screens that were based on ethical and moral criteria, for example excluding companies based on business activities such as tobacco production.

The 2005 report took it a step further by arguing that companies that perform better on ESG issues could enjoy improved financial performance by properly managing ESG-related risks, anticipating shifts in consumer trends or regulation, and accessing new markets or reducing costs. This would also simultaneously contribute to the sustainable development of the societies they operate in.

This was supplemented by the 2005 'Freshfields Report', produced by the UN Environment Programme Finance Initiative, that advocated the integration of ESG considerations into investment analysis.⁴ The paper outlined how there was an increasing body of evidence on how ESG factors could have a material impact on the financial performance of securities.

Since then, investors have grown to recognize that ESG information allows them to better understand the purpose of a corporate (or government), its strategy and quality of its management team (public administration). Many investors now look to incorporate ESG factors into their investment process and decision-making. These factors typically fall outside of the scope of traditional financial analysis and account for a broad array of issues that can impact businesses or sovereigns.

For example, **environmental** factors look into the impact companies or governments have on the environment. This includes how they contribute to issues such as biodiversity conservation, climate change, waste management or water usage. Meanwhile, **social** factors detail how companies or governments impact society. For instance, this includes how they deal with matters related to human rights, labor standards, or workplace health and safety. Finally, **governance** factors can refer to a set of rules or principles defining rights, responsibilities and expectations between different stakeholders in the governance of companies or countries (governments).

We believe selectively taking these factors into consideration gives investors a more holistic view, which can help them mitigate risk and identify opportunities.

3. United Nations Global Compact Office, August 2005, "Who cares wins: connecting financial markets to a changing world", United Nations.

4. United Nations Environment Programme Finance Initiative, October 2005, "A legal framework for the integration of environmental, social and governance issues into institutional investment", Freshfields, Bruckhaus Deringer.

Academic evidence shows link between ESG factors and corporate performance

There are several studies that examine the contribution of ESG factors to corporate performance. One of the first of its kind was published in 2003 and found a strong positive link between good corporate governance and results.⁵ More specifically, the researchers established that companies with stronger shareholder rights had higher firm value, higher profits, higher sales growth, lower capital expenditures, and made fewer corporate acquisitions.

5. Gompers, P.A., Ishii, J.L., and Metrick, A., February 2003, "Corporate governance and equity prices", Quarterly Journal of Economics.

There is also significant evidence of a link between good human capital management and performance. For example, one academic paper illustrated that companies listed on Fortune's 100 Best Companies to Work For (i.e. have satisfied employees) outperformed the average company in terms of returns.⁶ Another study noted that companies with a high eco-efficiency outperformed their counterparts.⁷

6. Edmans, A., December 2010, "Does the stock market fully value intangibles? Employee satisfaction and equity prices", Journal of Financial Economics.

Financial materiality matters

At Robeco, we only look at ESG factors that are financially material, i.e., those factors that have a direct impact on a firm's bottom line. A company might, for example, announce that it is using rainwater to flush office toilets rather than drawing fresh water from the mains; while this is certainly a worthy cause, it is not going to affect its bottom line. On the other hand, it would be important to note when a real estate operator announces that it will upgrade its buildings to save heat and cut carbon emissions as this would affect its bottom line, by lowering future energy costs, making this development financially material.

7. Derwall, J., Guenster, N., Bauer, R., and Koedijk, K., March 2005, "The eco-efficiency premium puzzle", Financial Analyst Journal.

Figure 1 | How to approach ESG integration



ESG Integration

How does sustainable development affect a company?



Focus on financial materiality, influence on performance



Emphasis on ability of a company to generate value in mid- to long-term.

Source: Robeco

It is possible to assess the sustainability profile of a company by using hundreds of criteria, and many factors can act as important red flags. Yet only a few are important enough to be likely determinants of the success of its future business model, and hence the performance of its securities. The problem is that these highly material factors vary among industries.

For instance, if we look at banks, the link between environmental factors, such as their CO₂ emissions, water use or paper consumption, and their long-term business models is not very strong. It is much more useful to analyze their corporate governance, risk management processes and cybersecurity measures, as these are the factors that could affect their future success. For a utility or energy company, however, CO₂ emissions are extremely important indicators, and they can have a major impact both on their long-term business models and society at large.

While taking into account financially material ESG issues makes sense from a fundamental perspective, there is also academic research that supports this approach. An example of this is a paper titled 'Corporate sustainability: first evidence on materiality'.⁸ It shows that investments in material sustainability issues can enhance value, while investing in immaterial sustainability issues has little if any impact on returns.

8. Khan, M., Serafeim, G., and Yoon, A., January 2016, "Corporate sustainability: first evidence on materiality", *Journal of American Accounting Association*.

Thus, having access to leading research is vital if enough knowledge is to be gleaned in order to assess the financially material effect of ESG factors on investment analysis. Asset managers can turn to sustainability ratings from data providers to analyze the sustainability of individual companies in which they invest. They can, and should, also look at country analysis because country sustainability analysis offers an alternative view into an economy's underlying change drivers, and provides investors with insights into a country's strengths and weaknesses for a broad selection of ESG indicators.

Better-informed decision-making

According to the efficient market hypothesis developed by Eugene Fama in 1970,⁹ there are several reasons why the expected returns of securities could differ. If markets are efficient – that is, if all the available, relevant information is integrated in security prices – differences in expected returns can be explained by the underlying risk the companies involve. Given that one of the key features of sustainable investing is the provisions it incorporates to deal with future risks, this explanation for higher returns is unlikely.

9. Fama, E. F., May 1970, "Efficient capital markets: a review of theory and empirical work", *Journal of Finance*.

That said, one cannot help but wonder whether all of the relevant information is genuinely already priced into securities. Since the information on sustainability is so vast and complex, it is hard to imagine how it can all be perfectly incorporated by the market. The 'smart' use of this information could, therefore, enable investors to achieve a better performance than those with a more myopic approach who focus solely on more comprehensible financial metrics.

We are convinced that using financially material ESG information in our investment processes leads to better-informed investment decisions and better risk-adjusted returns in the long run.

1.2 Sustainable Development Goals

The global economic development model of yesteryear has achieved many feats over the past five decades. But the rapid growth achieved over this period has also often obscured some of the negative accompanying economic, environmental and social consequences. Indeed, it has become progressively clear that some of the past growth drivers are not sustainable as they threaten the goal of collective prosperity.

In acknowledgement of the challenges we face as a society, all 193 UN member states agreed to adopt the 17 SDGs in 2015. This was an urgent call for action to form a global partnership, to achieve a better and more sustainable world for all by 2030. For the first time in history, the world united behind a shared plan for promoting sustainable economic growth, advancing social inclusion and safeguarding the natural environment.

Figure 2 | SDGs

SDG 1 NO POVERTY	SDG 2 ZERO HUNGER	SDG 3 GOOD HEALTH & WELL-BEING	SDG 4 QUALITY	SDG 5 GENDER EQUALITY	SDG 6 CLEAN WATER AND SANITATION
SDG 7 AFFORDABLE AND CLEAN ENERGY	SDG 8 DECENT WORK AND ECONOMIC GROWTH	SDG 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	SDG 10 REDUCED INEQUALITIES	SDG 11 SUSTAINABLE CITIES AND COMMUNITIES	SDG 12 RESPONSIBLE CONSUMPTION AND PRODUCTION
SDG 13 CLIMATE ACTION	SDG 14 LIFE BELOW WATER	SDG 15 LIFE ON LAND	SDG 16 PEACE, JUSTICE AND STRONG INSTITUTIONS	SDG 17 PARTNERSHIPS FOR THE GOALS	

Source: United Nations

A collective effort is required for collective well-being

In short, the SDGs provide a blueprint for a better world for current and future generations. This set of goals is based on the view that economic prosperity, social progress and environmental protection go hand in hand and must be achieved together. The 17 SDGs are, therefore, interconnected and have to be pursued simultaneously. For example, quality education supports other SDGs such as decent work and economic growth; good health and well-being; and peace, justice and strong institutions.

But this requires a collective effort from multiple role players, such as businesses, civil society and governments. Without this cooperation, then the rallying call to “free humanity from poverty, secure a healthy planet for future generations, and build peaceful, inclusive societies as a foundation for ensuring lives of dignity for all”¹⁰ might fail to inspire the desired outcome.

There has been progress, but not enough

Since the adoption of the SDGs in 2015, there has been some meaningful progress towards achieving the goals. For instance, the number of women elected to parliament has risen from 19% to 25% (SDG 5: gender equality); 17% of total energy consumption is now sourced from renewables (SDG 7: affordable and clean energy); and the portion of the ocean that is legally protected has more than doubled to 17% (SDG 14: life below water).¹¹

10. United Nations, July 2017, “The Sustainable Development Goals Report 2017”, United Nations New York.

11. United Nations, July 2020, “The Sustainable Development Goals Report 2017”, United Nations New York.

But at the same time, the world is not on track to achieving the SDG agenda in its entirety. For example, biodiversity is eroding at unprecedented rates (SDG 14: life below water, SDG 15: life on land); the world continues to warm (SDG 13: climate action); inequality is widening (SDG 10: reduced inequality); and hunger is on the rise (SDG 2: zero hunger).³

Meanwhile, the Covid pandemic has presented an unparalleled health challenge (SDG 3: good health and well-being) with dire economic consequences (SDG 1: no poverty, SDG 8: decent work and economic growth). It has also resulted in food shortages (SDG 2: zero hunger) and exacerbated inequality (SDG 10: reduced inequality).

Despite the bleak outlook, the SDGs present a valuable approach to managing the fallout from the pandemic while simultaneously helping us navigate towards more sustainable societies.¹² The SDGs unite academics, businesses, investors, governments and NGOs together to progress a shared agenda with common goals, which is precisely what is needed in times of crisis.

Moreover, achieving the SDGs would create a more stable world with a lower likelihood of future crises, and societies that are better equipped to cope with those that do occur.

SDGs need investors

Given the sizable task at hand, it is quite clear that significant resources are required to achieve the SDGs. Thus, investors have an important role to play in addressing the SDG agenda and we expect the investment community to increasingly engage with the SDGs going forward. This was echoed by the UN Principles for Responsible Investment initiative as it called on its signatories to advance the SDGs.

At Robeco, we believe that investors can make a difference. They can help mobilize capital to contribute to the attainment of these goals to solve the societal issues we collectively face. One way is to allocate capital to firms that can help achieve the goals. This can be done by purchasing the equities or bonds of companies that contribute to one or more SDGs and avoiding financing companies that are not aligned with them. A second way in which investors can make a difference is through active ownership. By using their position as active owners, they can employ voting and engagement to effect changes and promote sustainability.

Encouragingly, sustainable investing is on the rise as investors are increasingly taking on the role of conscious stakeholders as they look to allocate capital towards companies that generate positive value for society. The SDGs lend themselves well to this objective as they provide a unified framework and the scope to effectively define sustainability and align with positive impact.

There are also ample reasons for investors to invest in companies that advance the SDGs. Firms that provide solutions to tackling sustainability challenges are likely to benefit. In contrast, those with adverse impact on the goals are expected to face increasingly strong headwinds, due to stricter regulation or dwindling consumer demand.

SDGs are good for business

Aside from delineating a pathway to secure inclusive and sustainable economic growth by eliminating poverty and safeguarding the environment, the SDGs also allow businesses to align their corporate strategy with modern society. Many initiatives that benefit the planet and humanity can also be advantageous for businesses. Firms that embrace the SDG agenda and that are shifting towards more sustainable business models can benefit by catering to the changing landscape through innovation.

12. Van Zanten, J.A, and Van Tulder, R., October 2020, "Beyond Covid-19: Applying 'SDG logics' for resilient transformations", *Journal of International Business Policy*.

‘Investors have an important role to play in addressing the SDG agenda and we expect the investment community to increasingly engage with the SDGs going forward’

Indeed, the SDGs present massive business opportunities for companies that invest in the sustainable future of the planet and people. These range from investing in infrastructure, housing, food, medicines and renewable energy to providing finance and insurance to those that need it, and cutting down on waste. One estimate suggests the SDGs could mean as much as USD 12 trillion of market opportunities by 2030.¹³

13. AlphaBeta, January 2017, "Valuing the SDG prize", Business & Sustainable Development Commission.

The SDGs also provide a means of identifying and mitigating risks. Failure to understand the trend of the transition to a lower-carbon economy, for example, may pose a real risk to the viability of a business due to changing consumer demand or regulation. On the other hand, reducing carbon emissions and energy use can also result in lower costs. In general, sustainability is no longer a niche issue and is increasingly top-of-mind for consumers. Going forward, the cost of inaction could exceed the cost of action.

Policy and regulatory tailwinds for SDGs

In support of the transition towards more sustainable societies, governments and regulators are pulling policy and regulatory levers to steer efforts behind this trend. For example, we believe policies and regulations such as the SFAP, SFDR and EU Taxonomy will go a long way in shaping investor behavior and action. It is noteworthy that these regulations are a direct consequence of the global adoption of the SDGs. The official treaty introducing the SFDR, for instance, explains that this regulation has been enacted in support of the SDGs.¹⁴

14. Regulation (EU) 2019/2088 of the European Parliament and of the Council of 27 November 2019 on sustainability-related disclosures in the financial services sector (Text with EEA relevance)

These regulations set a high bar for sustainable investing. If investors do rise to the challenge, significantly more capital will be allocated to truly innovative companies, leading the transition towards achieving the SDGs. This requires the channeling of capital from existing 'mainstream' ESG strategies to stricter 'dedicated' SDG or climate strategies. Meanwhile, some countries are also using their investment programs initiated to dampen the impact of the Covid pandemic for sustainability objectives. For instance, the European Commission's EUR 1.85 trillion recovery instrument is linked to the European Green Deal and looks to invest in sustainable, future-oriented activities that link to the SDGs, including biodiversity, buildings, energy, food production and mobility. Although it remains to be seen to what extent such investments truly benefit society, it is clear that they will, to some extent, help advance the SDGs.

In general, we believe public policy, regulation and investments will likely support the business models of companies that provide solutions for the SDGs going forward. In turn, this should result in real opportunities for investors.

Impact measurement is central to SDG investing

As outlined, there are ample reasons for investors to invest in companies that advance the SDGs. As they gain more influence in the investment community, we believe investors will need to discern how to integrate SDGs into their portfolios.

SDG impact measurement is therefore important in this process as it can help ensure investor capital flows towards companies that provide solutions to the challenges the world faces. It allows an investor to identify which companies are best aligned with the SDGs (expected to benefit in the future) and those that inflict significant harm to society (expected to suffer in the future). It also helps to frame how invested capital is used to improve the lives of people and the health of our planet.

To this end, Robeco was one of the first asset managers to develop a framework focused on measuring SDG impact for investment portfolios.¹⁵

15. Van Zanten, J. A., and Ruijs, P., February 2022, "Taking on the challenge of measuring investment impact", Robeco article.

1.3 Climate and environmental footprint

Environmental risks can have a significant impact on the sustainability of firms. Investors are therefore increasingly trying to better understand the potential impact of environmental issues on companies in their portfolios. As a result, greater attention is progressively being directed to areas such as climate change; energy and energy extraction-related risks (such as coal combustion and hydraulic fracturing), energy efficiency; environmental hazards involving air, water and soil; as well as recycling and waste management.

Failure to effectively address environmental risks can cause serious financial and operational problems. These include increasing costs (for example, the need to clean up spills or restore the landscape on exploration sites), reputational damage in the event of headline-grabbing polluting incidents, or litigation costs, to mention a few.

On the other hand, integrating environmental considerations into a corporate strategy can also present potential opportunities. For instance, the efficient use of resources such as energy or water can decrease costs, while we believe that environmentally friendly innovative products or solutions can help companies gain a competitive edge.

Climate change caused by global warming is at the heart of environmental issues facing society. Extreme weather patterns pose a threat to many forms of life on the planet. For one, heavier and more unpredictable rainfall can cause floods and increasingly destructive storms, while more intense summer temperatures can result in droughts, forest fires and the growing 'desertification' of formerly fertile areas.

Aside from extreme weather, climate change threatens agricultural production, as milder winters and earlier springs interrupt crop-growing patterns. Meanwhile, warmer oceans are gradually eating away at coastal glaciers, melting them even further and raising sea levels.



Urgency is required to tackle climate change

The UN Framework Convention on Climate Change (UNFCCC) reported that the combined climate policies of national governments will reduce global greenhouse gas (GHG) emissions by a mere 0.5% by 2030.¹⁶ If unchanged, this trajectory will push global warming far beyond a 2°C increase, with dramatic consequences for countries around the world, as well as for the global financial system. As such, society is falling far short of what is needed to avoid the very worst of climate change.

To reach the objectives of the fight against climate change, GHG emissions need to halve by 2030 (relative to 2010) for the world to meet its 1.5°C target, or alternatively 25% to meet the 2°C target.¹⁷ This means governments will have to gear up their policy ambitions to meet these targets. While this is a sobering observation, there is still reason for optimism. Encouragingly, more and more regions and countries are legislating for or committing to net zero emissions by 2050, or in the decades shortly thereafter.

While this level of climate commitment has not been seen before, the real task is to translate these long-term government pledges into more immediate policies and actions to significantly curb global emissions by as early as 2030.

Companies and investors are rising up to the challenge

The strong wave of climate commitments in the market is a source of encouragement for governments to ratchet up their policy ambitions. Corporates are accelerating their efforts to align their businesses with the transition to a net zero economy. Indeed, many companies are taking part in the Science-Based Targets initiative to implement GHG reduction targets in line with the objectives of the Paris Agreement.¹⁸

Climate-conscious portfolios are also becoming of paramount importance to investors, even if the world is not yet on track for a net zero future. To this end, investors have set up several initiatives to align their portfolios with a net zero economy. These include the UN Net Zero Asset Owner Alliance¹⁹, the Paris Alignment Investment Initiative²⁰ and the Net Zero Asset Managers Initiative.²¹ Robeco is a founding member of the latter.

The commitments from companies, investors and national governments to achieve net zero emissions by 2050 are vital; they create the basis for changing business-as-usual and demonstrate the direction of travel to numerous supply chain partners, investment project developers, local decision-makers and consumers around the world.

Addressing climate change in portfolios

In our view, Paris-aligned investing supports better-informed, forward-looking portfolio management, and it contributes to reducing real-world GHG emissions.

Forward-looking portfolio management

We believe integrating climate change and other sustainability factors into the investment process leads to better-informed investment decisions and healthier long-term, risk-adjusted returns. While the future is low carbon, the costs and risks of the transition towards that goal are not yet sufficiently understood and priced into the market. That is why we believe that being at the forefront of the low-carbon transition is sound from a portfolio and risk management perspective.

Even though we do not know when markets will sufficiently price in the costs and risks of the low-carbon transition, we do know that such a pricing correction is inevitable. Investing in a

16. United Nations Framework Convention on Climate Change, February 2021, "Nationally determined contributions under the Paris Agreement", United Nations.

17. Intergovernmental Panel on Climate Change, October 2018, "Global warming of 1.5°C", IPCC.

18. Science Based Targets, "Companies taking action", <https://sciencebasedtargets.org/companies-taking-action>.

19. United Nations Environment Programme Finance Initiative, "UN-convened net-zero asset owner alliance", <https://www.unepfi.org/net-zero-alliance/>.

20. Institutional Investors Group on Climate Change, "Paris aligned investment Initiative", <https://www.parisalignedinvestment.org/>

21. Net Zero Asset Managers Initiative, "Net zero asset managers initiative", <https://www.netzeroassetmanagers.org/>.

way that is aligned with the Paris Agreement, and which is thus at the forefront of the low-carbon transition, places investors in the advantageous position of being able to anticipate the pricing in of climate change.

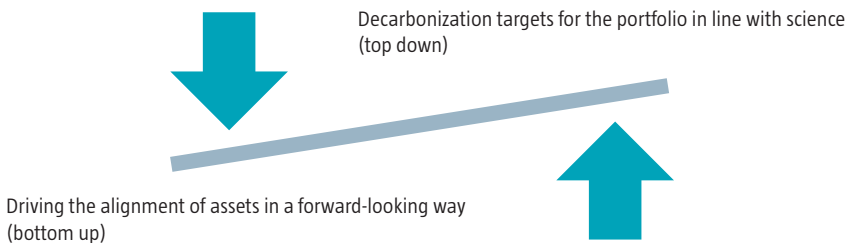
Contributing to real-world impact

Paris-aligned investing is not only about securing long-term risk-adjusted returns; it is equally about achieving real-world impact. To help avoid the worst effects of global warming, the investment industry has a responsibility to contribute to the goals of the Paris Agreement, primarily by allocating capital to achieve the outcome of a low-carbon, green economy. Investing in these opportunities of the climate transition lets us reduce real-world emissions.

But we believe focusing only on carbon footprint reduction would lead to the unsatisfactory outcome of investors selling those carbon-intensive companies that need long-term capital and shareholder engagement to accomplish decarbonization. Decarbonizing the real economy requires a more sophisticated and forward-looking approach. Investing in the low-carbon transition and advocating and lobbying for it enables investors to contribute to reducing real-world emissions.

To achieve such balance, a Paris-aligned investment strategy works through combining top-down and bottom-up targets:

Figure 3 | A two-fold strategy for net-zero investing



Source: Robeco

Portfolio decarbonization (top down)

Top-down portfolio decarbonization targets are used to monitor the carbon footprint of a portfolio against a historical baseline and a forward-looking GHG emissions pathway that is consistent with science-based 1.5°C scenarios. This is not a straightforward exercise, however, as one compares an investment universe with carbon footprints that are largely estimated to scientific long-term projections of real-world GHG emissions. It is therefore critical to make credible and transparent assumptions.

Target setting is also dynamic as decarbonization targets require reviews at regular intervals. Robeco follows the five-year cycle proposed by the Net Zero Asset Manager Initiative, which is synchronized with the five-year ratcheting mechanism of the Paris Agreement itself.

The review is forward and backward-looking: it evaluates the progress thus far in reaching the portfolio targets, the extent to which this stems from decarbonization of the benchmark or from portfolio construction, and how it compares to real-world emissions reductions. It also takes into account any updates in climate scenarios based on new scientific insights as well

‘We believe focusing only on carbon footprint reduction would lead to an unsatisfactory outcome’

as improved measurements and estimation models. Additionally, scenarios are updated in line with the progress, or lack thereof, that society makes in curbing global emissions and the climate policy ambitions of national governments.

Driving asset alignment (bottom up)

Although divestment can successfully decarbonize a portfolio, the change of ownership in terms of securities alone is unlikely to contribute to real-world emissions reductions. By contrast, this can be done more effectively by assessing the transition readiness of assets, and subsequently integrating this assessment into investment strategies and active ownership activities. We believe that assets with a high capacity to decarbonize will become more attractive for investments, while those with a low capacity will become the focus of engagement, voting and, when no positive outlook remains, divestment. Ultimately, by integrating transition-readiness into investment strategies, portfolios should become increasingly green over time.

We are working to include transition-readiness analysis into company and country ESG profiles that are prepared for our investment teams, and looking into a wide variety of external and internal climate analytics that can be used for this purpose. Moreover, there are several working groups that have been established that focus on different elements: for example, climate analytics for physical risk, for transition risks, for net zero alignment and climate solutions. These analytics will potentially be used in our investment strategies to help our clients meet specific climate objectives.

To sum up, investors can use a forward-looking, bottom-up approach to drive the alignment of assets through both investment and engagement. This will result in portfolio decarbonization, as framed by the top-down targets. The combination of top down and bottom up ensures that this decarbonization results in real-world GHG emissions reduction.

Wider perspective on environmental issues beyond climate change

The SFAP recognizes the need for decarbonization to achieve a better and more sustainable future for all. But it also states clearly that decarbonization alone is not sufficient. In particular, it takes a broader view beyond climate change to include resource depletion and environmental degradation. This has encouraged a wider perspective on measuring environmental footprints. In addition to carbon emissions, waste disposal and water consumption are two widely used footprint measures.

The steady rise in global wealth has led to a rapid increase in the production of goods as well as the waste associated with packaging those goods.²² It is expected that this trend will continue well into the future on the back of rapidly growing populations and urbanization around the globe. Packaging material, often in the form of plastics, is but one of many elements of the waste pile that has been growing at an explosive rate over the last few decades. Examples of other types of waste include agricultural and animal, construction and demolition debris, extraction and mining, medical, oil and gas production and radioactive waste.

Western populations have invariably been unfazed by the enormous scale of the problem, given that waste in developed markets generally is swept 'out of sight' and hence 'out of mind'.²³ But the consequences of waste disposal are visible and very real for those living in developing countries. Studies suggest that, if we do not tackle the problem, waste will have a dramatic adverse impact on human health and the environment in the short term, and particularly in the longer term.²⁴

22. Kaza, S., Yao, L. C., Bhada-Tata, P., and Van Woerden, F., September 2018, "What a waste 2.0: a global snapshot of solid waste management to 2050." Urban Development, World Bank.

23. Barnes, S. J., September 2019, "Out of sight, out of mind: plastic waste exports, psychological distance and consumer plastic purchasing", Global Environmental Change.

24. Azoulay, D., Villa, P., Arellano, Y., Gordon, M. F., Moon, D., Miller, K. A., and Thompson, K., February 2019, "Plastic & health: the hidden costs of a plastic planet", Center for International Environmental Law.

Meanwhile, water insecurity requires considerable attention from society. Water covers more than two-thirds of the planet's surface and is of vital importance to all lifeforms. But almost all of our water, 97.5% in fact, is seawater, which is usable only to the extent that we develop suitable technologies to make that possible.²⁵ That leaves only 2.5% freshwater (drinkable water), of which the largest share is frozen in Antarctica, the Arctic and glaciers. We therefore rely on less than 1% of the total water supply for all of our freshwater needs.

25. United Nations, "Responsible consumption and production", <https://www.un.org/sustainabledevelopment/sustainable-consumption-production/>

Looking ahead, population and industrial expansion throughout the world will dramatically increase water demand, not just for crops and livestock, but also for industrial processes such as energy, manufacturing, and construction. Growing populations and aging infrastructure will also place pressure on urban centers in the provision of drinking water and also for sanitation and sewerage systems. Moreover, climate change is exacerbating the issue, for example in the form of droughts. Thus, its scarcity compels us to deal with freshwater in a responsible manner.

Robeco acknowledges that a sustainable economy can only be realized if companies reduce their environmental footprints to (more) sustainable levels. We are convinced that companies with sustainable business practices have a competitive advantage and are more successful in the long term. Therefore, we believe it is important to take into account waste management and water usage in our investment processes and to engage with our investee companies on the related issues.



1.4 Active ownership

Active ownership is when investors use their influence to persuade the management teams of investee companies to act in a responsible manner. There are two main tools used to achieve this: engagement and voting. Engagement is the practice of holding discussions with a company about pre-defined issues that the asset manager believes present business risks, while voting is the practice of either supporting or opposing policies of a firm's board, usually at annual general meetings (AGMs).

These tools can also strengthen each other when combined. For example, a long-standing relationship resulting from a multi-year engagement process inspires trust. Voting then becomes much more than simply casting a vote, and evolves into an important element in an ongoing mutual exchange of views.

Robeco has long believed that being an active owner of investee companies is a fundamental responsibility of an asset manager. Indeed, active owners discuss ESG concerns with the firms they invest in to preserve the long-term value of their investments in an effort to enhance their long-term returns.

In our view, companies that act in a sustainable way towards the environment, society, and all its stakeholders are more likely to be better equipped to deal with a variety of issues, including systemic risks, in the future. Thus, we believe companies that adopt sustainable business practices can develop a competitive advantage and are more likely to be successful over the long run than those that do not.

Effective engagement to encourage firms to improve their practices can therefore benefit companies, investors and society at large. Meanwhile, voting is an intrinsic part of active ownership and supports engagement efforts. In our view, the more investors apply active ownership, the more effective it becomes. It can also be implemented as an overlay, which makes it one of the easiest sustainability tools to apply across a portfolio.

‘Effective engagement to encourage firms to improve their practices can therefore benefit companies, investors and society at large’

Active managers have a duty to act as responsible stewards of capital

Asset managers have to fulfill their fiduciary duty to their clients and beneficiaries. For Robeco, this is deeply integrated into our unique sustainability culture. Our stewardship policy is closely aligned with our investment mission, which is to use research-based, quality-driven processes to produce the best possible long-term results for our clients. Therefore, our stewardship activities are aimed at long-term value creation in our investee companies.

While financial materiality is one of our chief concerns in sustainable investing, it is also our duty to consider the benefits to society as a whole. As clients entrust us with their assets, we have a responsibility to them and the companies we invest in. This is reflected in our stewardship activities which are all carried out in-house: we use our ownership rights through active engagement and voting to positively influence the behavior of firms on ESG issues.

We believe improvements in sustainable corporate behavior thanks to engagement and voting, particularly once companies realize it is in their own interests to change for the better, can result in an enhanced risk-return profile for our investments. Better sustainability performance can, for example, translate into lower costs and better risk management, which feeds right through to the bottom line.

In testament to our long-held belief, our engagement program has been in place since 2005 and encompasses individual engagements, as well as collaborations with other investors, while we have also undertaken proxy voting for our Robeco investment strategies and on behalf of institutional clients since 1998.

Integrated engagement and voting service highlights value of collaboration

Robeco applies an integrated approach to stewardship activities and this is underpinned by our in-depth knowledge of investee companies and their business environments.

This enables us to engage appropriately with firms and make proper judgments in fulfilling our stewardship activities. The latter are executed by our team of dedicated engagement specialists and voting analysts within our Active Ownership team, in close collaboration with our Sustainable Investing Research and Portfolio Management teams. This allows Robeco to provide a fully integrated engagement and voting service.

In our view, close collaboration between expert teams ensures alignment, so that our overarching active ownership goals can be better achieved and our message can remain consistent. For example, engagement specialists are closely involved in voting at the AGMs of companies under engagement, providing insights from their engagement dialogues where relevant. In exceptional cases, we can also initiate engagements with investee companies following either adverse voting outcomes – such as where a management agenda item has failed to gain a majority – or when we have voted against management on a particular agenda item.

This close collaboration between teams with valuable capabilities allows us to select engagements which are financially material and able to create sustainability impact within our client portfolios. Our Sustainable Investing Research team provides input for the analysis of engagement cases, adding to the quality and depth of the engagement process.

‘While financial materiality is one of our chief concerns, it is also our duty to consider the benefits to society as a whole’

Figure 4 | Close cooperation between dedicated, expert teams



Source: Robeco

How we approach engagements

Engagement consists of a constructive dialogue between investors and investee companies to discuss how they manage sustainability risks and seize potential business opportunities associated with sustainability challenges. When we carry out corporate engagements with companies we invest in, we aim to improve their behavior on ESG issues in order to enhance their long-term performance. This should ultimately have a positive knock-on effect on the quality of investments for our clients.

We distinguish between two types of engagement: value engagement and enhanced engagement.

Value engagement

Through value engagement, we aim to improve the risk-return profile for our investments. This proactive approach focuses on long-term, financially material sustainability opportunities and risks that can affect a firm's valuation and ability to create value. The primary objective is to create value for investors by improving sustainability conduct and corporate governance.

Enhanced engagement

Enhanced engagement focuses on companies that severely and structurally breach minimum behavioral norms in areas such as anti-corruption, environment, human rights and labor, i.e., a breach in the principles of the United National Global Compact and/or OECD Guidelines for Multinational Enterprises. This approach is aimed at eliminating a firm's breach of either set of principles and installing proper management systems to prevent it from recurring.

In both value and enhanced engagements, a lack of responsiveness by a company can be addressed by seeking collective engagement, attending a shareholder meeting in person, or sharing written concerns with the board. This could also lead to adverse proxy voting instructions from our Active Ownership team on related agenda items at an AGM meeting. Other avenues such as the right to file a shareholder resolution, to nominate a director, or

to take legal action, are considered in the context of our engagement and only used in a secondary or escalated stage of the engagement.

The ultimate sanction is exclusion from portfolios, which can lead to serious reputational and funding problems for companies that simply cannot or will not improve. However, we consider exclusions from the investment universe to be an action of last resort, applicable only after engagement, our first and preferred option, has been undertaken.

Engagement themes

Every year our Active Ownership team chooses four or five new themes that it pursues through engagement. Each theme typically runs for three years, therefore there are typically numerous themes that the engagement specialists focus on in any given year. To decide which themes to pursue, the team consults a wide variety of stakeholders, including clients, investment teams and external experts.

The themes for 2022, for example, have a heavy emphasis on protecting the finite resources of our planet through decarbonization and resource management, namely net zero emissions; natural resource management and Nature Action 100. Another important theme this year is promoting human development through greater diversity and inclusion in the workplace.

How we approach voting

Through voting, we aim to encourage the management teams of investee companies to implement good corporate governance and responsible policies. We believe this can increase the long-term value of investee companies, while also encouraging responsible corporate behavior.

The basis of any well-informed proxy voting decision starts with the development of a policy designed to ensure that we vote in the best interest of our clients. We have a comprehensive voting policy based on 20 years of experience and insights, and can incorporate specific policy wishes in mandates where this is requested. Our voting policy is also reviewed at least once a year.

We manage the entire proxy-voting process for our clients, ensuring that all the requirements of parties in the voting chain are met. All voting decisions are made in light of our voting policy, which is based on the widely accepted principles of the International Corporate Governance Network. These principles offer scope for firms to be assessed according to local standards, national legislation and codes of conduct. They are also aimed at improving corporate governance, risk management, remuneration policy, shareholders' rights and transparency.

Our proxy voting record across our strategies over the last few years can be found [here](#).

1.5 Why the interaction of different sustainability dimensions matters

We have outlined why the different standalone dimensions are important to investors who aim to integrate sustainability in their investment decision-making. In our view, we believe taking a multidimensional approach to integration yields better outcomes for investors. This is because the dimensions are not mutually exclusive, but instead complementary.

In certain ways, they share similar sustainability objectives and can thus facilitate a coherent approach in addressing specific issues. For example, climate change is an omnipresent issue across all dimensions. For ESG, it falls within the scope of the environmental factor. Regarding the SDGs, affordable and clean energy – SDG 7 – and climate action – SDG 13 – are goals that are specifically outlined to address the issue. In terms of environmental footprint, carbon footprint reduction is a key mechanism that society is focusing on to battle global warming. Lastly, active ownership can be crucial in influencing the impact that firms have on the environment as investors can advocate for less carbon-intensive operations.

This example illustrates how the marginal 'cost' of integrating multiple dimensions is limited. As many high carbon emitters have poor SDG scores, some level of carbon footprint reduction can already be achieved through SDG exclusions. The footprint can be decreased even further if the portfolio is tilted towards low carbon emitters to meet certain portfolio targets, while active ownership duties can positively effect companies' climate transition strategies. Therefore, clients can potentially enjoy higher levels of sustainability improvements through integration.

The different dimensions can also address the shortfalls that are present in others. For instance, ESG integration is insufficient for aligning investments with positive impact. This is because it typically focuses on companies' operations and policies and does not scrutinize the goods they produce and/or services they provide. For instance, soft drinks or tobacco producers can often get awarded top ESG scores as they provide jobs or take good care of their employees. But on the flipside, their products impact society negatively due to their adverse effects on people's health. This is where the SDGs can be complementary as these issues are likely to be picked up given their focus on products and services.

We therefore believe that taking a holistic view on sustainability integration – collectively looking at the ESG, SDG, climate and environmental footprint dimensions – can better enable investors to address the economic, environmental and social issues that are aligned with their beliefs. This can be further supplemented by active ownership as investors can achieve real-world impact by using their voices and votes to steer corporate agendas towards addressing them.

Moreover, the sustainability objectives of investors or the relative importance of different dimensions can change over time. As we have seen, exclusions were superseded as the main form of achieving higher sustainability profiles by the integration of ESG scores, while the SDG agenda and Paris Agreement are perhaps more top of mind for investors. Thus, a multidimensional view can help serve the changing sustainability needs that investors have.

These many dimensions are integrated in our Quant Equities product offering, allowing it to cater to a wide range of investors who can have different sustainability goals. The pooled nature of capital in these vehicles can also benefit the separate underlying investors. This is because the larger collective assets result in a bigger shareholding in companies, which can be helpful in exerting more influence when engaging with firms to improve their sustainability profiles – more specifically their objectives.

2

Integrating sustainability into our Quant Equities approach

Integrating sustainability into our Quant Equities approach

We believe that investing in a sustainable future by safeguarding economic, environmental and social assets is crucial for a healthy global economy and the goal of generating attractive returns in the future. The focus in the investment industry is, therefore, shifting from creating wealth to creating wealth and well-being.

Indeed, Robeco has been at the forefront of sustainable investing for multiple decades. We have been managing sustainable solutions since 1999, applying voting and engagement since 2005, and integrating ESG factors into all applicable investment processes (including quant models) since 2010. This integrated approach is also reflected in our mission and our investment beliefs.

Our investment beliefs also reflect the fact that we are long-term investors. As an active asset manager with a long-term investment view, we create added value for our clients in the following ways:

- Our investment strategies are research-driven and executed in a disciplined, risk-controlled way,
- our key research pillars are fundamental research, quantitative research and sustainability research,
- we can create socioeconomic benefits in addition to competitive financial returns.

Our mission is to enable our clients to achieve their financial and sustainability goals by providing superior investment returns and solutions. In our view, sustainability integration leads to better-informed investment decisions and the potential for enhanced risk-adjusted returns throughout an economic cycle, and:

- sustainability is a driver of structural change in countries, companies and markets,
- companies with sustainable business practices are more successful,
- active ownership contributes to both investment results and society.

While sustainability integration is by no means limited to any particular investment approach, quant strategies have shown to be especially suitable for this. Their rules-based nature makes it relatively easy to integrate additional quantifiable variables in the security selection and portfolio construction processes.

From this perspective, integrating sustainability aspects in the investment methodology is not very different from a standard factor-based approach, where securities are included in a portfolio based on their factor characteristics. This enables quant investors to create a portfolio that strikes the right balance between sustainability objectives and risk-return expectations.

‘While sustainability integration is by no means limited to any particular investment approach, quant strategies have shown to be especially suitable for this’

Within our quant investing approach, we have a preference for sustainable business models. We integrate sustainability factors into our investment process to lower possible unrewarded long-term sustainability risks. For this, we use a wide range of public and proprietary metrics, such as ESG, SDG and environmental scores. This is further supplemented by our active ownership (i.e. voting and engagement) approach.

Our research²⁶ shows that sustainability integration does not need to cost alpha. In fact, it can even be a source of better long-term risk-adjusted returns. With this in mind, we have continuously developed our quant investing platform to enable our clients to achieve their financial and sustainability goals.

In this section we discuss how sustainability is generally incorporated into our Quant Equities investment process. We outline the various steps that can be taken when constructing portfolios in the context of sustainability. First, we touch on the Robeco exclusion policy and how it is applied in our various strategies. Second, we explain how the SDGs are integrated in our portfolios. Third, we detail how sustainability forms part of our stock selection model when ranking companies. Fourth, we expand on how additional sustainability considerations are catered to in the portfolio construction phase. Lastly, we describe how our active stewardship approach supplements sustainable investment strategies.

26. Zwanenburg, M., and Naaijken, February 2018, "Sustainable alpha: balancing sustainability and quant factors", Robeco article; Swinkels, L., Usaita, K., Zhou, W., and Zwanenburg, M., October 2019, "Decarbonizing the Value factor", Robeco article; and Hanauer, M.X., Schneider, S., and Swikels, L., February 2022, "The alpha potential presented by sustainability", Robeco article.

2.1 Creating a more sustainable investable universe through exclusions

In terms of our investment process, sustainability integration starts with the creation of an investable universe that excludes companies with potentially harmful business practices or products. In our view, these firms are incompatible with a sustainable investment strategy. This process occurs before stocks are ranked according to our stock selection model and a portfolio is constructed.

The criteria for exclusions hinges on a number of factors. In some cases, legislation can dictate which firms are removed from an investable universe, such as companies linked with cluster munitions and controversial weapon manufacturing. Ethical norms also play a role, as companies that do not comply with broadly accepted internal guidelines or treaties can also be precluded from the universe.

At Robeco, all of our strategies adhere to a standard list of values-based exclusions as predefined by our Exclusion Policy. These can broadly be grouped into two categories: activity-based exclusions and normative exclusions: the degree of exclusions across our strategies varies based on Robeco's in-house classification system, i.e. Sustainability Inside' strategies, 'Sustainability Focused' or 'SDG & Climate'²⁷ strategies.

Activity-based exclusions

Activity-based exclusions are related to the business activities of companies that are deemed to be unethical or harmful to society. These are discussed below.

Weapons

Controversial weapons: These exclusions relate to companies that manufacture anti-personnel mines, biological weapons, chemical weapons, cluster munitions, depleted uranium weapons, nuclear weapons that are tailor-made and essential as well as white phosphorus.

Firearms: These preclusions refer to firms that generate a portion of their revenues from the production of key components of assault and non-assault firearms or small arms for civilian, military, and law enforcement customers, as well as from retail sales of assault and non-assault firearms or small arms.

Military contracting: These omissions are linked to businesses that derive some of their revenues from selling weapon systems and/or integral, tailor-made components for weapons, as well as from weapons-related products and/or services to the military or defense industry. This criteria does not apply to companies that provide non-weapons related products and/or services to the military or defense industry.

Tobacco

Tobacco is an unhealthy and socially disadvantageous product. Therefore, investments in firms that are involved in the production of tobacco are ineligible. This also applies to suppliers that receive a part of their revenues from the production of tobacco-related products and/or services as well as from the retail sales of tobacco products.

27. In this publication, 'SDG investing' refers to investment strategies that actively allocate capital to companies that impact the SDGs positively, while avoiding financing firms that impact them negatively. This can be understood as an 'impact-aligned' way of investing, in contrast to strategies that actively aim for real-world change ('impact-generating').

Palm oil

Palm oil production is regarded by Robeco as a process that has significant environmental and social risks that can lead to breaches of the UN Global Compact if it is not produced sustainably. As a result, companies that fail to meet certain criteria in terms of how much of their plantations are Roundtable on Sustainable Palm Oil (RSPO) certified are precluded. Other palm oil producing businesses are part of an engagement program that requires them to make progress towards full RSPO certification.

Climate

Arctic drilling: Compared to conventional oil and gas exploration, Arctic drilling poses higher risks of spills and has potentially irreversible impacts on the sensitive Arctic ecosystem. Thus, businesses that derive a share of their revenues from Arctic drilling are excluded.

Coal power expansion plans: In line with Robeco's net zero ambition, companies that are still building new coal power plants are removed from the investable universe, given that coal is the most carbon-intensive fossil fuel. However, there are two circumstances where enhanced engagement is undertaken rather than direct exclusion: (a) in firms where we see a positive outlook to adopt a climate transition plan and to discontinue plans for a new coal power plant; and (b) businesses that build a coal power plant as backward integration.

Oil sands: As one of the most footprint-intensive means of crude oil production, oil sands are not viewed as sustainable investments by Robeco. As such, firms that get a part of their revenues from oil sands are left out.



Thermal coal: The highest carbon-emitting source of energy in the global fuel mix is by far thermal coal. Consequently, businesses that derive a portion of their revenues from thermal coal are avoided.

Nuclear power: Electricity utilities that generate certain proportions of their revenues from nuclear power sources do not form part of the investable universe.

Thematic

For our SDG & Climate strategies, a stricter set of exclusions is applied based on additional economic activities that firms derive their revenues from. This are outlined below.

Adult entertainment: Companies that generate a portion of their revenues from the production (for example, online and TV), operation, and/or distribution (for instance, pay-per-view adult channels) of adult entertainment are omitted.

Alcohol: Firms that receive a share of their revenues from the production of alcoholic beverages as well as the supply of alcoholic beverages related products and/or services are left out. This also applies to businesses that make some their revenues from retail sales of alcoholic beverages or alcohol-related products through liquor stores, bars or pub chains, and/or restaurants, supermarkets and convenience stores.

Cannabis: Businesses that derive a part of their revenues from the production of recreational cannabis or from retail sales of recreational cannabis products are precluded.

Gambling: Firms that generate a proportion of their revenues from owning and/or operating gambling establishments (for example, casinos, race tracks and online gambling), manufacturing specialized equipment used exclusively for gambling (for instance, slot machines and roulette wheels), and/or supporting products and services supplied to gambling operations are ineligible.

INTEGRATING SUSTAINABILITY INTO OUR QUANT EQUITIES APPROACH

The below table breaks down the revenue thresholds per exclusion category across our different strategy classifications: Sustainability Inside, Sustainability Focused and SDG & Climate strategies.

Table 1: Revenue threshold per exclusion category

Category	Sustainability Inside	Sustainability Focused (+)	SDG & Climate (++)
Weapon-related exclusions			
Controversial weapons	0%	0%	0%
Firearms	N.A.		
- Production		5%	5%
- Retail		10%	10%
Military contracting	N.A.	5%	5%
- Production			
- Related products/services			
Tobacco			
Tobacco			
- Production	0%	0%	0%
- Supply	50%	50%	50%
- Retail	10%	10%	10%
Palm oil¹			
Palm oil	50%	80%	80%
Climate-related exclusions			
Arctic drilling	10%	5%	5%
Coal power expansion plans ²	0%	0%	0%
Oil sands	25%	10%	10%
Thermal coal	25%	10%	10%
Nuclear power	N.A.	25%	25%
Other activity-based exclusions			
Adult Entertainment			5%
- Production			
- Distribution			
Alcohol			
- Production			5%
- Distribution			10%
Cannabis			
- Production			5%
- Distribution			10%
Gambling			
- Operations			5%
- Equipment			
- Supporting			

1. For palm oil, Robeco considers the percentage of certified land instead of revenue.

2. For the coal power expansion plans, a 300 MW (pro rata) threshold is applied.

Normative exclusions

In certain cases, we also apply normative exclusions that are related to the behaviors of firms that are deemed to be unethical or harmful to society. The conditions of these omissions are outlined below.

Controversial behavior

Robeco acts in accordance with the International Labor Organization (ILO) standards, United Nations Guiding Principles (UNGPs), United Nations Global Compact (UNGC) framework and the Organization for Economic Co-operation and Development (OECD) Guidelines for Multinational Enterprises. These international treaties guide us in our assessments of the behavior of companies.

For our 'Sustainability Inside' strategies, an enhanced engagement process is applied with companies that have severe breaches of these principles and guidelines. If this enhanced engagement, which may last up to a period of three years, does not lead to the desired change, then a company will be removed from the investment universe.

For our 'Sustainability Focused' or 'SDG & Climate' strategies, companies that have severe breaches of these principles and guidelines are excluded even without previous engagement.

Our exclusion policy can be found [here](#).

Bespoke exclusions

We also acknowledge that clients might have differing beliefs and values. With this in mind, our quant investment platform is designed to offer flexibility to accommodate different investor preferences. For segregated mandates, clients can choose to use our standard exclusion list or apply their specific exclusions. Regarding the latter, we can support bespoke exclusions based on a list of individual companies, or specific sustainability criteria, or even a combination of these elements. Moreover, we also have extensive experience in advising clients on creating bespoke exclusion lists to suit their specific preferences and objectives.

Implementation and ongoing monitoring of exclusions

Beyond identifying and removing the firms that are incompatible with a sustainable strategy from an investable universe, efficient implementation plays an important role in incorporating exclusions. As client requirements can evolve over time, new exclusions can be added and, less commonly, existing exclusions can be removed. These changes typically lead to buy or sell transactions.

In such cases, we usually implement the exclusion targets as part of our normal rebalancing exercise, i.e., using 'natural turnover'. This is an efficient approach to minimize additional turnover and transaction costs. Furthermore, while initial screening is performed at the beginning of the investment process, the investment universe is continuously monitored to ensure it remains compliant with exclusion restrictions.

2.2 Integrating SDGs within our process

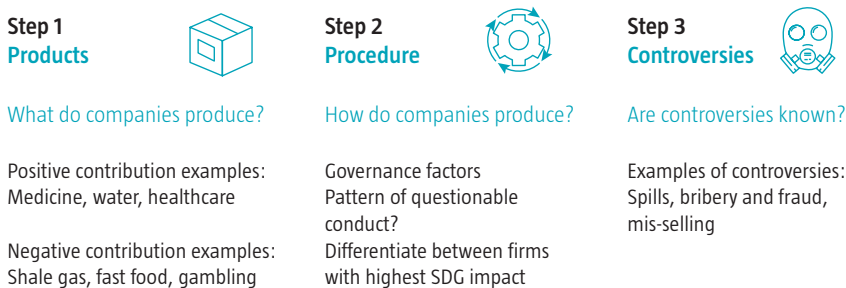
Following on from exclusions (values-based, normative, bespoke), investors may opt to further refine their investment universe by integrating SDGs. For example, investors may opt to also preclude investments in companies that negatively impact the SDGs, or focus on investing in stocks that positively impact specific SDGs. As a result, their investable universe would require further tailoring before the stock selection process.

To do this effectively, we have developed a proprietary SDG framework that assesses how potential investee companies impact the SDGs, providing a clear, objective, consistent and replicable approach to measuring impact through the SDG contributions of companies.

Robeco's proprietary SDG framework

As depicted in Figure 5, it consists of a three-step sequence that starts with a baseline sector SDG assessment, followed by more rigorous, company-specific analysis. The process ends with a final screening and review of company controversies that could negatively influence the SDG impact and hence the SDG scores.

Figure 5 | Proprietary SDG framework



Source: Robeco

Step 1: What do sectors and companies produce? In the first step, we establish an industry baseline against which companies within it can be measured. The industry baseline is a broad measure that indicates the extent to which the companies operating within the value-chain of an industry collectively contribute to, or detract from, relevant SDGs. Once an industry baseline has been established, the contributions of specific companies within the industry are assessed based on their performance across industry-specific sustainability indicators.

This can result in their baseline scores being adjusted upwards or downwards by using detailed thresholds. For example, the initial positive-low impact for a bank is upgraded to positive-medium for SDGs 8 and 9 if more than 15% of its loan book is dedicated to small and medium enterprises, which are the backbone of most economies, supporting local communities, and fostering sustainable economic growth. Through the use of detailed KPIs and thresholds, we are able to determine the magnitude of a company's positive and negative impact stemming from its goods and/or services.

The KPIs are linked to many different data sources, including those that cover the (main) business activities carried out by companies. One of these sources is our proprietary natural language processing (NLP) model that systematically analyzes text data to get a granular understanding of the activities a company undertakes. This model mainly covers those activities that are not sufficiently addressed by other (often quantitative) datapoints.

'Following on from exclusions, investors may opt to further refine their investment universe by integrating SDGs'

For instance, if we do not have access to datapoints that measure a company's revenues generated from alcohol sales, then we can use our proprietary NLP model to fill in the gaps. We can also use it to verify data that we already have on hand. Therefore, our NLP model increases the quantity of data we can analyze and enhances its quality. This is beneficial as we ultimately use this data to assess how companies are aligned with the SDGs.




Step 2: How do companies operate? In the second step, we analyze how companies operate and if this is compatible with the SDGs. More specifically, how do companies produce their goods and services? For example, are they polluting, do they respect labor rights, do they refrain from corruption and do they have a well-diversified board? Corporate sustainability performance data from third-party sources and primary research provide the foundation for this analysis. This enables comprehensive evaluations of a company's environmental policies, conduct track record, governance framework, etc.

If significant impacts (positive or negative) are identified, then a company's SDG score can be adjusted accordingly. To continue with the example of banking, the SDG Framework induces analysts to investigate dimensions such as predatory lending and selling aggressiveness; policies regarding lending to companies active in sectors with adverse impacts on the SDGs, such as coal mining and arms manufacturing; and positive impacts such as micro-financing.

Step 3: Are the companies linked to controversial issues or litigation? In the final step, we check whether the company concerned has been involved in any controversies. A firm can make the right products, operate in the right manner, but still be caught up in controversies such as bribery or fraud, human rights abuses or oil spills. To identify whether a company is involved in a controversy, we use third-party data and ratings to aid our in-house monitoring. If a controversy is found, we determine whether it has had an adverse impact on the SDGs; whether the company has taken appropriate actions to remediate negative impacts; and whether it has taken decisive steps to ensure such issues do not arise in the future. Depending on the severity of the individual cases, a firm's SDG score can be downgraded.

The final results of this three-step analysis are quantified in an SDG score, as shown in Figure 6. Positive-impact companies can receive an SDG score of +1 to +3 (lowest to highest) depending on the strength and quality of their contributions to the SDGs. Similarly, negative-impact companies receive SDG scores of -1 down to -3 (worst) depending on the extent to which they detract from the SDGs. The resulting company SDG scores can then be applied to investment screening and portfolio analysis.

Figure 6 | KPI assessments are summed to determine a final SDG score

	Assesment	Impact	SDG Score
 Products Quantifying contributions	Positive	High	+3
		Medium	+2
		Low	+1
 Operations Quantifying contributions	Neutral		0
		Low	-1
		Medium	-2
 Controversies Quantifying contributions	Negative	High	-3

Source: Robeco

Integrating SDGs in equity portfolios

Investors can adopt different approaches to integrate SDGs in their equity portfolios. These can broadly be classified into two categories:

- generically advancing all SDGs;
- or targeting individual SDGs

In terms of the first approach, an investor may decide to advance the entire SDG 2030 Agenda without prioritizing any specific SDGs. This can be achieved by avoiding exposure to companies with negative SDG scores/lowest SDG scores and/or focusing on firms with the highest SDG scores. In this case, investors would only need to take into account the overall SDG scores of companies without additionally assessing the impact on specific individual SDGs. Here, individual SDGs would be equally weighted so as not to steer on specific objectives.

The second approach can be attained by targeting companies that support a particular set of SDGs. An investor that cares about environmental sustainability, for example, might prioritize investments in firms that advance climate action (SDG 13); life below water (SDG 14); and life on land (SDG 15). An investor that wants to target economic development, on the other hand, could promote decent work and economic growth (SDG 8); industry, innovation and infrastructure (SDG 9); and responsible consumption and production (SDG 12). To facilitate this approach, an investor could shift their investments towards companies that positively impact the SDGs they would like to prioritize, and avoid an allocation to firms that contribute negatively to these SDGs.

Both these approaches come with advantages and disadvantages. The first approach is straightforward and relatively simple to implement. However, it gives an investor little flexibility in aligning with the types of impact that are closest to their mission. By directing capital towards companies that impact specific SDGs, the second approach does, however, offer this flexibility. Yet it also faces its own challenge in that the side effects on other SDGs might be overlooked. Put differently, a company that contributes positively to the SDG that an investor wants to advance may contribute negatively to another SDG that falls outside of their scope.

To illustrate this, let us take an investor that wants to advance decent work and economic growth (SDG 8) as well as industry, innovation and infrastructure (SDG 9). In this case, the investor might focus on these SDGs by investing in a bank with a loan book that primarily consists of small and medium enterprise (SME) loans. This would address the underlying

targets 8.2 and 9.3 which call for more SME financing. However, if the same bank is involved in a fraud scandal, it could hamper progress towards achieving peace, justice and strong institutions (SDG 16). Using another example, an investor might allocate capital to a cement producer as this would support industry, innovation and infrastructure (SDG 9). Yet the production of cement is typically associated with high GHG emissions, which impedes the promotion of climate action (SDG 13).

Therefore, investors might overlook the adverse effects on other SDGs if they only focus on those that are aligned with their mission. Our proprietary SDG framework takes this into account by scoring companies based on their contributions to all SDGs. For the first example above, we would investigate whether the bank is involved in any scandals and assign a negative SDG score to the relevant goal if it turned out to be the case. In terms of the second example, we would verify the amount of GHG emissions per ton of cement produced, and if this were to exceed a particular threshold, it would be reflected in the SDG score.

That said, there is an even more effective way to carry out the second approach. An investor can attain overweight exposure to the SDGs they would like to focus on, while avoiding an allocation to companies that contribute negatively to any of the SDGs. The benefit of this method is that it caters to specific investor needs, while it also ensures that the other sustainability objectives are not adversely impacted. Because the SDGs are “integrated and indivisible”,²⁸ they should be assessed as a collective agenda rather than 17 isolated parts. This ensures that the progress on one goal does not undermine the progress on another.²⁹

In general, investors aiming to integrate SDGs in their equity portfolios can use negative screening (exclusion), positive screening (inclusion) or apply a combination of both. One of the key strengths of our quant investing platform is that it allows for flexibility and customization in terms of incorporating sustainability considerations. This is briefly discussed below as we look at how we could treat SDG integration for both benchmark-aware and benchmark-agnostic portfolios.

Integrating SDGs in benchmark-aware portfolios

Benchmark-aware strategies are characterized by a low or medium level of active risk, as indicated by the tracking error of the portfolio versus a benchmark. By allowing for small deviations from the benchmark (for sector, country or individual constituent weights), these portfolios either aim to improve the return profile (as highlighted by the information ratio), sustainability profile or a combination of both.

We use a two-step approach to obtain SDG exposure in these information ratio-focused portfolios. The first step entails the exclusion of stocks from the eligible investment universe. Exclusions can range from the most negative-scoring companies on a limited number of SDGs, to all negative-scoring companies on all SDGs. Depending on the investor’s alpha and sustainability preferences, a stock-ranking methodology is formed that ranks companies from most attractive to least attractive. This ordered list is then used as an input for the portfolio construction process. For clients seeking excess returns from their SDG-adjusted universe, the eligible stocks are ranked on proven factors such as low volatility, momentum, quality and value.

In case investors aim to pursue both excess returns and other sustainable goals (e.g. steep carbon reduction targets), we can rank stocks on both alpha and sustainability characteristics. Finally, if clients aim for passive-like returns, and solely want to use their tracking error budgets to accommodate sustainability preferences, the required enhancements are defined

‘Investors might overlook the adverse effects on other SDGs if they only focus on those that are aligned with their mission’

28. UN (2015). The 2030 Agenda for Sustainable Development.

29. For a broader discussion, see: Van Zanten, J. A., and Van Tulder, R. (2020a), “Towards nexus-based governance: defining interactions between economic activities and Sustainable Development Goals (SDGs)”, *International Journal of Sustainable Development & World Ecology*.

– like carbon footprint reductions, improved SDG or ESG scores – before our proprietary portfolio construction method maximizes the portfolio’s exposure to stocks with strong sustainability characteristics, while minimizing its relative risk (tracking error).

Integrating SDGs in benchmark-agnostic portfolios

Benchmark-agnostic portfolios enable investors to integrate SDGs, while aiming for excess returns or absolute risk reduction by targeting specific factor exposures. As these investors are not constrained by relative risk budgets, there is more leeway to integrate these requirements and other sustainability goals in their portfolios. Since 2006, Robeco has been managing benchmark-agnostic factor strategies that provide clients with exposure to low volatility, momentum, quality and value factors. These portfolios allow for extensive customization to accommodate sustainability requirements, while minimizing the impact of diminished factor exposure.

The SDG integration process for these Sharpe ratio-focused portfolios also follows a two-step approach that involves the ranking of eligible stocks, followed by the construction of the portfolio through the application of our proprietary portfolio construction algorithm. The integration of SDGs in the investment process can be done in multiple ways. First, for investors aiming to use negative screening, companies with low or negative SDG scores on specific or all SDGs can be excluded from the eligible investable universe. Second, to accommodate the positive integration of SDGs in portfolios, stock rankings can be adjusted or portfolio construction constraints implemented to ensure the portfolio meets pre-defined sustainability goals.



Potential impact of values-based exclusions and SDG integration

Although we have outlined the benefits of values-based and/or SDG-related exclusions from a sustainability perspective, we are cognizant that omitting stocks from an investable universe can potentially reduce the breadth and diversification of any investment strategy and lead to unrewarded active bets.³⁰

Indeed, the impact on the risk-return characteristics of benchmark-aware investment strategies can be profound. This is even more pronounced for passive investors that aim to preclude a substantial part of their investment universe due to their sustainability preferences. This can result in them being exposed to higher levels of active risk (e.g. tracking error).

Thus, exclusions can potentially lower risk-adjusted returns over time. That said, with more efficient and sophisticated portfolio construction algorithms, the potentially negative impact stemming from exclusions can be prevented, or at least mitigated to a large extent.³¹ In other words, we believe advanced approaches can limit tracking error increases that arise from exclusions.

One of the key strengths of quant strategies is that their investment universes are typically broad. Therefore, their bottom-up, systematic approaches are uniquely equipped to find comparable substitutes for excluded stocks to minimize the impact on the risk and return characteristics of a portfolio.

For example, we have developed an online portfolio construction module that allows us to select a specific investment universe; decide on different sustainability and risk-return objectives; and demonstrate – as an outcome – the impact of these choices on risk, factor, country, sector and sustainability metrics compared with other (sustainable) indices. This tool can help us to find the optimum balance between clients' sustainability and risk-return preferences.

30. For instance, the implication of divesting from fossil fuel stocks, as discussed in "Betting against oil: The implication of divesting from fossil fuel Stocks", Blitz, D., December 2021.

31. Blitz, D., and Swinkels, L., June 2021, "Does excluding sin stocks cost performance?", working paper.

'The impact on the risk-return characteristics of benchmark-aware investment strategies can be profound'

2.3 Incorporating sustainability considerations in our quant stock ranking model

Once an investable universe has been defined following values-based, normative, bespoke and/or SDG-related exclusions, we can then move on to the stock selection phase in which we assess which stocks are most suitable for inclusion in portfolios.

At this stage, we also incorporate sustainability considerations in our stock ranking models. More specifically, we use ESG signals that we have established to have some stock selection power in our enhanced quality factor, and we also steer on our decarbonized value factor that has a materially lower environmental footprint than its generic counterpart.

Sustainability enhanced Quality signal

In our research, we have found that ESG signals can enhance stock selection when used in combination with other well-established factors: more specifically, in the context of the quality factor. We believe that certain sustainability trends can potentially impact a company's ability to create shareholder value in the future. This could include elements such as the quality of management, branding power, human capital development and intellectual capital, to mention a few. In our view, companies that can effectively manage risks and seize opportunities related to such trends exhibit a superior capacity to prosper over the long run.

As a result, we incorporate select top-level ESG variables in our enhanced quality factor that we believe act as a suitable proxy for quantifying some of these intangible characteristics. Our methodology is predicated on continuous robust testing that assesses whether ESG signals are driven by idiosyncrasies, as opposed to multiple expansion stemming from increased sustainable investing interest or factor exposures. Based on our analysis, the ESG scores we incorporate exhibit idiosyncratic stock selection power over and above our enhanced equity factors. By integrating these sustainability considerations, we believe our quality signal tilts towards stocks that exhibit higher quality characteristics and better sustainability profiles.

Decarbonized Value factor

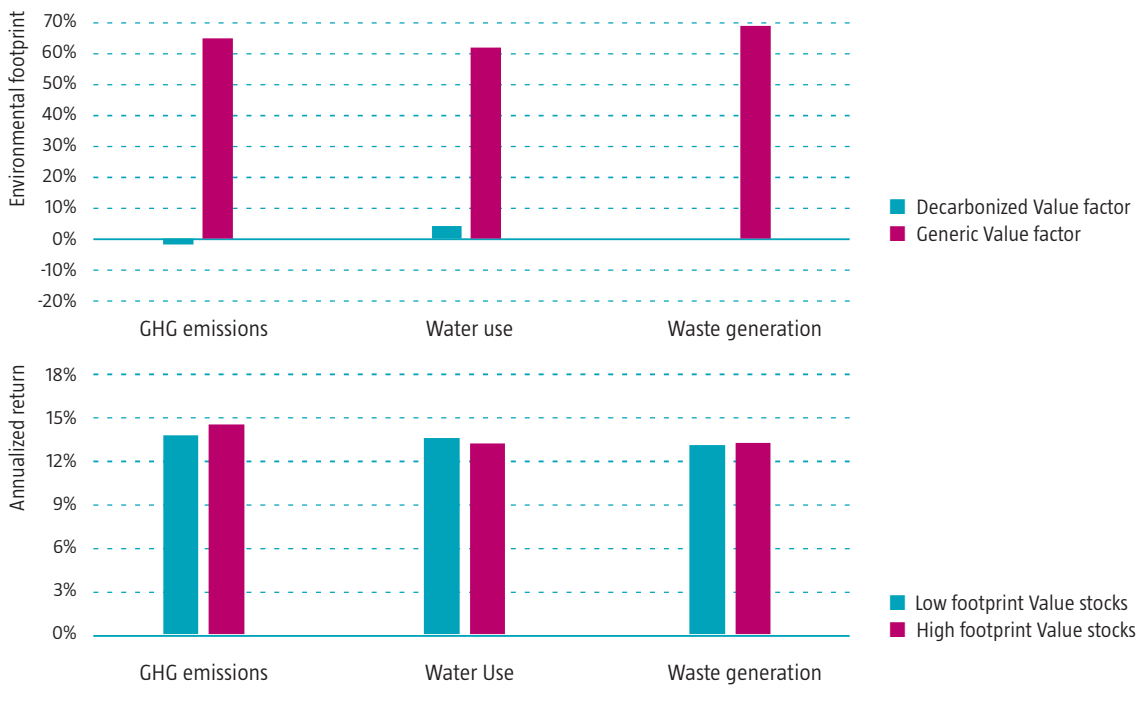
In our research, we have seen that conventional value strategies, based on book-to-price and earnings-to-price measures, typically consist of many 'brown' companies. This is intuitive as these metrics are typically tilted towards asset-heavy sectors such as energy, materials and utilities. Unsurprisingly, the environmental footprints of these industries are high relative to other sectors when we look at GHG emissions, waste generation and water usage.

In light of this, we have designed an innovative methodology to derive a decarbonized value signal that adjusts the valuations of high-polluting firms by making them less attractive, based on their environmental footprints. We have found that this results in a 'greener' value signal that removes a large tilt to 'brown' companies at the stock selection stage. As a result, further environmental constraints at the portfolio construction phase are potentially more easily satisfied. We also observed that this approach hardly impacts the value premium.³²

This is illustrated in Figure 7 which shows materially lower footprints for the decarbonized value factor on the top chart, but broadly similar returns compared to a generic value signal on the bottom chart. This enhancement ensures that the signal is less vulnerable to climate-related risks, thus making it more future-proof in terms of the ongoing transition to a low-carbon economy.

32. Swinkels, L., Üsaitė K., Zhou, W., and Zwanenburg, M., October 2019, "Decarbonizing the Value factor", Robeco article.

Figure 7 | Environmental footprint of generic and decarbonized value factor and their returns, January 1986 to December 2018



Source: Robeco Quantitative Research. The left-hand side chart shows the average environmental footprint of the highest value quintile portfolio minus the lowest value quintile portfolio as a percentage of the footprint of the equally-weighted universe for the conventional and “decarbonized” book-to-price value variable. A positive number means that the value stocks have a larger footprint than non-value stocks. The right-hand side chart shows the average USD returns of the highest and lowest environmental footprint quintile portfolios within the highest quintile value portfolio. The stock universe consists of MSCI All Country World Index constituents supplemented with large off-benchmark stocks.

2.4 Constructing sustainable portfolios

After stocks have been sorted on risk, return and/or sustainability variables by the ranking model, we move on to the next step which entails the construction of the portfolio. Sustainability also plays an important role at this juncture as we aim to construct portfolios with superior sustainability profiles versus reference indices or according to client specifications.

Given that some sustainability variables are already included in our ranking model, more sustainable stocks have a higher probability of being included in a portfolio. However, overall client-specific sustainability preferences or sustainability objectives set out for investment strategies are met during the portfolio construction step.

This is achieved through the use of our proprietary portfolio construction algorithm which builds an optimal portfolio according to risk-return and sustainability considerations. For example, our algorithm concurrently ensures that a portfolio has the requisite exposure to certain equity factors based on return objectives, while also adhering to specific constraints on country, sector and liquidity limits, and taking into account sustainability preferences.

Effectively managing the trade-off between risk-return and sustainability

Over the years, we have undertaken extensive research and testing to investigate the impact of integrating sustainability considerations on risk-return characteristics when using our proprietary portfolio construction algorithm. In our simulations, we observed that there was no material knock-on impact on risk-return outcomes for our 'Sustainability Inside' strategies. In terms of our 'Sustainability Focused' range, we saw that the sustainability enhancements did not significantly compromise risk-return objectives for benchmark-agnostic strategies. For the benchmark-aware strategies, the risk budget has to be increased to target similar return objectives. Regarding our 'SDG & Climate' range which targets a strong sustainability profile, we find that about 90% to 95% of the factor exposure is preserved for benchmark-agnostic strategies compared to the 'Sustainability Inside' versions. For 'SDG & Climate' benchmark-aware strategies, we target market-like returns.



Given that our quant investment strategies take into account broad investment universes when constructing a portfolio, the algorithm has enough room to optimize its sustainability profile without necessarily impacting its risk-return characteristics. While the portfolio composition in terms of individual stocks or tilts to certain sectors might change, the overall exposure to equity factors hardly does.

Targeting better sustainability characteristics compared to reference index

In constructing portfolios, our algorithm steers on numerous dimensions to ensure that it enhances the sustainability profile of a portfolio. For instance, using ESG scores from a third-party sustainability data provider, it builds a portfolio that has a better ESG rating than a reference index (or based on client requirements). It also ensures that the portfolio has a lower carbon, waste and water footprint than a comparative index (or according to client specifications).

In terms of the different sustainability measures (for example, ESG scores or environmental footprints), our quant investing platform is versatile in the sense that it can use information from different sustainability data providers and different measures for the various metrics. This again makes it quite adaptable to client-specific considerations.

To achieve the outcome of an enhanced sustainability profile, our algorithm can run multiple iterations of the construction process. If the most attractive stocks based on our ranking model lead to a suboptimal sustainability profile, the algorithm proposes an alternative portfolio by swapping out an attractively ranked stock with inferior sustainability scores with a similarly ranked counterpart with better sustainability characteristics.

By integrating these sustainability factors into our investment process, we lower possible unrewarded long-term sustainability risks, for example by reducing the exposure to high carbon emitters that face climate-related risks. Regarding the latter, integrating climate-related considerations into portfolios is increasingly important for investors.

While striking a balance between carbon footprint reductions and risk-return expectations is challenging, at Robeco, we have done lot of empirical research to understand this trade-off and its implications in terms of portfolio construction.

Distribution of carbon emissions across firms

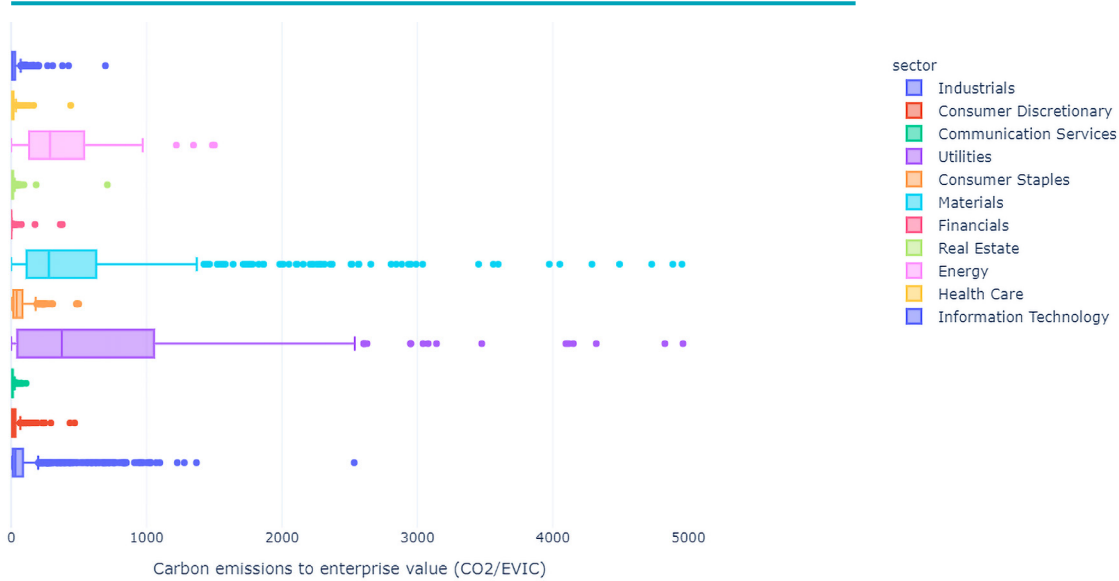
In our research, we have looked into the distribution of carbon emissions across firms and sectors globally. We took into account Scope 1 and 2 emissions, but excluded Scope 3 emissions due to issues around data availability, data quality and double counting. We do, however, believe these concerns will be resolved down the line and this will allow us to reliably integrate Scope 3 emissions data in the future.³³ We used the carbon footprint metric in our analysis as it scales carbon emissions by enterprise value including cash (EVIC), effectively measuring the impact that one unit of investment has on emissions.

As depicted in Figure 8, we observed that carbon footprints across firms and industries are heavily skewed, i.e., a relatively small number of companies account for the bulk of emissions per industry. This is indicated by the outliers in the boxplots. The energy, materials and utilities sectors have the highest medians and account for most of the emissions. In addition, the dispersion in their carbon footprints is the largest. Given these results, we can deduce that underweighting or excluding the 'heaviest polluters' can be an effective way to reduce a portfolio's carbon footprint.

'By integrating these sustainability factors into our investment process, we lower possible unrewarded long-term sustainability risks'

33. Robeco 'SDG & Climate' strategies do include Scope 3 emissions as they follow Paris-aligned benchmark standards.

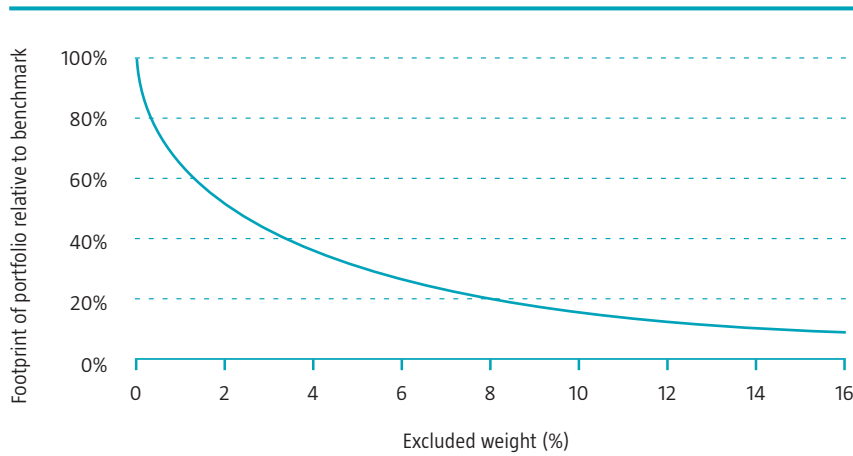
Figure 8 | Global carbon footprint distribution at a sector level



Source: MSCI, TruCost Robeco Quantitative Research. This chart shows the carbon footprint of MSCI ACWI constituents plus additional off-benchmark names, as at 31 August 2021. Carbon footprint reflects carbon emissions scaled by EVIC and includes Scope 1 and 2 emissions. The chart depicts the carbon footprint distribution based on GICS level 1 sector classification.

Figure 9 illustrates an alternative way to visualize the heavily skewed distribution of carbon emissions. In this analysis, we used a broad global investment universe as a starting point. We then progressively excluded the highest-polluting names and tracked the concomitant carbon footprint reduction. We witnessed that by removing a relatively small percentage of highly polluting companies, it was possible to achieve a substantial reduction in carbon footprint. For example, by avoiding the 1% most polluting companies, it was possible to reduce the carbon footprint of the portfolio by 35% relative to the overall market.

Figure 9 | Portfolio footprint relative to benchmark as worst polluters are progressively excluded



Source: MSCI, TruCost Robeco Quantitative Research. This chart shows the carbon footprint of MSCI ACWI constituents plus additional off-benchmark names, as at 31 August 2021. Carbon footprint reflects carbon emissions scaled by EVIC and includes Scope 1 and 2 emissions.

Efficiently integrating carbon reductions into factor portfolios

As we have outlined, the distribution of carbon footprints is concentrated in a relatively small number of firms across three sectors. Therefore, the exclusion of the highest-polluting companies can be an effective way to reduce the carbon footprint of equity portfolios. However, carbon tilts can affect the risk-return characteristics of a portfolio, such as factor exposures. As a consequence, reducing the carbon footprint of an equity portfolio only by avoiding the worst polluters can inadvertently change its factor characteristics and risk-return profile.

With this in mind, we looked at carbon footprint reductions on factor portfolios. In Figure 10, we show the simulated risk-return characteristics of equally-weighted global multi-factor (low-risk, momentum, quality and value) equity portfolios with different carbon footprint constraints. In our analysis, we also limited sector and regional deviations to 10% versus the broad market index and to 0.60% for individual positions.

What we observed was that the simulated outperformance was relatively unaffected by the varying levels of carbon footprint constraints. In fact, it even improved slightly as we imposed stricter constraints over the sample period. More interestingly, factor exposures were maintained across all portfolios. These results imply that we can expect a relatively muted decay in long-term alpha potential from carbon footprint constraints for factor portfolios.

Figure 10 | Simulated risk and return characteristics of multi-factor equity portfolios based on different carbon footprint reduction targets, January 2010 to August 2021

	Carbon footprint reduction relative to benchmark							
	0%	10%	20%	30%	40%	50%	60%	70%
Outperformance	2.40%	2.39%	2.44%	2.44%	2.49%	2.52%	2.51%	2.45%
Volatility	12.90%	12.89%	12.90%	12.90%	12.89%	12.86%	12.86%	12.85%
Sharpe ratio	1.01	1.01	1.02	1.02	1.02	1.03	1.03	1.02
Tracking error	3.15%	3.17%	3.17%	3.19%	3.23%	3.28%	3.30%	3.33%
Factor rank exposure vs benchmark	-38.83%	-38.85%	-38.89%	-38.90%	-38.93%	-38.91%	-38.88%	-38.77%

Source: MSCI, TruCost, Robeco Quantitative Research. Performance is in USD, gross of fees. The outperformance refers to the excess return relative to the MSCI ACWI. The rank exposure shows the relative difference in model rank of the portfolio compared to the benchmark. Since zero represents the best rank, a negative relative rank exposure corresponds to a rank improvement compared to the benchmark. The portfolios are constructed from MSCI ACWI constituents plus additional off-benchmark names. Please note that the analyses yield statistically similar results for carbon intensity (i.e., CO2eq/revenues). Simulated performance does not represent actual performance, trading costs or the negative impact of taxes on performance results.

What is important to highlight is that our simulations show that these results crucially depend on active factor portfolios that allow for deviations in industry and regional exposures compared to the reference index. If tighter restrictions on these dimensions are enforced, then the impact of carbon footprint constraints on expected performance will likely be more severe as factor exposures will potentially decline. Thus, carbon footprint reductions can be integrated more efficiently in more active equity factor portfolios.

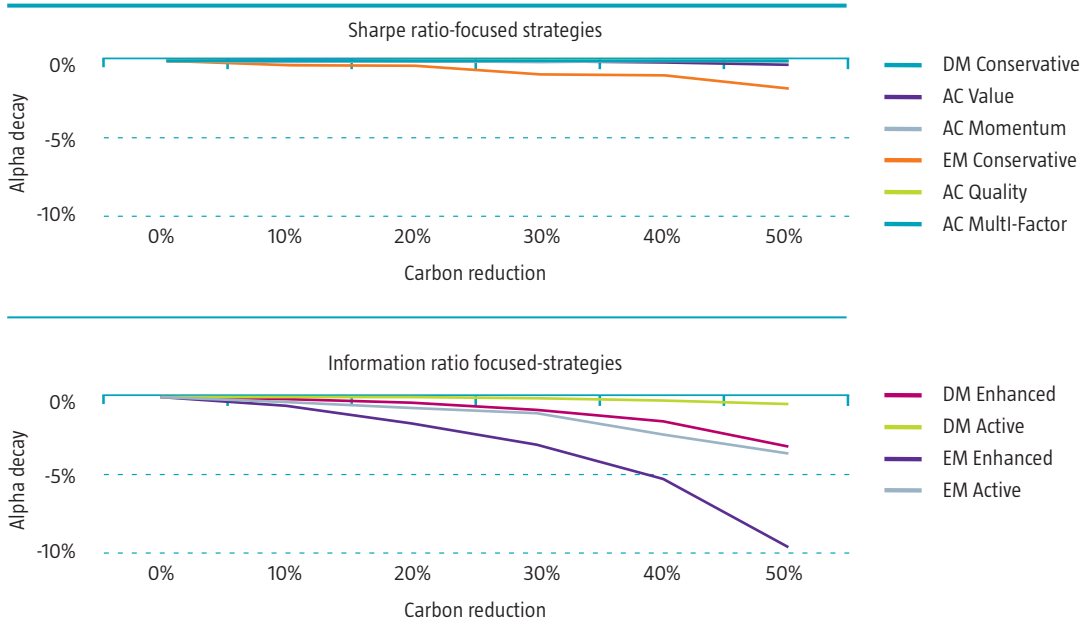
To illustrate this point, we analyzed the simulated impact of different carbon reduction targets on the effectiveness of some of our model portfolios. This is shown in Figure 11 which looks at some of our Sharpe ratio-focused strategies (for example, Conservative Equities) on the top chart, and some of our information ratio-focused strategies (for instance, Enhanced Indexing) on the bottom chart.

In general, what we see is that our investment process – involving exclusions and sustainability integration at the stock selection and portfolio construction phases – is efficient and effective at targeting both factor exposures and achieving sustainability improvements, such as carbon footprint reductions.

Our proprietary portfolio construction algorithm typically balances out the alpha potential stocks exhibit and their sustainability profiles. For example, a company with below average ESG ratings can still be included in a portfolio if it scores well on factor exposures and has decent environmental footprints. This decision is made in the context of the investable universe (and how the stock fares versus the rest of the constituents) as well as the risk-return objectives and sustainability goals of clients or investment strategies.

For example, Figure 11 depicts a limited deterioration in the effectiveness of our models when carbon footprint restrictions are imposed. The most significant impacts are witnessed in strategies with limited tracking error budgets (such as our Enhanced Indexing range) as there is a stricter trade-off between factor exposures and sustainability improvements, as well as our emerging market focused strategies given the more constrained investment universe. Even in these cases, the most affected portfolio only potentially experiences an alpha decay of 10% if a carbon footprint reduction of 50% is imposed.

Figure 11 | Simulated model alpha decay at different carbon footprint reduction target levels, January 2010 to August 2021



Source: MSCI, TruCost, Robeco Quantitative Research. The chart left-hand side chart shows the simulated model alpha decay at various carbon footprint (CO2eq/EVIC) reduction target levels versus a reference index (MSCI ACWI, MSCI World, MSC Emerging Markets) for some of our Sharpe ratio-focused strategies. The right-hand side chart shows the simulated model alpha decay at various carbon footprint (CO2eq /EVIC) reduction target levels versus a reference index (MSCI ACWI, MSCI World, MSC Emerging Markets) for some of our information ratio-focused strategies. Please note that the analyses yield statistically similar results for carbon intensity (i.e., CO2eq/revenues).

Bringing it all together

All in all, our portfolio construction process is disciplined and transparent, with continuous monitoring and control by the portfolio managers. It is fully based on the ranking generated by our quant stock ranking model and proprietary portfolio construction algorithm, which both incorporate sustainability considerations. Our algorithm has been developed to optimally translate our enhanced factor definitions used in our ranking model into a portfolio that also adheres to additional risk and sustainability constraints. This means the resulting portfolio characteristics are as intended and can be tailored to client needs.



2.5 Taking an active approach to stewardship

While we have outlined our step-by-step approach of how we integrate sustainability when building portfolios, we also believe that engagement and voting are critical elements of a successful sustainable investment strategy. Our dedicated Active Ownership team has a lot of experience in using engagement to seek improvements in the sustainable characteristics of companies and voting on issues at shareholder meetings.

This approach fits well with our quant strategies given that they typically use the breadth of their investment universes to achieve diversification in order to mitigate idiosyncratic risks. As a result of this, portfolios can hold positions in sustainability laggards, even though they might be tilted towards sustainability leaders.

The flipside of this outcome is that the resulting positions in laggards offer investors a seat at the table, which allows them to actively engage with management on sustainability issues and to vote on ESG proposals. Through these tools, shareholders can change or reshape corporate agendas towards sustainability-focused decision making. This can be related to topics such as climate transitions plans set out by companies.

Tackling engagements

For all engagements, our Sustainable Investing Research team identifies long-term, financially material factors that can affect the ability of firms to create value. We then conduct extensive baseline thematic research and prepare company profiles, before mapping each company's exposure to an engagement theme. Subsequently we determine SMART (specific, measurable, achievable, relevant, time-bound) engagement objectives that have the most potential to create value for companies, and therefore investors.

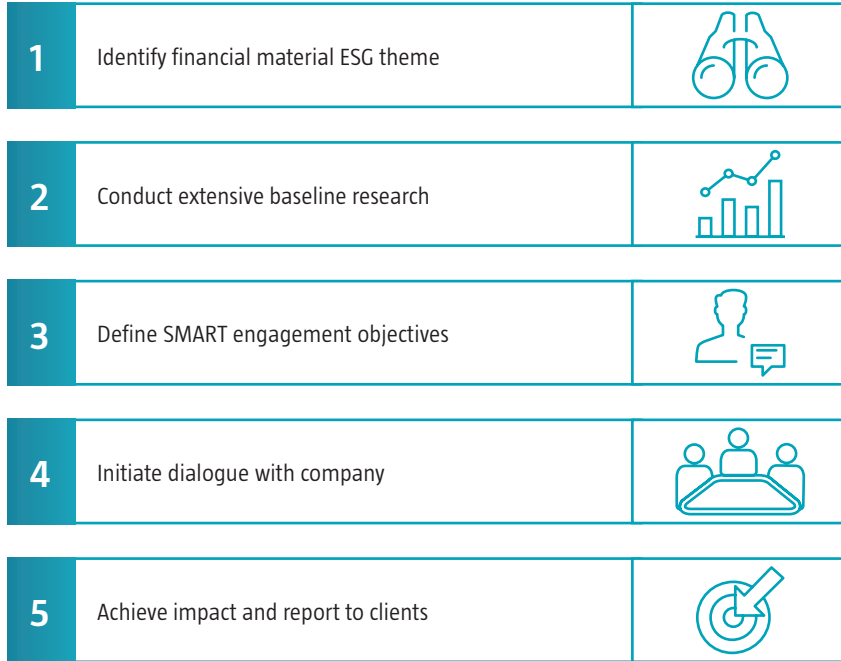
The outcomes of our engagement over time are represented by six possible levels of progress. At the level of engagement objectives, companies can exhibit positive, neutral, or negative progress. Developments at the overall theme level are in turn determined by objective level progress, and also fall into the categories of positive, neutral, or negative overall progress. During our dialogues with companies, we discuss the issues underlying each objective. Based on the progress that the company demonstrates, we adjust the status of the relevant objectives. For each company, we define a challenging but realistic threshold of objectives that we expect to be met at the end of the engagement timeframe. If this threshold has been met, we close the engagement case successfully.

Throughout the ongoing process, the outcome of the engagement efforts is communicated to analysts, portfolio managers and clients, enabling them to incorporate this information into their investment decisions.

In terms of engagement, we target a relevant subset of companies globally in our portfolios for a constructive dialogue on ESG factors. We distinguish between two types of engagement: value and enhanced.

Value engagements refer to our proactive approach, which focuses on material sustainability themes that have the most potential to create value for investors. Achieving positive impact on the SDGs is also an important consideration in our approach.

Figure 12 | Robeco’s engagement process



Source: Robeco

Enhanced engagements reactively focus on companies involved in controversial behavior, including those that breach principles of the UN Global Compact in the areas of anti-corruption, environment, human rights and labor. These engagements tend to last for approximately three years, during which we regularly check in with affected companies to assess remediation efforts and outline further improvements.

For portfolio holdings under enhanced engagement, the target weight in the strategy is halved in our Sharpe ratio-focused strategies and limited to the benchmark weight in our information ratio-focused strategies. Therefore, our capital allocation choices can potentially incentivize these companies to improve their corporate behavior, while our remaining shareholding allows us to maintain a dialogue with them on the related issues.

We also limit our exposure to companies with egregious governance issues based on information stemming from our proprietary voting activities. We believe that the innovative integration of voting IP in our portfolio construction process helps to improve the sustainability profile of our portfolios and strengthens the link between our active ownership activities and investment process.

Engagement examples

Adidas – Living wage in the garment industry

On the back of our engagement, Adidas has integrated living wages into its purchasing practices by using a standard minute value costing system. This enables the sportswear apparel company to monitor wages paid by suppliers, along with the material, labor and overhead costs necessary to produce Adidas's products. Moreover, the company actively engages with its suppliers to improve social dialogue. Factories representing 85% of the company's sourcing volume are unionized and 56% of them have specific collective bargaining agreements in place.

When it comes to providing recourse to workers, the company's human rights grievance channel, which is accessible to stakeholders across the supply chain, has set a precedent in the industry. On an annual basis, the company publicly reports the status of complaints on the Adidas Human Rights webpage, indicating the region and the types of organizations that have reported the complaints.

Enel – Climate action/net zero carbon emissions

Throughout 2021, Robeco engaged with Enel with a particular focus on setting long-term targets for its Scope 3 emissions from natural gas sales to customers, which represent 23% of its total emissions and a decarbonization strategy for its natural gas generation activities. At its Capital Markets Day on 24 November, Enel committed to fully decarbonizing by 2040, bringing forward its previous net zero target by a decade. In order to meet this target, Enel has committed to generating and selling energy exclusively from renewable sources.

The company aims to reach 154 GW of capacity in renewables by 2030, which if achieved would make it the largest renewables operator in the world based on peers' current targets. The target to reduce Scope 3 emissions from Enel's natural gas retail business was an explicit request that Robeco made as the investor leading the engagement under the Climate Action 100+ initiative. Enel's announcement is therefore a huge step forward and places the company in a genuine leadership position as it transitions to a low-carbon business model.

Vodafone – Cybersecurity

2017 marked the year in which cybercrime came of age as several high-profile hacks made the headlines. Cybersecurity is now high on both the public and private agenda. Spending on cybersecurity is likely to pick up pace in the years ahead as regulation tightens, the attack surface expands and hackers become more resourceful. Despite the already significant economic impact of cyber security, the effects are likely to become even greater in coming years.

In 2018 Robeco's Active Ownership team started to engage companies on these issues – including Vodafone – with the aim of promoting best practices in cyber risk management. Vodafone has a solid and strong cybersecurity program in place. The main areas of improvement we have seen throughout the engagement include the involvement of the board in the cybersecurity strategy, supported by the chief technology officer conducting regular deep dives with the board into how cyber controls work in practice. The company has also grown its cybersecurity team significantly in the past years and continues to invest in and centralize its approach to cybersecurity.

This paid off during Covid lockdowns when the company managed to anticipate across markets. Vodafone is also committed to sharing knowledge with governmental and industry bodies to improve cybersecurity across the market. We see Vodafone as a leader in their sector on the topic of cybersecurity and therefore closed all engagement objectives successfully.

In cases when engagement is unsuccessful, a company becomes a candidate for exclusion from our investment universe. Although we view engagement as being more effective than exclusion given that we are likely to achieve more by exerting influence as active owners,³⁴ there are occasions when companies are unwilling or cannot easily address sustainability concerns related to the goods they produce or services they provide, or their general behavior.

34. Blitz, D., and Swinkels, L., January 2020, "Is Exclusion Effective?", Journal of Portfolio Management Ethical Investing.

In these cases, we are left with no alternative but to include them in our exclusion list. For example, we added Brazilian miner Vale to our exclusion list in 2019 after it failed to respond appropriately to operational safety concerns related to the collapse of a tailings dam in Brazil.

Voting on behalf of our clients

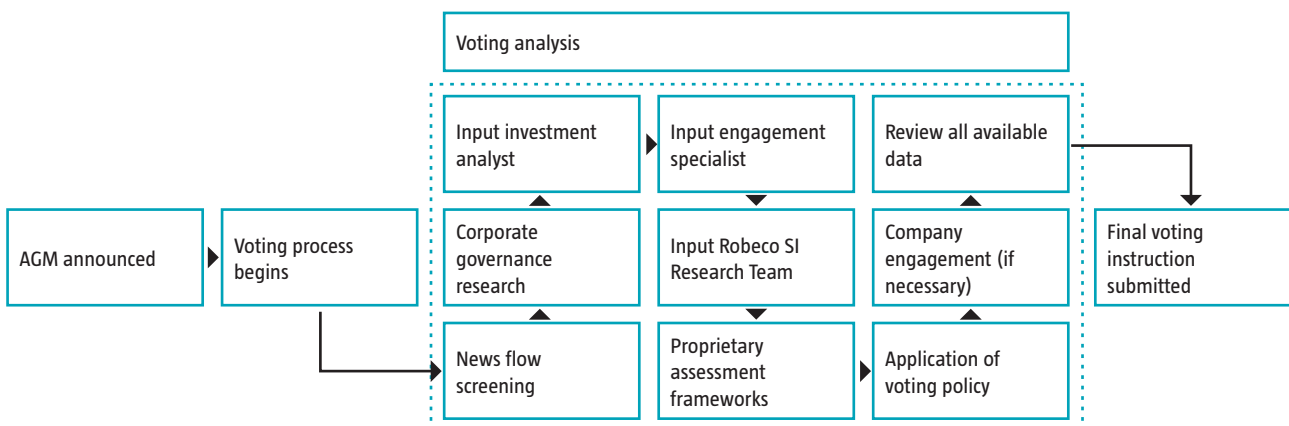
When deciding where and when to vote, our Active Ownership team develops a focus list, using both internal and external input from a variety of sources. Aside from the routine collaboration between our Active Ownership, Sustainable Investing Research and Portfolio Management teams, we also consult external ESG data providers, media analysis and corporate governance watchlists. Companies under engagement are also automatically added to the focus list.

This list allows us to keep abreast of interesting developments across our client portfolios, and to perform additional in-depth analysis in the areas where it can add most value. Examples of this include issues related to mergers and acquisitions, shareholder proposals, and companies with other corporate governance issues, such as executive remuneration or board composition.

We use research from leading corporate governance providers for every meeting under our voting scope. This provides us with detailed information on every agenda item, and serves as the starting point for our analysis. In addition to analyzing proxy voting research, we gather input from portfolio managers and review sustainability and annual reports as well as newsflow. We also take into account company-specific circumstances and best practices before casting our vote.

We believe this level of integrated corporate governance analysis leads to better-informed voting decisions for our Robeco investment strategies and on behalf of our institutional clients.

Figure 13 | Robeco's proxy voting process



Source: Robeco

Overall, we maintain a proactive approach to voting on shareholder resolutions. We support shareholder proposals which enhance long-term shareholder value creation, or address material sustainability risks. Voting at an AGM can, therefore, be a useful tool if a company is unwilling to listen to stakeholders on important issues. For example, when investors vote against a proposal, a company is compelled to address the issue.

In terms of voting, we follow our voting policy which provides guidance on common proposals for shareholder meetings. We also use proprietary analysis from our Sustainable Investing Research team and external analysis from third-party providers such as RepRisk, Glass Lewis and Sustainalytics to make well-informed voting decisions. By making active use of voting rights on behalf of our clients, we can encourage companies to increase the quality of their management teams and to improve their sustainability profile. We expect this to contribute to long-term shareholder value creation.

A clear glass bottle filled with water, containing several slices of cucumber, lemon, and a sprig of rosemary. The bottle is placed on a light-colored wooden surface. In the foreground, there are several more slices of lemon and a whole lemon. The background is a soft, out-of-focus light blue and white.

3

**Our Quant
Equities
offering in the
context of
sustainability**

Our Quant Equities offering in the context of sustainability

In the previous chapters, we outlined the different dimensions of sustainability and delved into how we incorporate them into our Quant Equities strategies. In this section, we shed more light on our Quant Equities product range from a sustainability perspective. We also look into how our quant investing platform can cater to client-specific sustainability preferences.

Our Quant Equities strategies can be broadly placed in three sustainability buckets based on Robeco's in-house classification system, i.e. 'Sustainability Inside' strategies, 'Sustainability Focused' or 'SDG & Climate' strategies. These three groups categorize our products based on their levels of sustainability integration as well as their classification in terms of the SFDR.

The EU Sustainable Finance Disclosure Regulation (SFDR)

The SFDR is a set of EU rules which aim to make the sustainability profile of funds more comparable and better understood by end-investors. This focuses on pre-defined metrics for assessing the ESG outcomes of the investment process. As its name suggests, much more emphasis is placed on disclosure, including rules that must identify any harmful impact made by the investee companies.

It forms part of the EU's wider Sustainable Finance Framework which is backed by a broad set of new and enhanced regulations that will apply across the 27-nation bloc. The SFDR goes hand in hand with the SFAP which aims to promote sustainable investment across the EU, and a new EU Taxonomy to create a level playing field across the whole EU. All the new measures are in response to the landmark signing of the Paris Agreement in December 2015, and the United Nations 2030 Agenda for Sustainable Development earlier in 2015, which created the SDGs.

In March 2021, the Level I requirements of the SFDR came into force. Among other things, the SFDR requires asset managers to classify their strategies/mandates according to three Articles of the new pan-European directive. Under this system, a strategy is labelled under either Article 6, 8 or 9:

- Article 6 covers strategies/mandates which do not integrate any kind of sustainability into the investment process and could include stocks currently excluded by ESG funds such as tobacco companies or thermal coal producers. While these will be allowed to continue to be sold in the EU, provided they are clearly labelled as non-sustainable, they may face considerable marketing difficulties when matched against more sustainable funds.
- Article 8, also known as 'environmental and socially promoting', applies where strategies/mandates do not have a sustainable investment objective, but promote – among other characteristics – environmental or social characteristics, or a combination of those characteristics, provided that the companies in which the investments are made follow good governance practices.
- Article 9, also known as 'products targeting sustainable investments', covers strategies/mandates targeting bespoke sustainable investments and applies where a financial product has sustainable investment as its objective and an index has been designated as a reference benchmark.

As of January 2023, new regulatory elements will be introduced as part of the SFDR Level II implementation, that covers, but is not limited to, the intended percentage of sustainable investments; the minimum intended investment in EU Taxonomy-aligned investments; and the consideration of Principal Adverse Impacts (PAI).







Those elements will also need to be considered in the light of amendments to the MiFID II regulatory directives as an element of the so-called sustainability preferences in suitability assessments for portfolio management and investment advice.

It is expected that the SFDR Level II requirements might alter current classifications, as well as replace the focus on classifications towards the underlying elements, such as the percentages of sustainable investments and Taxonomy alignment prevailing in strategies/mandates.

3.1 Categorizing our Quant Equities offering from a sustainable investing lens

As outlined, Figure 14 depicts how our Quant Equities strategies can be broadly placed in three categories based on our in-house and SFDR classifications.

Figure 14 | Categorizing strategies in terms of sustainability integration

	Sustainability Inside (SFDR Article 8)	Sustainability Focused (SFDR Article 8)	SDG & Climate (SFDR Article 9)
Exclusion of controversial stocks from universe 	Robeco Sustainability Inside exclusions	Robeco Sustainability Focused exclusions	Robeco Impact Investing exclusions Climate exclusions: coal, electric utilities, oil & gas
Screening based on the UN SDGs 	Not applicable	Exclude stocks with -3 or -2 SDG scores	Exclude stocks with negative SDG scores
ESG integration in stock selection model 	ESG factors integrated in stock selection model	ESG factors integrated in stock selection model	ESG factors integrated in stock selection model
ESG integration in portfolio construction 	ESG score at least better than benchmark	ESG risk rating at least 10% lower than benchmark	ESG risk rating at least 10% lower than benchmark
Addressing climate and environmental footprint 	Environmental footprints (CO ₂ /water/waste) lower than the benchmark	30% lower environmental footprint on CO ₂ , 20% on waste generation and water usage	50% lower environmental footprint on CO ₂ , 20% lower waste generation and water use
Active engagement 	Integrated in portfolio management	Integrated in portfolio management	Integrated in portfolio management

Source: Robeco. The figures are applicable when portfolios are rebalanced and can fluctuate between rebalances due to market movements.

- For our ‘Sustainability Inside’ range, we implement our ‘Sustainability Inside’ exclusion list; integrate ESG factors in the stock selection and portfolio construction steps; tilt the overall portfolios so that they have better environmental footprints than their reference indices; and carry out voting and engagement duties on behalf of clients.
- In terms of our Sustainability Focused’ strategies, we take the integration of sustainability a bit further. We adhere to our stricter ‘Sustainability Focused’ exclusion list; we omit stocks that have a strong negative (-3) or medium negative (-2) SDG score based on our proprietary SDG framework; we integrate ESG factors in the stock selection and portfolio construction steps and aim for an overall ESG score that is 10% better than the reference index; we target explicit environmental footprint improvements (30% lower carbon footprint and 20% lower waste and water footprints versus comparative indices); and carry out voting and engagement duties on behalf of clients.
- Regarding our SDG & Climate portfolios, we aim to contribute to specific sustainable themes and apply even stricter levels of sustainability integration. On top of following our ‘SDG & Climate’ exclusion list, we include additional impact exclusions; we omit all stocks that have a negative SDG score based on our proprietary SDG framework; we integrate ESG factors in the stock selection and portfolio construction steps and aim for an overall ESG score that is 10% better than the reference index; we target explicit environmental footprint improvements (50% lower carbon footprint and 20% lower waste and water footprints versus comparative indices); and carry out voting and engagement duties on behalf of clients.

Deeper dive into SDG & Climate range

Asset owners are increasingly embracing sustainable investing and this is shifting the goalposts for investments. As a result, more investors are looking for solutions that align with environmental and social impact alongside achieving positive financial returns. The rising interest in investing with a conscience has put in focus the need to direct capital towards companies that promote intergenerational solidarity for the achievement of sustainable goals, for example tackling climate change risks. Against this backdrop, we are building out a suite of quant strategies which fall into our SDG & Climate range.

We recognize that climate change is a dominant theme within the sustainability spectrum. With this in mind, we have created Paris-aligned solutions that explicitly address climate risks as an integral part of their strategy. The focal point of any Paris-aligned solution is the reduction of its environmental footprint and our portfolio construction process is designed to primarily address this.

The starting point for our SDG & Climate range is a carbon footprint that is at least 50% better than the broader market index. To measure this, we use the so-called weighted average carbon footprint metric, where Scope 1, 2 and 3 GHG emissions are included, based on MSCI carbon data, and scaled by a firm's EVIC. On top of this, our Paris-aligned solutions follow a 7% year-on-year carbon-reduction path. In addition, other impositions on environmental indicators are taken into account, including a 20% lower footprint than the market on waste generation and water usage.

In terms of shaping the Paris-aligned investment universe, the strategies exclude stocks that may go against the objective of keeping the maximum global temperature rise to well below 2°C. This means firms with revenues from coal mining are ruled out, along with most oil and gas companies based on 10% and 50% revenue thresholds, respectively. Carbon-intensive electricity producers with emissions higher than 100g CO₂/kWh are also not eligible.

Alongside these climate-related exclusions, we also view certain business practices or products as harmful to society, in a way that makes them incompatible with a sustainable investment strategy. These stocks may be seen as inappropriate from an ethical perspective and form part of our values-based exclusions: including firms linked with alcohol, adult entertainment, Arctic drilling, controversial weapons, firearms, gambling, military contracting, nuclear power based productions, palm oil, tobacco and UN Global Compact breaches.

In targeting a multi-dimensional sustainability profile, we also advance the entire SDG 2030 Agenda which serves as a blueprint to shift the world onto a sustainable and resilient path. To achieve this, stocks with negative contributions to the SDGs are precluded based on our proprietary SDG framework as these may entail unrewarded sustainability risks. Moreover, ESG criteria is integrated in the stock selection process as an input in the quant ranking model, while the strategies are also constructed to have an overall ESG score that is at least 10% higher than the index.

For Sharpe ratio-focused strategies, these constraints are easier to achieve as their risk budgets can more easily accommodate the simultaneous targeting of factor exposures and all of these sustainability requirements. On the other hand, information ratio-focused strategies are more constrained by their limited tracking error budgets. Our proprietary portfolio construction algorithm uses most of the tracking error to meet the sustainability targets, while it also ensures that the strategy has neutral factor exposure and addresses any country, sector or style risks.

3.2 Catering to client-specific sustainability preferences

Our process has evolved over time and we now use quant techniques to offer solutions that either focus purely on sustainability, or solutions that combine risk-return considerations with sustainability preferences. We do not believe a one-size-fits-all solution is appropriate. We understand that the beliefs investors have with respect to sustainable investing are personal and can differ from client to client. We have, therefore, developed proprietary software that allows us to take into account specific investor needs to create portfolios that are truly aligned with client preferences.

Thus, we can efficiently and effectively target multiple sustainability goals, such as defined environmental footprint objectives, focused exposures on specific SDGs, and achieving predetermined scores for the ESG dimensions. This can be done while also adhering to investment guidelines such as sticking to a pre-defined tracking error limit, ensuring positive factor exposures, or other risk or return objectives.

Figure 15 | Robeco Quant Customizer

The screenshot displays the Robeco Quant Customizer interface, which is organized into three main sections:

- Select index:** This section features a row of tabs: Main, Developed (selected), Emerging, Global, Sustainable, and Thematic. Below the tabs is a dropdown menu for the index, currently set to "MSCI World". A "Show details >>" button is located below the index selection.
- Choose enhancements:** This section includes a row of buttons for different enhancement strategies: Excess return (selected), Excess return & ESG, Max ESG, ESG MinRisk, Low risk, Value, Quality, and Momentum. Below this row is a dropdown menu for the risk budget, currently set to "Enhanced - Tracking error: 1.0%".
- Add extras:** This section contains four rows, each with a dropdown menu and a "Show details >>" button:
 - Exclusions: No Exclusions
 - ESG Risk Rating: At least as good as the benchmark
 - SDG strategy: No exclusions
 - Footprint: At least as good as the benchmark
 An "Advanced >>" button is positioned at the bottom of this section.

Source: Robeco Quantitative Research

Equity portfolios can be customized to accommodate various dimensions of sustainability, ranging from client-specific values-based exclusions to carbon reduction targets, and from best-in-class methods to addressing particular SDGs. Selecting the right dimension might be a daunting task for investors, as sustainability requirements need to be balanced with risk, return and other investment universe considerations. To help our clients to establish a better understanding of the trade-offs between various portfolio objectives, we have developed a web-based proprietary software: the Robeco Quant Customizer.

As shown in Figure 15, the Quant Customizer allows investors to select a specific index as a starting point for portfolio customization. This can be a market capitalization weighted index in developed or emerging markets, a sustainable index, or a thematic index. Investors can then specify the aim of the enhancement given a determined risk budget, i.e. to improve returns (tilting the portfolio towards factors), focus only on ESG factors (aiming for market-like returns, while targeting sustainability objectives), or a combination of both. The software also allows investors to enhance the exposure of a selected index to the low-risk, value, quality or momentum factors. The final step of the customization process entails the selection of the specific sustainability objectives the investor aims to meet.

Figure 16 | Integrating sustainability dimensions with Robeco Quant Customizer

Add extras

Exclusions	Climate Exclusions	Show details >>
ESG Risk Rating	At least as good as the benchmark	
SDG strategy	Exclude Worst SDG	Hide details >>

Footprint	At least as good as the benchmark	Show details >>
Advanced >>		

Source: Robeco Quantitative Research

As shown in Figure 16, an investor can choose to simultaneously integrate multiple dimensions of sustainability. Starting with exclusions, an investor can select exclusion lists pre-defined by Robeco that are also applied to various Robeco mutual funds, or select exclusions that align with specific themes such as climate-based or impact-related exclusions. A customized exclusion list can also be uploaded to fit the needs of the investor.

Secondly, the improvement level required of the ESG score versus an index can be selected (for example, a 10% improvement). Next, the required level of SDG exclusions can be configured to exclude all stocks that contribute negatively to the SDGs or only those that are the worst contributors. The exclusion of companies that only negatively impact specific SDGs is also possible. For example, in Figure 16, the option to exclude the worst contributors (with a score of -3 according to our SDG framework) to the SDGs is selected.

Once all the requirements have been selected in the Quant Customizer, the application will calculate an initial portfolio using the same portfolio construction algorithm that is used in our live quant equity portfolios. The details of the envisioned portfolio are then presented to the user, as depicted in Figure 17.

Figure 17 | Viewing sustainability characteristics with Robeco Quant Customizer

Your input	Portfolio Characteristics	Sustainability	SDGs	Voting & Engagement	Exclusions	Factor Exposures	Positions	Export
			Portfolio	Improvement	MSCI World	MSCI World Low Carbon Leaders		
ESG Risk Rating								
	ESG Risk Rating		19.4	-10%	21.5		21.3	
Footprint								
	Greenhouse gas emissions (t CO2-eq/mUSD)		29	-50%	58.1		29.5	
	Water Use (m3/mUSD)		2589.5	-60%	6448.4		4950.8	
	Waste Generation (t/mUSD)		41.5	-6%	44.1		42.2	
SDG								
	SDG-score		1.5	114%	0.7		0.7	

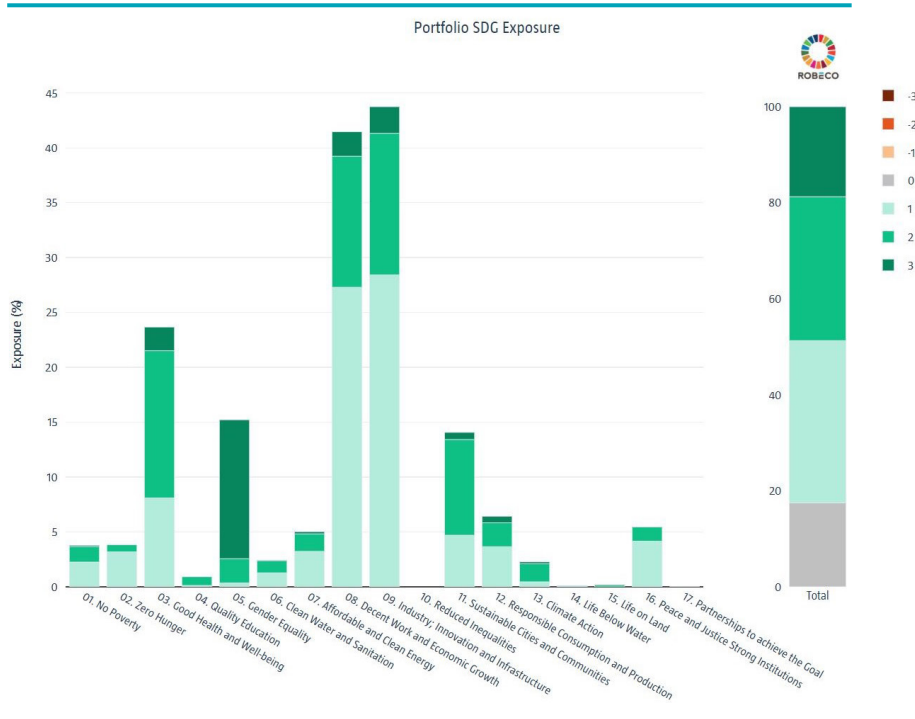
Source: Robeco Quantitative Research

This example highlights the output of a customized portfolio that aims to improve the sustainability profile of the MSCI World Index. While the portfolio is aimed at achieving passive-like returns, its 1% tracking error budget is used to apply both climate-related and SDG-related (the worst contributors to the SDGs) exclusions. Moreover, additional sustainability goals can be pursued, such as a better ESG risk rating and a lower carbon footprint versus the index.

For illustrative purposes, we compared the sustainability outcomes of this customized portfolio versus the MSCI World Low Carbon Leaders Index. As shown in Figure 17, this portfolio offers an ESG risk rating that is 10% better and a carbon footprint that is 50% lower than the MSCI World Index. Meanwhile, the MSCI World Low Carbon Leaders Index offers virtually no improvement in terms of the ESG risk rating and a 49% reduction in carbon footprint compared to its parent index.

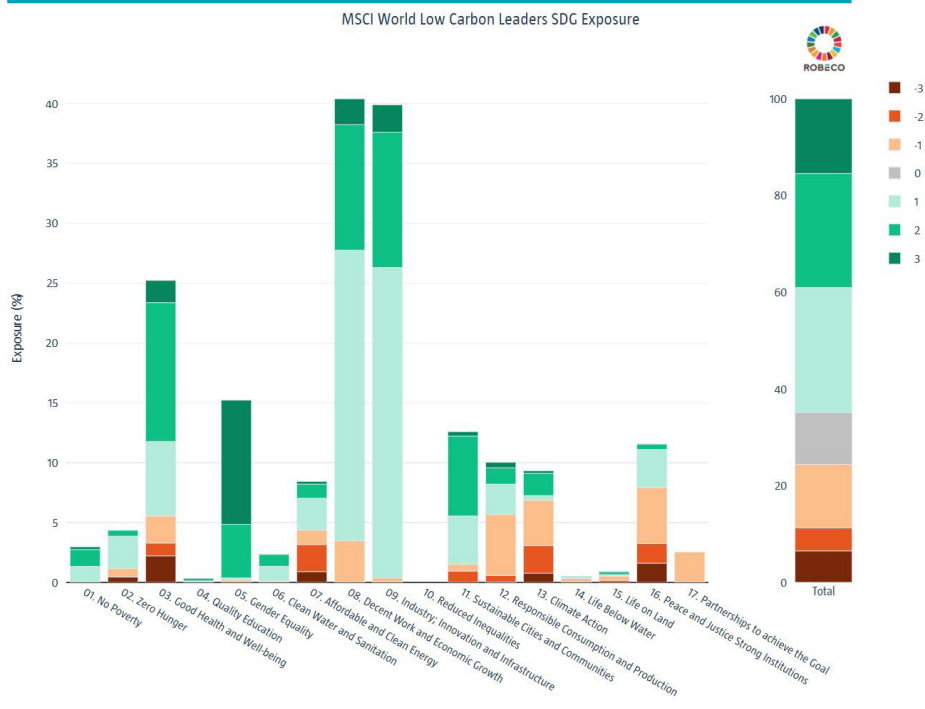
We also compared the SDG positioning of this customized portfolio in Figure 18 versus the MSCI World Low Carbon Leaders Index in Figure 19. This provides an overview of the allocation to stocks that contribute negatively or positively to the 17 individual SDGs. As seen in the charts, the Robeco customized portfolio has no exposure to companies that negatively impact the SDGs, whereas the MSCI World Low Carbon Leaders Index has an allocation greater than 20%.

Figure 18 | Viewing SDG positioning with Robeco Quant Customizer – customized portfolio breakdown



Source: Robeco Quantitative Research

Figure 19 | Viewing SDG positioning with Robeco Quant Customizer – index breakdown



Source: Robeco Quantitative Research

All in all, the Quant Customizer helps our clients to get a better understanding of the customization possibilities for their equity portfolios along the dimensions of risk, return and sustainability. As such, the software is a helpful tool that uncovers the potential impacts or implications of various choices. It also allows our clients to design their envisioned portfolios in a smart and efficient way.

Conclusion

As outlined, we believe that investing in a sustainable future by safeguarding economic, environmental and social assets is crucial for a healthy global economy and the goal of generating attractive returns in the future. As such, sustainability plays an important role in our approach to Quant Equities investing. Indeed, we began integrating sustainability in our Quant Equities models as far back as 2010, and have enhanced our approach over the years in lockstep with the ever-evolving field of sustainable investing.

In this publication, we touched broadly on the key sustainability dimensions by introducing the concepts and highlighting why they matter for investors. We then detailed how these dimensions are integrated in our Quant Equities investment process. And in conclusion, we provided an overview of our Quant Equities product range from a sustainability perspective and discussed how our Quant Equities platform can cater to client-specific sustainability preferences.

Given that the landscape of sustainable investing is changing rapidly, we continue to learn every single day, even as seasoned sustainable investors. As a result, we will continue to make investments in infrastructure and people to underpin our research-driven approach to accumulate institutional knowledge and keep abreast of developments in the sustainable investing space. Over time, this will likely lead to enhancements in how we incorporate sustainability in our portfolios, pushing the boundaries beyond our current process outlined in this publication. As always, this will be done with our clients in mind to ensure that we cater to their financial and sustainability goals.

For more information, please visit our [website](#) for updates on quantitative and/or sustainable investing.

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