

THE BIG BOOK OF Sustainable Investing

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Meeting the needs of the present
generation without compromising those of
generations to come

Marketing materials for professional investors only,
not for onward distribution

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*“ You can’t go back and
change the beginning,
but you can start
where you are and
change the ending.”*

C.S. Lewis

FOREWORD

For the past century business and investing has been dominated by a single-minded focus on profit generation. This has created massive environmental and social deficits and placed the planet on a treacherous trajectory.

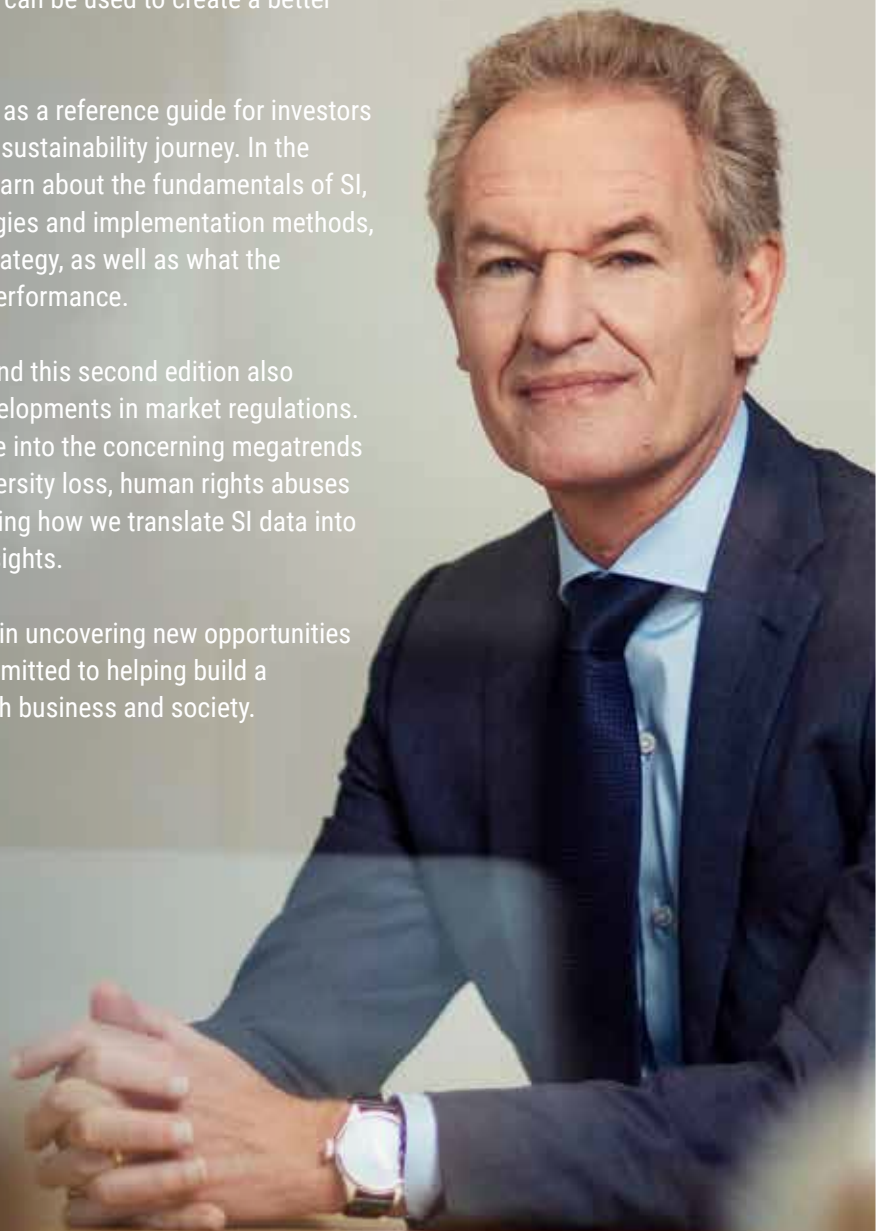
We can't change the past, but through our latest Big Book of Sustainable Investing, we hope to demonstrate how sustainable investing (SI) can be used to create a better ending.

The Big Book is designed as a reference guide for investors wherever they are in their sustainability journey. In the pages that follow you'll learn about the fundamentals of SI, the variations in SI strategies and implementation methods, how to select the right strategy, as well as what the research says about its performance.

SI is anything but static and this second edition also explores more recent developments in market regulations. It also takes a deeper dive into the concerning megatrends of climate change, biodiversity loss, human rights abuses and the UN SDGs, explaining how we translate SI data into actionable investment insights.

We strive to lead the way in uncovering new opportunities for investors and are committed to helping build a sustainable future for both business and society.

Mark van der Kroft, CIO



1. Sustainability and the role of finance in the 21st century

A commonly accepted definition of sustainability is meeting the needs of the present generation without compromising the ability of future generations to meet theirs.¹ In this chapter, we discuss the relationship between economic growth, sustainability and the financial industry.

1. Report of the World Commission on Environment and Development: Our Common Future, Gro Harlem Brundtland, Oslo, March 1987



“ We now have convincing evidence and new insights that we are no longer a small world on a big planet, we are a big world on a small planet.

Johan Rockström, Executive Director, Stockholm Resilience Centre

The relationship between sustainability and economics

The term ‘Tragedy of the Commons’ was coined in an essay by 19th century British economist William Foster Lloyd to describe a hypothetical situation involving the overgrazing of common (‘free’) land in medieval Britain. It is a metaphor for the degradation and eventual depletion of shared resources. The dilemma at its heart relates to the link between self-interest and open access, where individuals choose not to act for the common good and well-being of future generations in order to maximize their personal gain in the present. It is a classic example of coordination failure, which could be resolved by dividing the resources into individual parcels, or through the introduction of a government-enforced quota system.

The Tragedy of the Commons lies at the heart of many of the sustainability issues we encounter today. And as long as common goods such as air, water and many of nature’s services are cost-free, it will be difficult to solve. As an alternative to regulation, governments could choose to put a price on carbon to solve the coordination problem – for instance, via a cap-and-permit system or by means of a simple levy. While this is already happening to a limited extent, at present an estimated 77% of global emissions are still not covered by such measures.²

Resource scarcity and the need for a more circular economy

The Tragedy of the Commons will intensify further as the global population approaches nearly 10 billion by 2050.³ As humanity advances forward, each generation brings its own achievements and breakthroughs that enrich lives and advance society. But progress comes with a price. As populations grow, economies develop, wealth expands and new technologies proliferate, resources become more and more stretched.

Research from the Global Footprint Network estimates that humanity is currently using natural resources 1.75 times faster than our planet’s ecosystems can regenerate them.⁴ This means that 1.75 Earths are needed to maintain current living standards, which is clearly unsustainable. If ‘business as usual’ scenarios continue undisrupted, by 2050 three Earths will be needed to sustain the standards of living to which we have grown accustomed.⁵

2. The State and Trends of Carbon Pricing. 2023. World Bank Report.

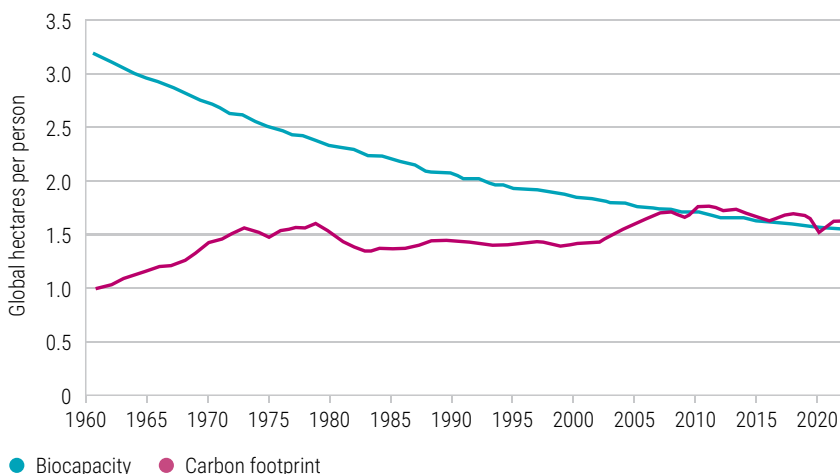
3. UN Department of Economic and Social Affairs, Population Division. World Population Prospects 2022.

4. Global Footprint Network, Overshoot Day Initiative. Earth Overshoot Day 2022 Nowcast Report.

5. <https://www.un.org/sustainabledevelopment/sustainable-consumption-production/>

This kind of overshoot is made possible by depleting the natural capital and resource security of future generations. The cost of this global ecological overspending is becoming increasingly evident in the form of deforestation, soil erosion, biodiversity loss, and the build-up of carbon dioxide and other greenhouse gases in the atmosphere. These are changes that will bring catastrophic and even irrevocable consequences for life on Earth. If not addressed, mankind will not be able to meet the needs of the present, without compromising future generations being able to meet their needs.

Figure 1.1: The Earth's biological productivity – a decades-long decline



World ecological footprint and biocapacity from 1961-2022 in global hectares per person. Biocapacity refers to nature's ability to provide products and services for human demand and consumption including food, fibers, timber, energy production, carbon capture etc.
Source: Global Footprint Network, Overshoot Day Initiative. Earth Overshoot Day 2022 Nowcast Report.

The rapid industrialization of emerging economies and continued high levels of consumption in developed countries mean that in the absence of coordinated action, resource depletion will only intensify in the decades ahead. A lack of sustainable drinking water, for example, is seen as potentially triggering wars between the haves and have-nots in the way that oil used to do.

The challenge for businesses and economies is to optimize resource use and economic growth. In other words, to efficiently use the Earth's natural resources without depleting them. This will require a shift away from wasteful production-consumption models towards a more circular economy based on much lower rates of natural resource extraction and use.

The task of transitioning from linear systems of thinking and production won't be easy, but circular innovation is thriving, and circular solutions are emerging across sectors. These are solutions that can play a key role in countering the negative effects of our current overconsumption crisis.

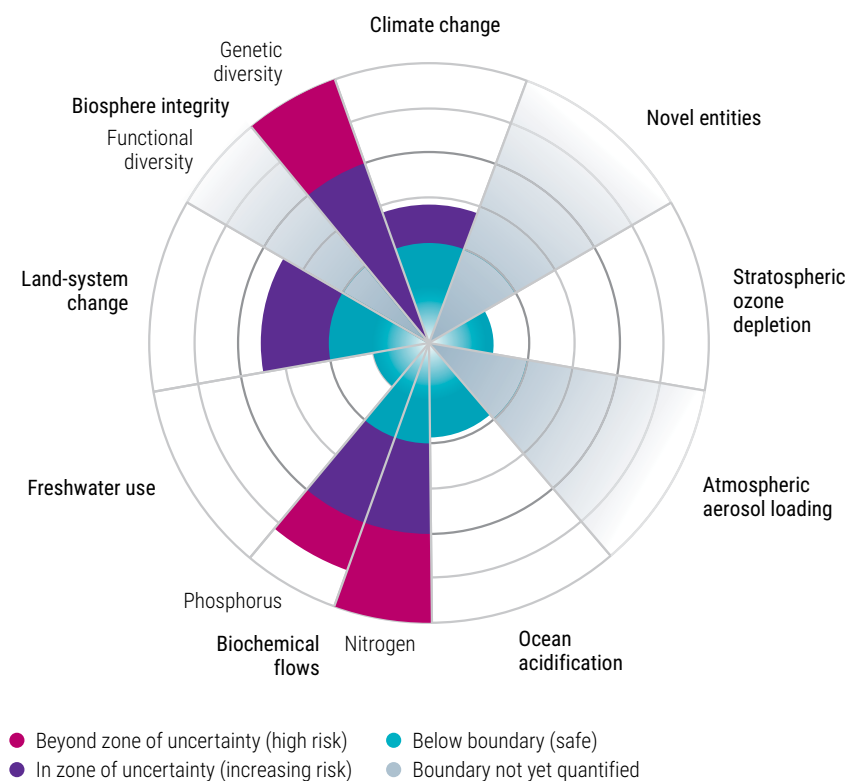
By using the capitalist system in a more sustainable way, companies are not only surviving, but also profiting from increased efficiency in recycling, waste management and lower supply costs. Moreover, it also works to lower capex costs while also granting more visibility and control over suppliers and supply chains.

CIRCULAR ECONOMY PRINCIPLES

The circular economy is based on the principles of decoupling prosperity and growth from resource use (especially virgin resources), which in turn helps reduce pollution, recirculate assets and regenerate natural capital. In stark contrast to linear 'take-make-dispose' models, circular supply chains cut the quantity of resources required at the outset and move materials in loops throughout the product's life cycle. Instead of premature disposal, product life is extended, value is retained, waste is reduced and additional resource extraction is avoided.

Moreover, loops aren't limited to end-of-life solutions. In fact, product design is where most ecological impact is defined, and opportunities to create new loops that eliminate waste exist at each phase of the manufacturing value chain – from product conception, design and manufacturing to distribution, retailing and consumption.

Figure 1.2: Science-based planetary boundaries



Source: Stockholm Resilience Center. Stockholm University, 2015.

Planetary boundaries

Resource scarcity is just one of a series of crises that must be addressed for humanity and the planet to survive and thrive in the future.

In 2009, a team of internationally renowned scientists introduced the Planetary Boundaries (PBs) Framework which identified nine critical processes that work in unison to regulate and stabilize life on Earth. These include climate change, ocean acidification, ozone depletion, critical nutrient/biochemical flows, freshwater use, land system change, biosphere erosion, novel entities (a class that includes human-engineered chemicals, materials or organisms), and atmospheric aerosol loading (See Figure 1.2).

Using data that linked human activity and environmental changes, the team was able to quantify boundaries that define levels within each process that are acceptable and safe and those that are high-risk with potentially catastrophic, irreversible outcomes for life and health on the planet. Though developed separately, the IPCC's 1.5 degree boundary for the rise in global surface temperatures is a type of boundary that helps guide policy, business and investments.

According to recent scientific studies, human activity has already pushed us beyond the 'safe zone' and into states of 'high uncertainty and risk' for five out of nine of these critical maintenance systems. These include climate change, biodiversity loss, nutrient flows, land use and novel entities, such as plastic.⁶

6. L. Persson, B. M. Carney Almroth, et al. "Outside the Safe Operating Space of the Planetary Boundary for Novel Entities". *Environmental Science & Technology*. 2022, 56, 3, 1510-1521.

The risks for businesses and investors can be large, and can include dramatic supply chain disruptions, shifting consumer preferences, new and extensive regulatory compliance, increased costs and scarcity of raw materials (see PFAS box). While these risks to business are often associated with climate change, it is important to understand that they will also be impacted by the other eight planetary processes.⁷

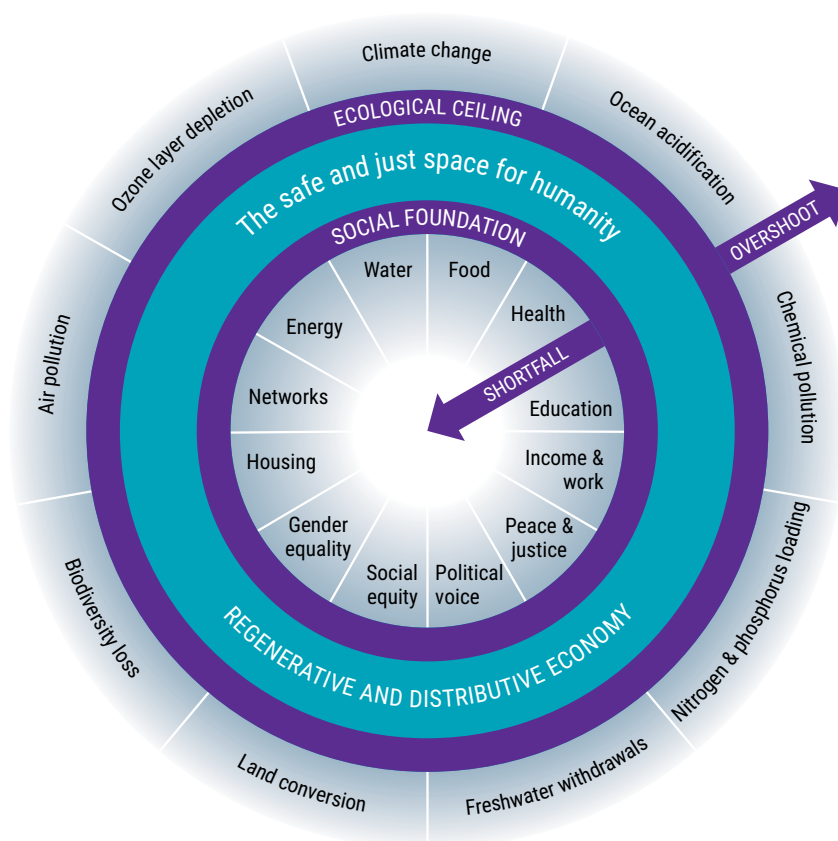
Successful, future-proof strategies will require companies to focus not only on reducing carbon emissions, but also to identify and address the ways in which their activities are pushing us across other ecological thresholds.

The doughnut economy

Maintaining Earth's natural systems is only part of humanity's problem. Sustainability encompasses much more than preserving natural capital and observing ecological boundaries; it also aims to protect and nurture human capital.

The doughnut economy, developed by Oxford economist Kate Raworth, is a conceptual framework that offers a means of achieving this. It combines a respect for planetary boundaries with humanity's social foundation, which is embodied in the UN's Sustainable Development Goals (SDGs). The goals aspire to ensure people across the planet have access to life's basic essentials, including food, shelter, education and healthcare. In short, the framework maintains that sustainable economic development should not overshoot planetary boundaries or undercut human needs and well-being. Optimal economic growth for people and planet will take place inside the doughnut (see Figure 1.3).⁸

Figure 1.3: The doughnut – the key to optimal economic growth



Source: Kate Raworth, Oxfam, 2017

PFAS

PFAS, a type of novel entity, provide an illustrative example of the regulatory, legal and business risks that boundary breaches carry.⁹ Also known as 'forever chemicals' due to their resistance to break-down, PFAS were long used in thousands of consumer and industrial products globally (e.g. non-stick cooking pans, food packaging, household cleaners, fire-retardant foams). However, many are now banned in the EU and UK given their excessive build-up in soil and water supplies as well as their damaging impact on human health and environmental ecosystems. Not only have PFAS-producing chemical companies lost a significant source of revenue, they have also been embroiled in decades of costly class-action lawsuits running in the tens of US billions in addition to financing clean-up and remediation efforts in contaminated areas.¹⁰ According to recent studies, the cost of PFAS chemicals to society is estimated at USD 17.5 trillion annually.¹¹

7. "Linking planetary boundaries to business", University of Cambridge Institute for Sustainability Leadership. www.cisl.cam.ac.uk/system/files/documents/linking-planetary-boundaries.pdf
8. "A Safe and Just Space for Humanity: Can we live within the Doughnut?". Oxfam Discussion Papers. 2012; "Doughnut Economics: Seven Ways to Think Like a 21st Century Economist." 2017. Random House Publishing.
9. PFAS, per- and polyfluoroalkyl substances is a classification for tens of thousands of man-made chemicals with similar molecular structures.
10. New York Times. 2 June 2023. "Three 'Forever Chemicals' Makers Settle Public Water Lawsuits" settle public water lawsuits."
11. ChemSec, May 2023. <https://chemsec.org/reports/the-top-12-pfas-producers-in-the-world-and-the-staggering-societal-costs-of-pfas-pollution/>

Moreover, this framework recognizes that growth cannot and should not be characterized by simple variables, elegant equations or smooth, upward-sloping lines. Rather, it realistically appreciates that sustainable growth is much more complicated, requiring us to better understand and minimize the friction that will arise from the inherent complexities and competing variables of social and natural systems.

A just world on a safe planet

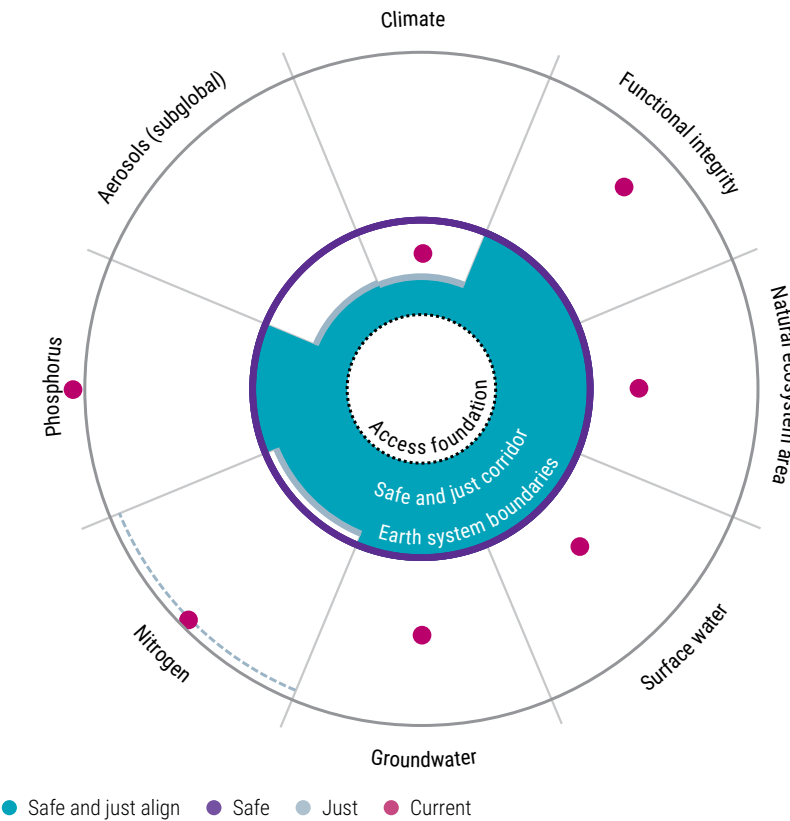
United under the Earth Commission Global Commons Alliance, a team of more than 40 researchers expanded on the doughnut economy and planetary boundaries concepts to construct a set of new Earth System Boundaries (ESBs).¹² In addition to environmental limits, the ESBs include social metrics and social safety boundaries to minimize harm caused by boundary breaches on human health and well-being as well as to address issues of fairness and justice.

Adding social indicators to planetary boundary considerations is significant in two ways. Not only does it address an important element of life on Earth that was previously excluded from consideration, it also establishes new empirically based boundary limits that are considerably lower than previous estimates (see Figure 1.4). A recent report from the group revealed that when both human well-being and social justice factors are considered alongside planetary health, numerous boundaries have already been exceeded.¹³

12. Boundaries measured include climate, the biosphere (e.g., land and water ecosystems), water, nutrient cycles (e.g., fertilizers) and aerosols.

13. Rockström, J., Gupta, J., Qin, D. et al. "Safe and just Earth system boundaries." Nature. 2023.

Figure 1.4: New Earth System Boundaries



Source: Nature, 2023



Finance can play a key role

While direct government intervention can certainly help ensure that economic prosperity is long-lasting, targeted investment has an essential role to play in the redeployment of capital to more sustainable activities. A key role of financial markets is the efficient allocation of resources to the most financially viable companies, not just in the present, but even more critically, in the future. This idea forms the core of the EU's Sustainable Finance Plan which recognizes the key role finance will play in achieving the SDGs and the climate goals of the Paris Agreement.

This makes it very important for investors to evaluate the sustainability of the companies in which they plan to invest. Financial materiality is the critical link at the intersection of sustainability and business performance. It refers to the environmental, social and governance (ESG) factors that can impact a company's core value drivers, including potential growth, profitability, risk exposure and the cost of capital. For instance, lowering energy consumption in manufacturing processes results in significant cost-saving opportunities and has a direct impact on a company's bottom line.

The range of sustainability variables covered is extensive, spanning everything from board diversity, talent retention and employee safety to water quality, waste management and carbon emissions. Financial materiality also covers not just issues within the companies' own operations, but also its preparedness for future regulatory changes as well as for managing the disparate risks spread across their supply chains which include ethical labor practices, community engagement, and resource use in addition to vendor diversification.

ESG variables can impact a company's competitive position and long-term financial performance which makes them critically important to investors. They are not just 'nice to have' – they have a direct influence on the bottom line, and therefore on share and bond prices.

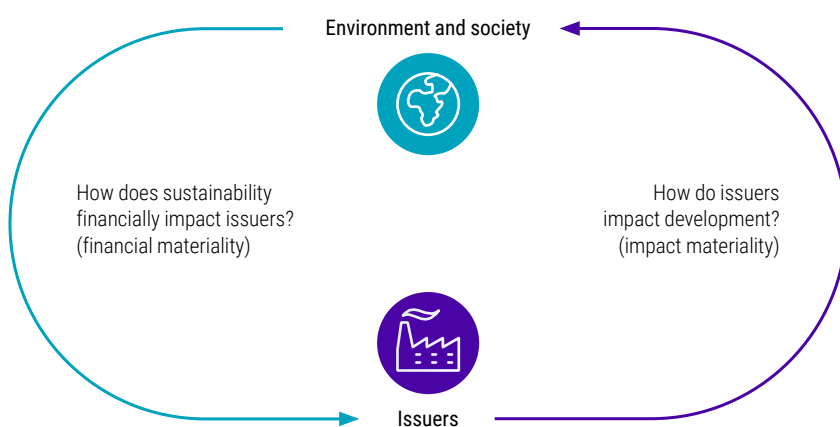
Moving beyond financial materiality

In recent years, regulators and other stakeholders have moved beyond the concept of financial materiality towards the concept of 'double materiality', a term coined in 2019 by the European Commission in its guidelines on non-financial reporting. It states:

'EU sustainability reporting standards need to be consistent with the ambition of the European Green Deal and with Europe's existing legal framework, the Sustainable Finance Disclosure Regulation and the Taxonomy Regulation. They need to cover not just the risks to companies but also the impacts of companies on society and the environment (the so-called 'double materiality' principle).'¹⁴

14. https://ec.europa.eu/commission/presscorner/detail/en/QANDA_21_1806

Figure 1.5: The two faces of materiality



Source: Robeco

Conclusion

The Tragedy of the Commons would be solved if financial materiality and impact materiality (or double materiality) were fully aligned, and companies and countries completely internalized the cost of negative externalities on society and environment. Unfortunately, although conceptual frameworks such as the doughnut economy and planetary boundaries are helpful for framing the problem, there is still a lack of functional economic models to help investors practically address external costs in their investment research.

Moreover, it remains to be seen whether this can ever be achieved; in practice how does one value a human life, or the availability of clean water? Some argue we should not even try to define such things in terms of monetary value. In the end, including double materiality in financial and economic frameworks will be a thorny challenge for the financial industry for years to come. ●

2. Three megatrends shaping the world

Megatrends, as the name implies, are those that have the power to reshape human behavior, company trajectories and industry value chains in the years to come.



In the past, megatrends have included digitalization, the evolution of health care as the population ages, and the more recent Covid pandemic that changed working and shopping patterns. Going back further we can see how the train replaced the horse, the airplane replaced the train, and the car became the dominant mode of transport. Constant change driven by technology is an inexorable part of human existence – keeping up with it is the main problem, particularly for sustainability.

These kinds of megatrends can subsequently create headwinds and tailwinds for companies and investors depending on how well they are prepared, equipped and positioned on the business landscape. Those which anticipate, innovate and adapt will see megatrends as gales of opportunities, providing tailwinds that propel growth and market share. Laggards will see them as disruptive forces,

creating gusty headwinds that upend business models, diminish revenues and complicate growth.

Understanding the kinetic of megatrends – their speed and acceleration, countervailing forces, and direction of travel – can help companies and investors to successfully manage the risks and capture the opportunities for new growth and expansion.

In this chapter, we discuss three critical megatrends – climate change, biodiversity, and human rights. These three areas were identified by the World Economic Forum as encompassing the world's most challenging short and long-term risks, while also offering the best opportunities for positive action as the world inexorably changes (see Figure 2.1). For each we describe where we are now, where we are headed, and how investors are affected in the process.

Figure 2.1: Major risks from major trends over the short and long term

	2 years		10 years
1	Cost-of-living crisis	1	Failure to mitigate climate change
2	Natural disasters and extreme weather events	2	Failure of climate-change adaption
3	Geoeconomic confrontation	3	Natural disasters and extreme weather events
4	Failure to mitigate climate change	4	Biodiversity loss and ecosystem collapse
5	Erosion of social cohesion and societal polarization	5	Large-scale involuntary migration
6	Large-scale environmental damage incidents	6	Natural resource crises
7	Failure of climate-change adaption	7	Erosion of social cohesion and societal polarization
8	Widespread cybercrime and cyber insecurity	8	Widespread cybercrime and cyber insecurity
9	Natural resource crises	9	Geoeconomic confrontation
10	Large-scale involuntary migration	10	Large-scale environmental damage incidents

Risk categories: ● Environmental ● Geopolitical ● Societal ● Technological

Source: World Economic Forum, Global Risks Perception Survey 2023

1. CLIMATE CHANGE

Global warming has already reached 1.1 degrees Celsius since pre-industrial times. The Paris Agreement seeks to limit warming to 2 degrees by the end of this century, and more ideally to restrict it to the less damaging 1.5 degrees. In order to achieve this, the world must become carbon neutral by 2050, leaving little room to maneuver.

Climate science is clear. Global warming, if left unmitigated, will have unacceptable long-term impacts on society and the global economy. The 2023 report from the IPCC, the UN climate science panel, paints a sobering picture:¹⁵

- Climate change is already leading to the widespread disruption of nature. Climate impact is being felt in every region, but particularly by the three billion vulnerable people living in exposed areas in Africa, Asia and small island states.
- Climate impact over the next 10 to 15 years will be greater than what we are experiencing today. Every region will face more extreme weather events such as heatwaves and heavy precipitation. Ecosystems and biodiversity will come under increasing pressure.
- At 1.5 °C warming, some ecosystems will exceed their limits of resilience, including warm water coral reefs, the Arctic and coastal wetlands. Production of multiple crops in a single year, which is common in tropical regions, will become increasingly difficult. Over a billion people will be subject to flood risks. People living on small islands or in mountain areas will critically lack access to fresh water.
- The climate impact will be particularly felt by poor communities in developing countries, which have had less of a role in causing climate change. They will be hardest hit through food insecurity, water scarcity, infectious diseases and loss of livelihood.

Climate science makes clear that the world needs to act now, since the costs and impact of inaction increase by the year. Climate action means, on the one hand, that the world needs to prepare for further climate impact; this is called adaptation. Global efforts to adapt to climate change are expanding in ambition and scale. There have been clear local successes with adapting agriculture, restoring ecosystems, managing water and upscaling disaster-risk finance. But overall, adaptation is piecemeal rather than systemic. Most attention from public policy as well as private sector action goes to climate mitigation.

Climate mitigation is about reducing greenhouse gas emissions to prevent further global warming. To remain within 1.5 °C, global emissions need to halve by 2030 from levels in 2010 and reach net zero by 2050. But we are not on track. Over the last decade, global emissions rose by 12% to 59 gigatons of carbon dioxide equivalent (GtCO₂e) in 2018-2020. The good news is that, over this period, the average emissions growth rate of 1.3% per year was lower than in previous decades. This is because we are using less energy per unit of GDP (-2.2% per year). Many countries have even achieved a decoupling of GHG emissions from economic growth, but absolute emissions continue to rise due to the global growth of per capita GDP.

Although this growth is concentrated in Asia, it is a globally shared responsibility. Around 40% of emissions from developing countries are associated with exports to industrialized countries. The richest 10% of the world population cause around 40% of global emissions. Some of the largest emission growth rates are in high-income areas such as aviation (+50%), SUVs (+17%), meat production (+12%) and residential cooling (+40%).

Despite significant developments since the Paris Agreement was signed in 2015, climate action remains insufficient. Taking all climate policies and stated targets into account, the world is still headed towards 2.4-2.7 °C of global warming.¹⁶ The key challenge is our continued dependency on fossil fuels. In many regions, renewables are now a cheaper option, but fossil fuels still account for the bulk of total energy supply (around 80% globally).

Yet, the IPCC notes that we have the tools and know-how needed to solve the problem. In all key sectors, low-cost abatement options are available, and these are sufficient for halving emissions by 2030 (see Table 2.1). It is estimated that limiting global warming to 1.5 °C would cost between 2-4% of global GDP by 2050. This is a considerable, but not unaffordable, cost.

So what is holding us back? The IPCC points to the need for clear public policies and coordinated action across all sectors. For instance, investments in renewable energy need to go hand in hand with increased storage, more grid capacity and better integrated networks. When one piece lags behind,

15. Intergovernmental Panel on Climate Change (IPCC), *Synthesis report of the sixth assessment report* (2023).

16. *Emissions Gap Report 2022: The Closing Window*, UNEP (2022).



Table 2.1: Overview of low-cost options for curbing emissions

System	Share of global emissions	Lowest-cost abatement options (<20 USD per tCO ₂ e)
Industry	20 Gt (33%)	• Energy efficiency (1.5 Gt) • Reduce leakage of cooling gases (1.5 Gt) • Reduce emissions from waste (1 Gt)
Land use	14 Gt (24%)	• Protect and restore nature (3 Gt) • Soil carbon in agriculture (1 Gt)
Buildings	10 Gt (17%)	• Efficient appliances and lighting (1 Gt) • Insulation (1 Gt)
Transport	8 Gt (14%)	• Fuel efficiency (1 Gt) • Electric vehicles (1 Gt) • Public transport and bikes (1 Gt)
Energy	7 Gt (12%) ¹⁷	• Wind and solar energy (5.5 Gt) • Reduce methane leakage (1 Gt)

Source: IPCC (2022), Climate Change 2022: Mitigation of climate change

overall progress is jeopardized. The net-zero transition is a systemic transformation. In the absence of coordinated policies, progress will be slow.

What does this mean for investors?

Climate change poses material risks to investment portfolios, and also brings many opportunities. It is the fiduciary duty of investors to identify and manage these properly.

According to the IPCC, the financial sector is not pricing in climate transition risk sufficiently. The reason for this is the high degree of uncertainty surrounding the net-zero transition. In the absence of clear policy signals, investors tend to follow

a wait-and-see strategy, meaning there will be no massive reallocation of capital. In the meantime, financial risks are building up. The IPCC estimates the discounted value of stranded assets in the energy sector in the coming decades is USD 1-4 trillion. This amount increases with every year of delayed action.

In addition to transition risk, we know with scientific certainty that economic activities and financial assets will be subject to increased physical climate impacts. There will be global spin-off effects from regional food insecurity, human displacement and increased political tension in vulnerable regions in Asia, Africa and Latin America. In Europe, we can expect disruption in urban economies from increased flooding and heat stress. These and other physical effects create investment risk that needs to be factored into investment analysis and decisions. Good forward-looking data on physical risk, in combination with in-house expertise to properly use this data, is going to be a salient factor for investment performance.

But besides risks there is also opportunity; these are two sides of the same coin. The net-zero transition requires massive investments in energy efficiency and renewables, the electrification of industry and transport, and the development of regenerative agriculture and urban infrastructure, amongst others.

¹⁷ These are *direct* emissions such as fugitive emissions from coal mining or refining. If *indirect* emissions are taken into account (i.e. Scope 3), then the energy sector represents 20 Gt CO₂e or 34% of global emissions. In the table, emissions from electricity and heat are re-allocated to the sectors where they are used.

Scenarios indicate that global grid capacity needs to increase fivefold to support the electrification that is needed in the shift away from fossil fuels. While some companies will wither away as the world moves to net zero, other companies will show phenomenal growth and performance. The opportunity for an asset manager is to identify the carbon winners of tomorrow.

Last but not least, beyond risk and opportunity, the Paris Agreement allocates a special responsibility to the financial sector: to align financial flows with transition pathways that will keep us well below 2 °C. Investors need to take responsibility for the impact of their financed emissions, and they need to ensure that their investments support the net-zero transition.

This responsibility is increasingly being integrated in supervisory frameworks and in regulations and standards such as the EU Sustainable Finance Disclosure Regulation (SFDR), the Taskforce for Climate-related Financial Disclosure (TCFD), and the International Sustainable Standards Board (ISSB).

The IPCC notes that the financial sector still has a long way to go. Climate investment is estimated at around USD 600 billion per year, which is between three and six times short of what is needed. Notably, investments in the production of oil and coal are higher than this, at around USD 800 billion per year. The IPCC concludes that there must be a massive shift in investments over the next five years towards low-carbon energy, transport and infrastructure.

2. BIODIVERSITY

More than half of the global economy worth USD 44 trillion is critically dependent on nature, according to the WEF. To avoid catastrophic environmental destruction and economic disruption, we must bend the curve from the business-as-usual trajectory towards no net biodiversity loss.

What is biodiversity and why does it matter?

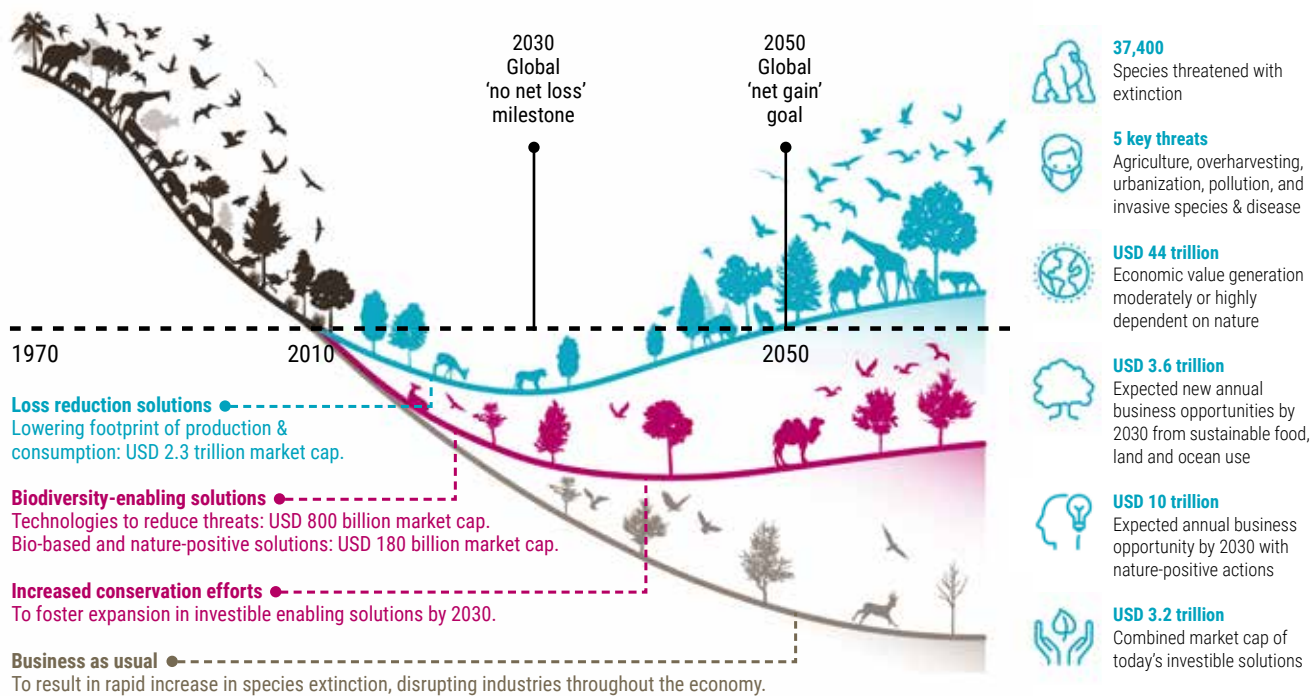
Biodiversity is the sum of all life on Earth. This abundance of variety is central to healthy ecosystems which provide the services on which society and economies depend including food, water, fibers, minerals, clean air, flood protection and

climate regulation. The biodiversity loss crisis goes farther than saving popular species such as polar bears or elephants; it extends to protecting the entire web of interconnected systems that make life on Earth possible.

The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) has determined the five biggest drivers of biodiversity loss to be: changes to land and sea use, over-exploitation, the introduction of invasive species, pollution and climate change. These drivers result from our current consumption and production patterns. Disabling



Figure 2.2: Biodiversity threats, opportunities and pathways



Source: Robeco, Bloomberg illustration adapted from Leclère et al, Nature, (2020), Adam Islaam, International Institute for Applied Systems Analysis (IIASA), Citi Research and Global Insights.

nature's capacity to provide these goods and services, poses significant risks to not only wildlife and the environment but to human, societal and economic progress. For instance:

- 75% of crop types depend on animal pollination; the loss of these pollinators puts about USD 250 billion of crop production at risk.
- Three billion people are affected by water shortages, which is compounded further by the rise in water pollution. In the summer of 2022, industries and electric utilities across China, Europe and the US were forced to shut down due to water shortages.

Current living standards require 1.7 Earths to replenish the demands we place on our planet. This is clearly not viable in the long term, and relying on government and philanthropic funding for conservation is insufficient. We need to dramatically reduce the footprint of our consumption and production.

Policy responses

In December 2022, the 196 member countries of the United Nations Convention on Biological Diversity (CBD) agreed to halt the rate of biodiversity loss by 2030 when they ratified the Global Biodiversity Framework (GBF). Examples of targets include protecting 30% of land and oceans, restoring degraded ecosystems, reducing agricultural pollution, and cutting food

waste by half. Although the agreement is not legally binding, it gives clear signposts.

Financial regulators are also watching closely. In March 2022, the Network for Greening the Financial System (NGFS) recognized that nature-related risks could have significant macroeconomic implications and should therefore be considered by central banks and supervisors. The Netherlands Central Bank found that Dutch financial institutions have about EUR 510 billion exposed to biodiversity risk. So, even if there is no legally binding agreement following the GBF, we can expect more requirements to assess, manage and disclose biodiversity-related risks.

The EU is already implementing regulations under its biodiversity strategy which include restoring land and waterways, tackling species loss (e.g., pollinators and bycatch¹⁸) and addressing impacts from agricultural practice (e.g., pesticide use). Its anti-deforestation law requires European companies to prove that there is no deforestation in their supply chains.

18. Bycatch refers to captured but discarded marine species as well as unobserved mortality due to a direct encounter with fishing vessels and gear.

Implications for investors

It would be easy to be overwhelmed by the complexities of biodiversity. Nature is itself complex, and its relationship with finance further compounds this complexity. However, as investors we have been analyzing financially material, nature-related risks for a long time, under the umbrella of environmental issues. These include deforestation, pollution and water scarcity, to name but a few. Assessing biodiversity impacts and dependencies provides a connective frame that links these different environmental impacts. More importantly, we now have enough information, tools, and metrics to start assessing biodiversity issues.

As a starting point, we have identified the high-risk hotspots. Tools already exist to assess industries for their impacts and dependencies on nature. Robeco uses the ENCORE¹⁹ tool which found that one-third of our assets under management are in sectors with high or very high impacts on the drivers of biodiversity loss, such as airlines, agricultural products, and oil and gas. One-quarter of assets are in sectors that have a high or very high dependency on ecosystems services such as agricultural and forest products, utilities, food and apparel. This is similar to the exposure levels of Dutch institutions referenced above.

We can focus on the drivers of biodiversity loss. Since different industries impact different drivers of biodiversity, we can develop industry-specific Key Performance Indicators (KPIs) to distinguish the leaders from laggards. In the case of pulp and paper companies, the main driver of biodiversity loss is land use change, where the level of certified sourcing and use of recycled paper are good indications of how well companies are reducing the pressure on land use.

Outlook: Nature-related developments will move fast

We expect that the GBF will translate into binding policies and agreements such as the Deep Seas Agreement or the EU Green Deal, and then into regulations for corporates and financials. Disclosures will improve as standards and regulations such as the Taskforce for Nature-Related Financial Disclosures (TNFD), Science-Based Targets for Nature (SBTN), European Sustainability Reporting Standards (ESRS), among others, come into force.

This in turn will improve the quality of the data landscape for investors. Today, there are hundreds of providers of nature-related data, but the information collected is patchy and not always comparable. Some data sources were developed to inform policy makers or scientists and are not fit for investment purposes. Fortunately, our understanding of how to construct and incorporate appropriate nature-based metrics into financial analysis will mature, and we expect to see sector pathways develop based on the drivers of biodiversity loss.

Nature may currently be following in the footsteps of the journey we have already undertaken for climate, but as it speeds up, it is likely to merge with climate to form an integrated approach. There is already a COP (Conference of the Parties) devoted to biodiversity, and scientists from the IPCC and IPBES have joined forces for climate-nature assessments. In addition, discussions are also intensifying around expanding nature-based credit markets, but with the need to ensure that such markets are credible and can provide real-world benefits. Much can be learned from the current debacle over carbon credits markets, which vary from being useful to useless.

Investment solutions will grow, whether this be for investing in leaders that offer solutions to halt the rate of biodiversity loss, or in opportunities to finance the transition to a nature-positive world. The WEF estimates that a nature-positive economy could unlock USD 10 trillion in business opportunities by transforming the three economic systems that are responsible for 80% of nature loss – namely food, infrastructure, and energy – by 2030. It means ecosystems can be viewed as important assets that can still be monetized, but in a more sustainable way.

19. ENCORE (Exploring Natural Capital Opportunities, Risks and Exposure) is a tool to help users better understand and visualize the impact of environmental change on the economy. It was developed by the Natural Capital Finance Alliance in partnership with UNEP-WCMC, the Swiss State Secretariat for Economic Affairs (SECO) and the MAVA Foundation.

3. HUMAN RIGHTS

Human rights are universal and should be applied equally to everyone, everywhere, at all times. Companies have a responsibility to respect human rights within their operations and supply chains. That responsibility also extends to investors and their portfolios. The UN Guiding Principles (UNGP) are the leading framework to help companies understand and implement human rights into business practice.

Company performance thus far has been mixed. However, government legislation and financially material litigation related to human rights disclosure and violations are proliferating worldwide, intensifying incentives for companies to proactively manage potential risks in operations and across their supply chains.

A universal norm

Upholding human rights is about respect for human dignity. It is about the responsibility of governments and companies to not infringe on the basic rights of others, and to address any adverse impacts in which they find themselves involved. This is crucial for achieving sustainable development.

The concept of human rights encompasses a broad range of topics which vary in terms of priority and implementation throughout the world. In principle, human rights are universal and inherent to us all, regardless of nationality, gender, national or ethnic origin, sexual orientation, color, religion, language, or any other characteristic.

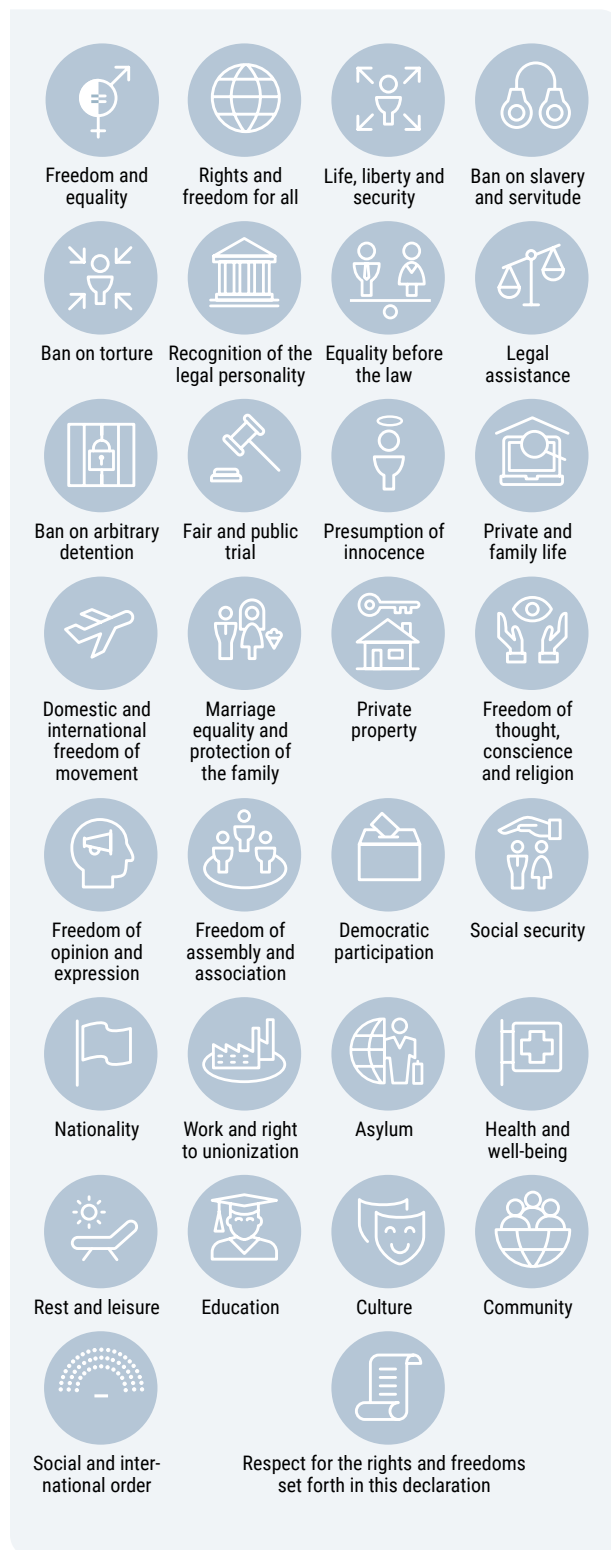
The Universal Declaration of Human Rights (UDHR), adopted by the UN General Assembly in 1948, provides the principles and building blocks of current and future human rights conventions, treaties and other legal instruments (See Figure 2.3).

The UNGPs: respecting human rights in business

While the UDHR was formulated in the first half of the 20th century, guidance was added for and endorsed by companies only in 2011. As the authoritative global framework for addressing adverse business-related human rights impacts, the UNGPs are a foundational tool for measuring corporate contributions to the Sustainable Development Goals (SDGs). They can also be used to measure the universal fairness of the net-zero transition.

The UNGPs contain three pillars: protect, respect and remedy. Each defines concrete, actionable steps for governments and companies to meet their respective responsibilities to prevent

Figure 2.3: The 30 universal rights covered by the UDHR



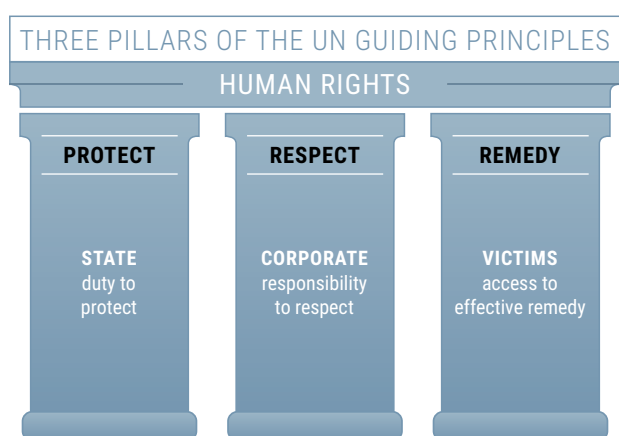
Source: Robeco, UDHR



and rectify human rights abuses. Responsibilities differ depending on whether companies directly cause, contribute to or are linked with human rights or social impacts through, for example, their supply chains or business partners.

And although the UNGPs are considered to be soft law, countries in major economic markets worldwide including the US, UK, and Australia now have hard legislation in effect that requires corporate due diligence on some of the more extreme forms of human rights abuses including forced labor, human trafficking and human slavery in their supply chains.²⁰

Figure 2.4: Pillars of protection: human rights in business



Source: Robeco, The Shift Project's '101 UN Guiding Principles'

What does this mean for companies?

First and foremost, companies have a responsibility to respect human rights as defined by the UNGPs. But it's not only this responsibility that counts; the expectations of employees, beneficiaries, clients, governments and wider society have also increased. Failure to respond to these expectations can erode trust and impact a company's social license to operate. For example, companies with exposure to high-risk regions such as Myanmar, the Palestinian Territories and Xinjiang face higher reputational risk, potentially leading to market share loss or higher operational costs in addressing supply chain issues.

Due diligence makes good business sense for companies as it offers the most effective means to systemically identify and manage salient risks that can result in legal, reputational, operational and financial liabilities. And legal suits are building. For example, NGOs in France are denouncing companies for human rights compliance failures based on the country's 2017 Corporate Vigilance Law which requires large companies to proactively identify, prevent and manage potential human rights violations within the company and across its supply chains.²¹

20. California Supply Chains Act of 2010, the UK Modern Slavery Act of 2015, Australia's Modern Slavery Act of 2018.

21. Financial Times, "French Court Pushes Back on Total Case in Tide of Climate Legislation". February 2023.

Human rights extend not just to extreme cases of forced labor and human trafficking in far-flung supply chains but also to protecting workers in rich countries from abuse, exploitation, discrimination and bias. For this reason, diversity and inclusion is a key theme facing companies, with implications for talent acquisition, development and retention. It is therefore important to proactively manage human rights and social expectations.

How are companies performing?

The Corporate Human Rights Benchmark (CHRB) provides a comparative snapshot of the performance of the largest and most influential companies in high-risk sectors. It looks at the systematic policies, processes and practices in place to protect workers and address serious allegations of abuse.²² In their most recent report, published in November 2022, the CHRB assesses the performance of 127 companies in the food and agriculture, IT/telecommunications (ICT) and automotive manufacturing sectors. It shows that while progress is slow, corporate respect for human rights has gained momentum.²³

CHRB research also revealed that while a third of companies have codes of conduct for their suppliers, only 11% work with suppliers to actively monitor risks such as child labor, forced labor or living wages (See Figure 2.5). The research also identifies engagement as an effective tool for focusing attention on issues in their supply chains from where the most serious allegations emerge. Moreover, they found that when human rights responsibilities are elevated to the board and senior management, due diligence significantly improves.

Figure 2.5: Expectations are rising but scrutiny lacking across supply chains



Source: World Benchmarking Alliance, 2022 Report

Human rights advocates can also take comfort from the EUs Sustainable Finance Action Plan. In addition to environmental objectives, company activities must also align with UNGP guidelines and international human rights laws to qualify as sustainable investment activities. Moreover, in early 2022, the EU proposed the development of a Social Taxonomy to sharpen the social criteria required for designation as a sustainable business activity.

What does this mean for investors?

The UN working group has called on investors to implement human rights due diligence as their own responsibility under the UNGPs. In addition to operational and supply chain scrutiny, investors should also coordinate with other organizations and platforms to ensure alignment and meaningful engagement with companies. This kind of due diligence is a powerful tool to identify, prevent, mitigate, and consider how a company addresses the most severe risks to people in connection with its activities.

For investors, due diligence helps identify, understand and assess risks in their portfolios. In its absence, it remains unclear whether human rights risks are appropriately identified and addressed by investee companies. Until recently, the issue of human rights was discussed mainly in the context of soft law, societal expectations and maintaining a social license to operate. However, recent regulatory developments are putting the spotlight on the 'S' in ESG; this is expected to create an additional push factor for companies and investors.

In Europe, action is being taken by individual member states and collectively. In addition to France, laws have been passed in Germany, the Netherlands and Norway requiring corporate due diligence on human rights. France's regulations can also result in financial penalties.²⁴ At the EU level, the Corporate Sustainability Reporting Directive (CSRD) already requires large companies to disclose their impact on both people and the environment.²⁵ Moreover, in 2022, the European Commission adopted a proposal to amend the CSRD to require companies

22. Corporate Human Rights Benchmark | WBA (worldbenchmarkingalliance.org)

23. Ibid.

24. French Vigilance Law Upholds Companies Accountable for Preventing Human Rights and Environmental Abuse. Labor Solutions. Accessed May 2023.

25. European Parliament Legislative brief. May 2022. [https://www.europarl.europa.eu/RegData/etudes/BRIE/2022/729424/EPRS_BRI\(2022\)729424_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2022/729424/EPRS_BRI(2022)729424_EN.pdf)



to identify, prevent and mitigate the adverse impacts of their business activities on human rights.²⁶ It has also proposed a marketing ban on goods in the EU that can be proven to have been made using forced labor. Changes to hard law and stricter disclosures are making human rights financially material for investments.

Moreover, the Covid pandemic highlighted that companies run financial risk related to unfair working conditions across many service-driven sectors, including online food delivery and the retail and hospitality sectors. Another topic is digitalization and artificial intelligence, which are creating worrying scenarios for data management, surveillance and privacy. There are wide-ranging benefits of new tools in virtually every field and sector, however, investors want to ensure that companies are considering the social ramifications of accelerating technological developments.

This is most likely why the Principles for Responsible Investment (PRI) highlighted that due diligence on human rights is increasingly a practiced standard for institutional investors. It forms an essential block in investors' broader systems for understanding the risk and opportunities associated with ESG factors.²⁷ While this sounds promising, a recent ShareAction report took a more critical view of investor uptake of social issues in investment policies. Just over half of asset managers (51%) reported having a general responsible investment policy that includes social issues for all portfolios under management, leaving significant room for improvement.

Conclusion

Megatrends are global in reach, pervasive in scope, transformative in nature, and long term in duration. In this chapter we have described climate change, biodiversity loss and human rights issues – three sustainability megatrends that also can be classified as mega-risks for companies and investors. Yet, despite their significance, status quo statistics demonstrate we are not doing nearly enough to counteract their force and change their trajectories. And the longer we wait, the stronger they become.

Frameworks and tools are emerging that can help companies and investors measure the risks and mitigate the impact. Moreover, while mega-risks create headwinds for many companies, they can also create tailwinds for those that see them as mega-opportunities for new solutions in business and investments. It is important for investors to take these trends into account when making investment decisions. ●

26. European Parliament. Research brief. February 2023. [https://www.europarl.europa.eu/thinktank/en/document/EPRS_BRI\(2023\)739356](https://www.europarl.europa.eu/thinktank/en/document/EPRS_BRI(2023)739356)

27. PRI workshop

3. Sustainable investing: the state of play today

With roots dating back to the green crusades of the 1960s, there's no doubt that sustainable investing has moved firmly into the mainstream in the ensuing years. Today it's about much more than just investing with environmental issues in mind. Sustainable strategies now typically also consider a wide range of social issues, such as human rights, and governance matters, such as a company's gender or racial diversity. And there are a wide variety of sustainability approaches from which investors can choose, from the use of simple exclusions, to more advanced ESG integration, or investing aligned with climate targets or the SDGs.

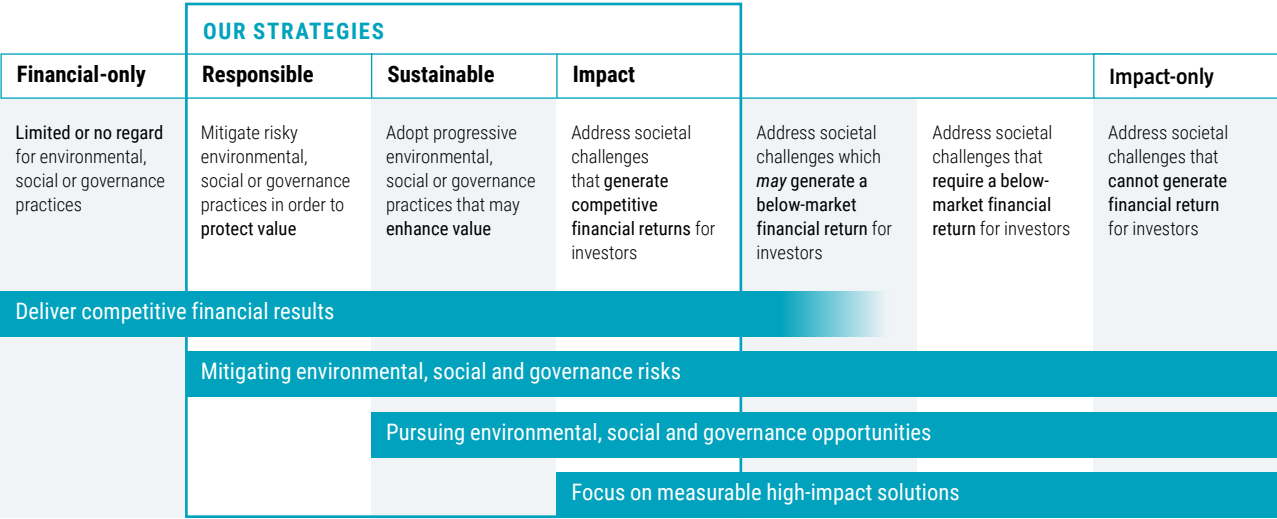


“ At the start of 2020, global sustainable investment reached USD 35.3 trillion in five major markets, a 15% increase in the past two years.²⁸

It is clear that in sustainable investing there is no one-size-fits-all approach and that motivations for doing it, as well as managers’ means of implementing it differ widely between

participants. However, over the course of time, market consensus has grown more concrete on how to differentiate between sustainable investment approaches (see Figure 3.1).

Figure 3.1: The spectrum of sustainable investing



The diagram builds on the report of the Asset Allocation Working Group of the Social Impact Investment Taskforce established under the UK’s presidency of the G8. It shows commonly used instruments for SI implementation as well as where Robeco’s sustainable investing solutions are concentrated on the spectrum. Source: Robeco, 2023

At one end of the spectrum, investors only consider financial criteria for investment decisions and pay little or no regard to ESG. At the other end, investors only consider social or environmental criteria, including philanthropy, which addresses societal challenges but does not produce financial returns. Institutional investors are generally located in the area where sustainability is considered either to mitigate risks, enhance value, or create an impact alongside achieving competitive returns.

Putting sustainability into practice

Traditionally, there are several different instruments that can be used to implement sustainable investing. Figure 3.1 depicts them on the wealth continuum, where early stages of asset management are driven by growing wealth while later stages are focused on deploying it responsibly to generate other benefits. Sustainable instruments used to obtain the desired effect across the continuum can be used in isolation or in combination. Sustainable investing and impact investing are moving beyond the use of exclusions, ESG integration and active ownership towards implementing progressive

28. Global Sustainable Investment Review 2020, Global Sustainable Investment Alliance (GSIA)

sustainability characteristics such as lowering the carbon footprint or selecting from an investment universe that has been pre-screened for ESG or SDG factors.

Below we will give more flavor and insight into each of these instruments. New approaches have developed over time that are not yet fully captured by standard-setters in the market, such as the use of climate benchmarks or the SDGs as guiding principles. Regulation in Europe has also developed some new ways of looking at sustainable investing using more of a 'carrot and stick' approach that encourages some things and enforces others. We will discuss some of these approaches as well.



Norms-based screening and exclusions

One of the sustainability goals of investors is to reduce exposure to business practices that do not fit with their vision on sustainable

development. Some investors also exclude businesses for financial reasons to avoid stranded assets that they believe will become obsolete in a sustainable economy, such as fossil fuel producers. These preferences can be very investor-specific and are often set by local views and sometimes local labels or political issues.

Investors can exclude companies or countries. For companies, exclusion is usually based on the products they make or the services they deliver, such as controversial weapons, thermal coal or tobacco. They can also be excluded based on behavior that structurally breaches internationally accepted codes on human rights, labor and environmental standards, such as the employment of children or forced labor (whether intentionally or unintentionally).

Countries that face sanctions by the UN, EU or US must be excluded, and some investors exclude sovereigns based on other governance measures. This means their sovereign bonds, and sometimes the equities of companies based in these countries, cannot be used in portfolios.

There are some important elements to consider when developing exclusion policies:

1. Selecting guidelines and international standards to guide your policy in each area of exclusion
2. Determining the revenue thresholds to be used for products, such as a 5% limit on thermal coal, or the tolerance levels for behavior
3. Analyzing the impact on the investment universe and risk-adjusted returns; this is critical as many controversial companies are highly profitable (e.g., tobacco and defense contractors)

There are different data providers that can provide information on the exposure of companies to the products and services that are deemed controversial. Investors can then set revenue thresholds for these products and services. For controversial weapons and tobacco manufacturers, this threshold is often zero, to make sure there is no exposure at all to these highly detrimental products. The threshold revenues of less detrimental products, such as fossil fuels or palm oil, can be set higher to allow for transitioning business models.

Data providers can also determine whether or not issuers structurally breach international standards and behavioral norms. This data is less coherent and more subjective than product-related revenue data. Different criteria can be used and the most common issue is its timeliness. When is a controversy resolved? It is therefore very important to understand how a breach was established, and when it will be considered resolved. For example, in the case of a major pollution spill, important criteria in determining whether behavioral norms were exceeded include: was the spill sufficiently cleaned up, were robust preventative measures put in place to avoid future incidents and were local communities compensated? After these questions have been addressed, controversial data can be understood, applied and reported by analysts in a meaningful way.

Moreover, what is deemed controversial evolves over time. In recent years, exclusions for the worst climate offenders, such as thermal coal and controversial oil and gas companies, are becoming more common.

PROS AND CONS: While exclusions are on the face of it a relatively straightforward strategy to implement, investors do have to ask themselves some difficult questions. Excluding companies often does not lead to eliminating the harmful product and service. Moreover, excluding whole sectors can have a sizable impact on the risk/return characteristics of the portfolio. As the reasons for exclusions are often not financially motivated, assessing the financial impact (positive or negative) can be difficult and is often arbitrary.

SUITABLE FOR: Investors who have a clear vision on which products or behaviors are incompatible with what they or their stakeholders deem important. For example, health insurers tend to exclude companies that make products such as tobacco that are detrimental to individual and public health.



Best-in-class/positive screening

While exclusion strategies adopt a negative approach, best-in-class strategies adopt a more positive slant, choosing to invest in the firms with the best ESG practices in a particular sector rather than deliberately avoiding particular areas. These strategies are based on the premise that companies with the best ESG practices are likely to outperform over the long term.

For example, a firm with a highly equitable pay structure is very unlikely to face expensive lawsuits from employees who believe they have been unfairly underpaid relative to some of their colleagues. Conversely, a firm that has a minimal impact on the environment is unlikely to face costly penalties for pollution. Best-in-class ESG behaviors can also provide a positive boost to their profits. For example, firms with the reputation for being responsible industry leaders will be more likely to attract and retain customers than their rivals.

PROS AND CONS: As this approach can greatly reduce the size of the investment universe, the impact on returns is up for debate. Standard financial theory would suggest that decreasing the universe leads to a reduced choice which will certainly lead to lower excess returns relative to a benchmark that includes them all.

However, financial theory also holds that investing in companies with good and sustainable business practices gives them a competitive advantage over less sustainable peers and should therefore yield better returns or lower risk. There is not enough evidence to support either premise, but experience does tell us that best-in-class portfolios tend to have a bias towards larger-cap, higher-quality companies which does affect the risk/return characteristics compared to a market-weighted strategy.

Another observation is that first determining an investment universe based on ESG considerations and then applying financial analysis is a sub-optimal approach, which may be the reason it is losing some of its appeal. On the other hand, many other ESG implementation tools are gaining traction such as, for example, ensuring the average ESG score of a portfolio is higher than the market. In such strategies, financial and ESG performance are considered simultaneously when evaluating the options and ultimately making the investment choice.

SUITABLE FOR: A best-in-class approach fits investors with strong sustainability convictions and ambitions and a clear belief that companies that have good sustainability practices will outperform their peers over the long run.



ESG integration

This involves systematically including analysis of ESG criteria as part of the decision-making process for an investment strategy. This is based on the premise that ESG considerations can have a major impact on a company's ability to create shareholder or bondholder value in the same way as analyzing traditional financial and fundamental criteria.

The way in which this is done differs widely between institutional investors and even between different teams within the same firm. Sometimes ESG integration is carried out by specialist sustainability investment teams and sometimes by traditional portfolio managers. Some firms conduct their own sustainability research, while others rely on external analysis provided by ESG research firms. Sustainability data may be implemented at the top-down level, where it is used to identify a theme of interest that may lead to a portfolio manager seeking out securities that fit the theme.

Alternatively, it can take place at the bottom-up level, where ESG considerations are included in the process of security valuation and selection. This may be done by including financially material ESG criteria as inputs in the valuation model, generally on a sector-by-sector basis. Alternatively, a non-sector specific overall ESG score can be used by the investment team to determine a security's overall risk/return potential. It can also be done by adding financially relevant sustainability information to the definition of traditional quantitative factors.

PROS AND CONS: Done in the right way, using ESG integration in investment analysis can help make better investment decisions. The goal is clearly financial and does not necessarily lead to portfolios that only invest in the most sustainable companies. Integrating it into existing processes, however, also means that attributing performance to ESG factors involves some art in addition to science. It is also difficult to assess whether the ESG information available to investment teams is seriously considered, or simply used for greenwashing an investment strategy. This won't be immediately obvious by simply evaluating the portfolio's ESG score; more rigorous due diligence of the investment process and documentation are required.

SUITABLE FOR: ESG integration is perfectly suited for investors seeking to 'mainstream' ESG but without defining or applying a specific sustainability risk budget. These investors believe that using ESG information that is relevant (financially material) leads to better-informed investment decisions or better risk/return rewards.



Thematic investing

Thematic strategies invest in companies that are helping to solve problems related to specific themes linked to sustainability. These themes are most commonly associated with environmental challenges such as clean water, climate change and waste recycling, but they can also relate to social issues such as gender equality.

PROS AND CONS: Thematic investments are often narrowly focused, high-conviction strategies and can therefore only make up a small share of a total portfolio. For large institutional investors, the costs and management attention that are associated with these investments can be an impediment. However, thematic companies that address underserved markets tend to outgrow and outperform their peers.

SUITABLE FOR: Investors with a clear vision on certain sustainability themes who want to accentuate their portfolios towards these themes.



Impact investing

Impact investing involves deliberately making investments with the aim of creating a measurable, beneficial impact on the environment or society, as well as earning a positive financial return. It has long been an approach favored by private philanthropists but is quickly growing in prominence for mainstream investors. And where it was also once a niche concept focusing on microfinance, private equity or project financing, it is now increasingly being applied to mainstream asset classes ranging from listed equities to fixed income.

Impact investing has three key components:

1. **Intentionality:** The investor intends to make a positive impact on a particular issue through the investment.
2. **Return:** Returns should generate a positive financial return; impact investing is not philanthropy or charity.
3. **Measurability:** The financial, social and environmental benefits stemming from an impact investment should be measurable and transparent.

Impact investing should also incorporate the concept of 'additionality', which means that they would only allocate to businesses that they would not otherwise choose to if they were not targeting a positive impact. This makes the concept of impact investing difficult in liquid asset classes, as very little new capital is provided. In order not to be accused of impact-washing, most investors now tend to call listed equity strategies 'impact-aligned'. The Global Impact Investing Network (GIIN) launched guidance for pursuing impact investing in listed equity in March 2023. This helps investors to understand how impact portfolios in listed equities differ from sustainable equity strategies.

Impact-aligned investing in liquid asset classes was greatly boosted by the launch of the SDGs in 2015. The SDG framework offers a clear means of directing investments to companies that contribute to any one of the 17 goals. A wide range of SDG-based credit and equity strategies have since been offered targeting the companies that contribute to the goals through their products or services.

PROS AND CONS: Making a difference or a positive impact on society by means of allocating capital while also making a financial return is both noble and reasonable. But there are a few impediments. Traditional impact strategies target specific objectives and are often illiquid. As a result, they can only be applied to a small part of the portfolio. Management attention and costs may be too high compared to the returns offered.

Expanding impact to liquid and mainstream strategies is also becoming more common and tools such as the SDG framework are helping accelerate these trends. But while innovative and exciting for many investors, it also introduces a new difficulty – how do you assess the true impact of a globally diversified company? In addition to measuring the impacts of the company, another challenge is accurately measuring the positive impacts of investments directed at those companies. Data that measures a company's CO₂ emissions is already difficult to obtain for a large investment universe. Finding and measuring how companies contribute to poverty alleviation or improving ecosystems is an even bigger hurdle. Currently, taxonomies and tools are being developed to try to overcome these measurement issues.

SUITABLE FOR: Investors with a clear intention to align their investments with making a positive impact on society and a firm belief that this will generate the appropriate investment returns.

THE DIFFERENCE BETWEEN THEMATIC AND IMPACT INVESTING

For impact investing, a clear impact objective is determined, and the portfolio is managed and monitored according to this aim. This does not always have to be related to one theme or goal but can relate to multiple SDGs, for example. The core goal is to achieve both societal and financial returns. Impact strategies employ a clear 'Theory of Change' concept where there is a defined mission, objectives, processes designed to contribute to, measure and monitor positive change via investments. In contrast, thematic strategies can target a theme such as consumer trends but do not necessarily have to make a societal impact.



Active ownership

Active ownership is the practice of using an investor's position as a shareholder or bondholder in a company to persuade their management teams to act in a more sustainable manner. This is done through engagement and voting and is based on standard ESG principles.

Engagement initiatives represent an opportunity for investors to discuss sustainability risks and opportunities with companies. They also provide a forum for companies to learn about investors' expectations for corporate behavior. Companies that adopt sustainable business practices can create a competitive advantage and are more likely to be successful over the long run compared to those that do not, ultimately improving the risk/return profile of their securities.

Engagement can be used to reduce negative impacts of investee companies by addressing high levels of emissions, poor labor practices or involvement in controversies.

A company engagement typically runs over several years, during which time active ownership specialists are in regular contact with company representatives. Engagement objectives and targets are set, against which progress can be measured. Asset managers often work collaboratively to maximize the effectiveness of their actions if a single issue is involved, such as the Climate Action 100+ initiative, which targets the biggest carbon emitters.

Exercising voting rights is also an intrinsic part of active ownership in equity and can support the engagement efforts. Here, asset managers vote for or against company resolutions at annual general meetings (AGMs).

Investors can also file resolutions calling for specific things, such as company policies to align their operations with climate targets. They can also threaten to vote against more routine topics such as the reappointment of the chairperson if their requests are not met. In recent years, voting at AGMs has moved beyond simple 'rubber-stamping' that authorizes a company to continue 'business as usual' and has become much more of an opportunity to make investors' voices heard. Voting is often used in tandem with engagement to achieve the desired result.

PROS AND CONS: The effectiveness of active ownership oftentimes depends on whether company management feels threatened by shareholder sentiment on an issue. Moreover, it also depends on whether a company's management is compliant and open to change after constructive discussions. If the company does not cooperate, there is little the investor can do aside from deciding to divest their stake. The threat of divestment can itself be a powerful tool when the company fears that it would complicate its capital raising efforts or lead to a fall in share or bond prices. The problem with divestment is it doesn't cure the underlying problem; it simply transfers it to a new owner. Engagement is therefore usually preferred as a means of addressing issues.

Done well, engagement and voting can be very powerful tools for change. The more investors apply active ownership, the more effective it becomes.

SUITABLE FOR: Any investor who wishes to make a positive socio-economic impact and improve investment returns. Passive investors can also have a big influence as they own a substantial percentage of companies yet are technically unable to divest. That leaves engagement and voting effectively as their only sustainability investment tool.

Moving beyond ‘traditional’ ESG instruments

The instruments described above are common tools used in investment portfolios to implement ESG and/or sustainable investing. They have been applied by investors for over 20 years. More recently, new instruments have been developed in response to regulatory developments in the EU's Sustainable Action Plan for financing sustainable growth and the Paris Agreement on climate change. Here we explain some of the most common approaches.



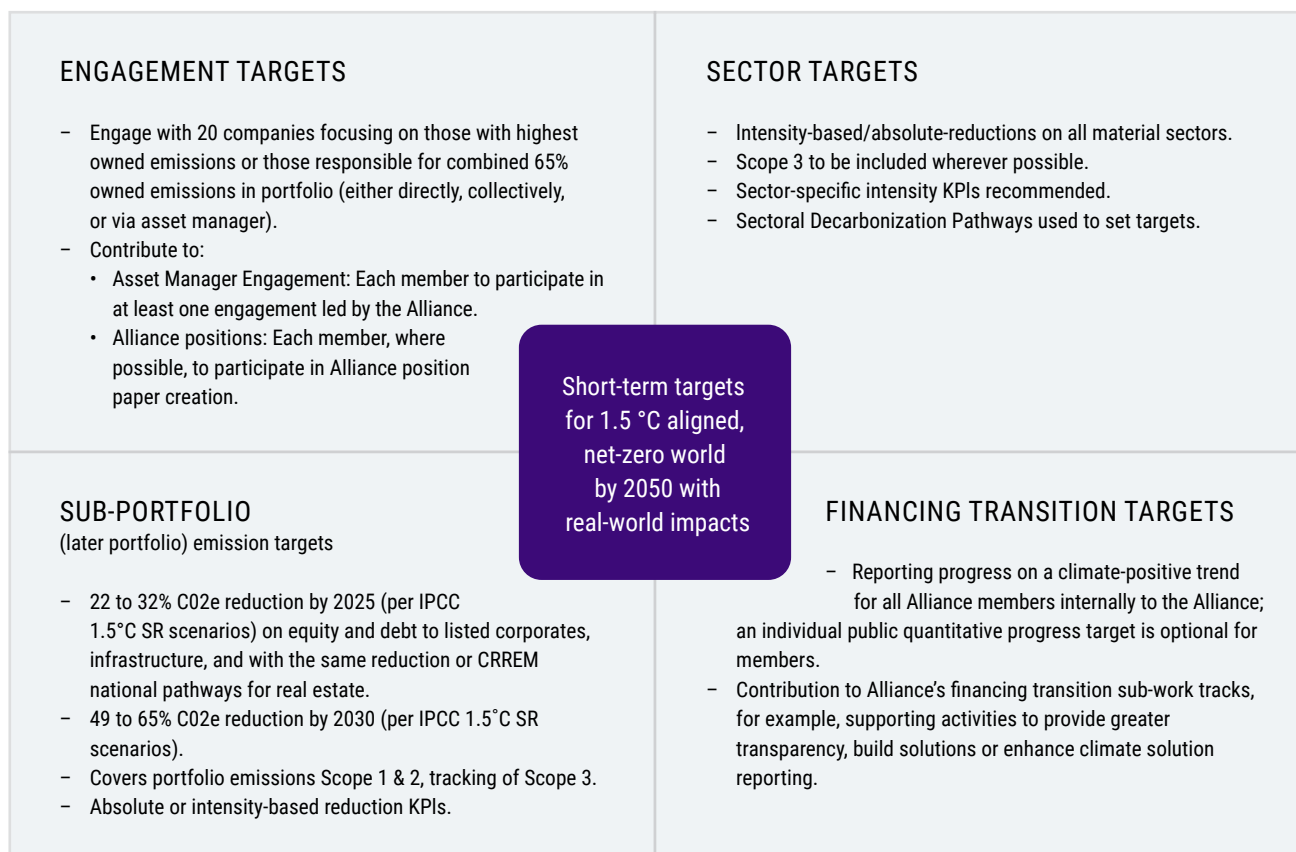
Net-zero targets and Paris-aligned investing

An increasing number of asset managers and owners have committed to achieving net-zero carbon emissions in 2050. The Net-Zero Asset Owners Alliance (the Alliance) and the Net-Zero Asset Managers Initiative commit signatories to decarbonizing their assets under management to become carbon neutral by 2050,

in line with Paris Agreement targets. While all participants are committed to this common goal, they are at different stages in their journeys. Some have net-zero roadmaps in place and have set interim targets to decarbonize portfolios. Others have committed to engage with corporates – and some even with countries – in their investment portfolios to request them to set Paris-aligned targets for their businesses.

In order to achieve this, the Alliance's protocol gives clear guidelines for setting interim 2025 targets based on four pillars – targets for sub-portfolios, sector targets, engagement activities and financing the transition. The guidance is both ambitious and concrete, leading some investors to retract their initial support. This was most notable among large passive investors who, outside of engagement, have little control over the constituent companies in which they invest on a blanket basis.

Figure 3.2: Net-Zero Asset Owners Alliance Target Setting Protocol



Source: UN Environment Programme and PRI

Implementation via EU-regulated benchmarks

Regulated benchmarks linked to combatting climate change can also be useful, particularly within the EU, which is among the more advanced Western economies in setting rules for it. Two benchmarks are defined by the EU: the Climate Transition Benchmark (CTB) and the Paris-aligned benchmark (PAB). Both can be used by investors to align with net-zero targets and track their progress.

The EU stipulates that an investment product following these benchmarks will meet the criteria if “the underlying assets are selected in such a manner that the resulting benchmark portfolio’s [greenhouse gas] emissions are aligned with the long-term global warming target of the Paris Agreement and is also constructed in accordance with the minimum standards laid down in the delegated acts”. The characteristics of both benchmarks are explained in Table 3.1.

Table 3.1: EU benchmark regulation on climate

		EU Climate Transition Benchmark (EU CTB)	EU Paris-Aligned Benchmark (EU PAB)
Risk-oriented minimum standards	Carbon intensity reduction -> at inception (vs. parent index)	30%	50%
	Scope 3 phase-in	2-4 years	2-4 years
	Baseline exclusion	Yes (controversial weapons/societal norms violators)	
	Activity exclusion	No	Coal (1% + revenues) Oil (10% + revenues) Natural gas (50% + revenues) Electricity producers (50% + revenues)*
Opportunity-oriented minimum standards	Exposure to high-impact sectors	Minimum exposure at least to parent benchmark value	
	Year-on-year self decarbonization	7%	7%
	Disqualification from label	2 consecutive years of misalignment	

Source: EU Regulation 2019/2089, Net-Zero Asset Owners Alliance

Robeco research has found that the index characteristics mimic those of the general market over time, as carbon data is very skewed and only a few big emitters need to be divested to reach these targets. Thus, the behavior and yield characteristics of the Paris-aligned indices are very similar to those of their equivalent generic indices, with the important difference being that the former do genuinely have a much lower carbon footprint.

However, over time if the real economy does not decarbonize, it will become increasingly difficult to decarbonize portfolios. It is therefore very important to create forward-looking research and metrics to understand how industries can lower their footprints, which companies have the right targets in place, and if they can realistically achieve them. Investing in these companies will therefore help decarbonize the benchmark (and thus the portfolio) over time.

PROS AND CONS: Paris-aligned portfolios reflect the commitment of an investor to contribute positively to combatting climate change. The investor is intentionally directing capital to companies with lower or declining carbon emissions. If the whole market did this, high emitters would eventually be unable to attract capital. However, this is often not the case, and decarbonizing portfolios – however good the intention – does not directly lead to decarbonizing the economy. For this reason, net-zero roadmaps often also include climate engagement and voting targets as well as targeted investments in transition solutions.

SUITABLE FOR: Any investor who wishes to align their portfolio with 1.5 or 2-degree Celsius scenarios and/or lower climate risks.

Regulatory-related sustainable investment implementations

Besides setting rules for Paris-aligned benchmarks and decarbonization target-setting, the Sustainable Finance Disclosure Regulation (SFDR) has also sparked additional elements that must be applied, explained and disclosed by financial participants with respect to marketed investment products.

- Good governance test: negative screening on governance criteria, including remuneration, employee relations, management structure and tax compliance
- ‘Do no significant harm’: negative screening on significant harm, often in the form of controversy screening
- Sustainable investments: investments in companies and activities that are contributing positively to sustainable development
- Principal Adverse Impact indicators: a list of mandatory and voluntary indicators that should be measured, disclosed and, if so chosen, considered in the investment process

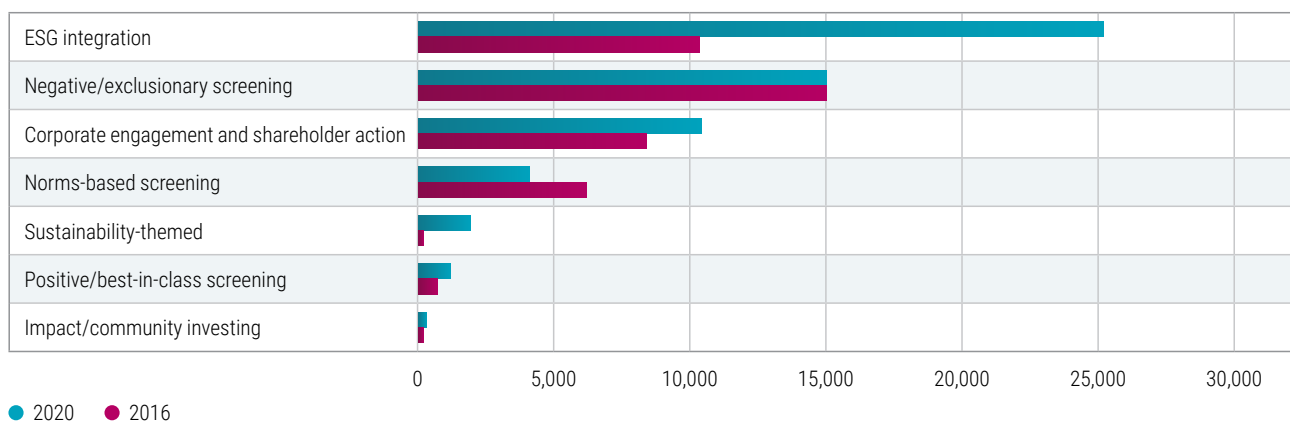
- EU Taxonomy: a definition of activities that are contributing positively to greening the economy and do no significant harm to social sustainability elements

These relatively new elements are actually implemented via the traditional instruments of screening, best-in-class, integration etc. Furthermore, investment managers must implement them in reporting. We explain these elements in more depth in Chapter 6, ‘Sustainable investment reporting’.

A growing global phenomenon but with regional variations

In all, interest in sustainable investing has seen huge growth over recent years, moving from what was once a niche style into the mainstream. Figure 3.3 shows the relative popularity of each style. ESG integration is now the most popular means of adopting sustainability, accounting for USD 25 trillion of assets under management in 2020. This is followed by negative or exclusionary screening, corporate engagement and shareholder action, and norms-based screening.

Figure 3.3: Popular sustainable investment strategies



Source: Global Sustainable Investment Review 2020, (in billions of USD)

But there are big differences in how investors around the world approach sustainability. In Northern Europe, the leaders are pursuing strong sustainability strategies. They have long had exclusions in place for companies that make products that are detrimental to society or display behavior that severely contradicts international codes on human and labor rights. In recent years, they have started to integrate financially relevant ESG information into their investments, and also use active ownership to enhance portfolios’ risk/return ratios. More recently, investors have begun to assess the true socio-economic impact of their entire portfolios, with the goal of increasing investments in companies that can contribute to sustainable developments. A full suite of sustainable strategies that can achieve this have been put in place at more impact-minded institutions.

ESG is also growing in importance in regions such as Asia, Australia and Japan. Differing levels of importance are attached to the E, S and G indicators. In Japan and Asia, the primary focus is on improving corporate governance, while in France, regulation has led to a focus on the carbon intensity of portfolios. In the US, big pension funds are also increasingly selecting ESG and sustainable development strategies, though there has been a backlash in certain states amid concerns over returns. In the UK, pension funds are very clearly focused on using ESG information to enhance returns or reduce risks to meet their fiduciary duties. The evidence and belief that ESG information is important for investment considerations are steadily growing in the UK amid growing regulatory and societal pressure.

Why the growth of sustainable investing will continue

So, sustainable investing has become firmly entrenched in the mindset of many institutional investors. And the trajectory of trends indicate that its future prominence will grow larger and more intense. It seems the stars are aligned, as corporates, investors, regulators and society are clearly increasing focus on ESG. And the topic is now firmly entrenched at the C-level within companies. Sustainable investing is clearly supported by three long-term drivers.

Figure 3.4: Long-term drivers of sustainable investing



Source: Robeco

First, sustainability issues – most notably climate change – are becoming financially relevant for companies and consequently investors. Business processes and end-markets are affected by the successful launch of sustainable alternatives that replace traditional, non-sustainable ones. Visible industry examples include electricity generation, transportation and food production. In fact, most industries are in some way affected by sustainability and increasing stakeholder awareness of climate change, biodiversity and social issues is driving increased attention from company management. This has gone hand-in-hand with the growth of renewable energy, electric vehicles, increased recycling, nature restoration and more environmentally friendly farming.

Moreover, clients' and society's standards on and expectations of how the financial industry handles sustainability issues are rising. The 2023 Robeco Global Climate Survey showed that climate change continues to be at the center of, or a significant factor in, investment policy for seven out of ten institutional investors. Furthermore, 66% of investors said biodiversity will be a significant or central factor in their investment policy over the next two years (compared to 48% today). That's a massive increase from just two years ago where only 16% of investors said biodiversity was significant to their investment policy and only 5% counted it as central. Implementation of those policies is still in its infancy, but it is very clear that asset owners are intensifying the pressure on suppliers to incorporate these issues into investment strategies.

Finally, the EU has taken the global lead on introducing regulation for financing sustainable growth, setting an example that is now being followed by Asia and Latin America. Although a backlash on sustainable investing in certain states in the US has generated lots of media attention, federal legislation seems to be moving to support ESG, backed by the Securities and Exchange Commission's focus on corporate climate disclosure. If introduced, investors are set to receive more information about corporate climate-related risks that have a reasonable chance of materially impacting a company's business activities. The backlash on ESG has temporarily postponed but not derailed this important piece of climate regulation.

SI standards and initiatives

With the growth of sustainable investing, the number of initiatives supporting its varying components have grown as well. Although there is no global standard for defining sustainable investments across all sustainability areas, there are several initiatives that can guide investors in researching, measuring and monitoring sustainability performance.

Figure 3.5: Sustainable investing initiatives

Objectives	Climate change	Biodiversity	Social rights	Governance & general
Setting standards	SCIENCE BASED TARGETS Transition Pathway Initiative		U.N.G.P.s The UN Guiding Principles on Business and Human Rights	ICGN
Measuring progress	PCAF CDP TCFD	PBAF		EuroSti S.D.G.s
Increasing transparency & accountability	IIGCC UNEP FI Climate Action 100+	TNFD Taskforce on Nature-related Financial Disclosures	RWF Financials for living wage ACCESS TO MEDICINE INDEX	PRI FNG
Moving the needle together				EU SFDR

Source: Robeco, 2023

In Figure 3.5 we display some of the more important institutions involved in designing sustainable investing frameworks for specific topics such as climate, biodiversity, social rights and governance as well as institutions that focus on SI more generally.

The organizations mentioned in Figure 3.5 provide guidance that help stakeholders – whether these are companies, investment managers, asset owners, or data providers – identify, collect, measure and report sustainability information. The landscape of reporting models, measurement frameworks and collaborative initiatives has become crowded in recent years but a few gold standards are emerging.

Many have been around for years, such as the International Corporate Governance Network (ICGN) which has set standards in this field since it was established in 1995. The United Nations has led the field in creating a global response to many sustainability issues, such as the Principles for Responsible Investment (PRI), which was created in 2005, and the Paris Agreement and Sustainable Development Goals (SDGs), which were launched a decade later.

Other international initiatives have emerged to assist investors and companies in pursuing not only SI, but their ability to monitor progress. The Taskforce on Climate-related Financial Disclosures (TCFD) has become the globally accepted framework for collecting climate information. Similarly, the Taskforce on Nature-related Financial Disclosures (TNFD), which is modeled on the same principles, aims to be the global standard for creating metrics and reporting frameworks around biodiversity indicators.

The Carbon Disclosure Project (CDP) has become a critical standard for collecting and reporting on a broader set of environmental factors which include greenhouse gas emissions, wastewater discharge and materials waste management. The Science-Based Targets Initiative (SBTi), of which the CDP is a part, is a collaboration of several institutions focused on giving companies hands-on tools for measuring carbon emissions and setting emission reduction targets and trajectories. Investors can also apply these tools to investment portfolios.

The UN SDGs framework has become the global go-to standard for measuring companies' alignment with sustainable development, while the Global Reporting Initiative (GRI) could be seen as the grandfather of generalized sustainability reporting, providing consistent standards for companies across environmental, social and governance factors.

Many companies use multiple frameworks, to ensure comprehensive management of and reporting on investment portfolios that matches the needs of all stakeholders and legal jurisdictions.

Conclusion

This chapter summarizes the basic principles of sustainable investing and explains how they can be practically implemented within investment portfolios. As with traditional investing, sustainable investors come with a complicated mix of investment motivations, values and objectives, some of which are competing while others are highly nuanced. That means a sustainable investment strategy for one investor may not be suitable for another; managers must be able to understand and explain the pros and cons, costs and benefits of each approach to ensure investor preferences and expected outcomes are appropriately aligned. Some investors will even require a combination of approaches in addition to finely tuned customization in order to capture subtle nuances in their risk, return or impact preferences. The bigger an investment manager's toolkit, the greater the chances of a success.

Along with investor profiles, the rules of the game are also changing, presenting challenging hurdles but also abundant opportunities. Regulators are beginning to recognize the material risks that unsustainable products and processes pose to their own economies and are pressuring companies and financial market players to measure, manage and, more critically, disclose ESG information to stakeholders. Moreover, the number and nature of sustainability risks are also growing larger to encompass the risk to and impact of business activities on climate change, biodiversity and human rights. In the wake of these changes, companies and investors must grapple with devising new metrics, measurement frameworks, and reporting regimes without clear and agreed upon standards.

The learning curve may never plateau, but then again, neither will the spirit of innovation required to transition to a sustainable economy that is powered by sustainable products and financing. ●

A close-up photograph of a hand reaching out and touching a pool of water on a dark, textured surface. The hand is positioned on the right side of the frame, with fingers slightly spread. The point of contact creates a series of concentric ripples that spread outwards across the water's surface. The water is a deep blue-grey color, and the surrounding surface appears to be asphalt or a similar dark material. The lighting is soft, highlighting the texture of the water and the skin of the hand. A teal-colored graphic element, resembling a stylized wave or a corner, is visible in the top-left corner of the image.

4. The Robeco approach

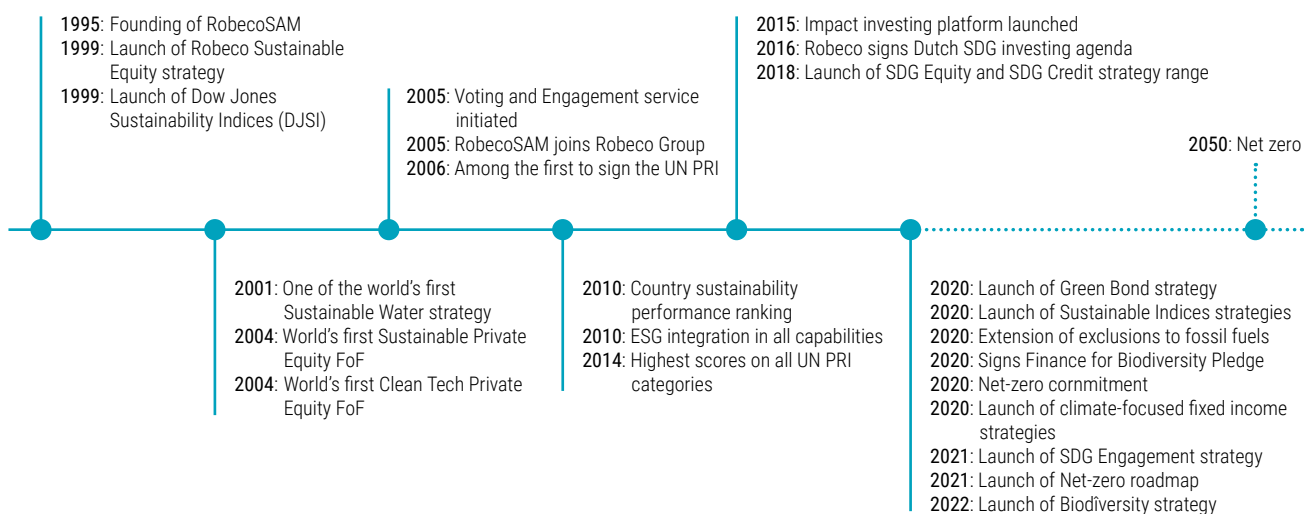
We've described some of the unprecedented challenges confronting humanity, business and the global economy, as well as the critical role that sustainable finance can play in addressing them. In this fourth chapter of the Big Book of SI, we dive into Robeco's approach to ESG integration, active ownership and sustainable investing.

Leading through experience and by example

Robeco has a long and storied history in sustainable investing. We were one of the first asset managers to see its potential for enhancing the returns of our clients' portfolios and launched our first sustainable investment product, the 'Groencertificaten', already in 1994. We were early adopters of using ESG data in public equities and helped launch the Dow Jones Sustainability Index in 1999 to help investors benchmark the sustainability of their portfolios. Shortly thereafter, we developed a sustainable water strategy, one of the world's first thematic equity products based on a sustainable theme. But innovation isn't solely directed outward towards products and markets – we've also looked inward.

Recognizing the opportunity to drive sustainability through direct dialogue with companies, we established an internal Active Ownership team in 2005. In 2010, we began routinely integrating ESG factors into investment processes across asset classes, and that same year we developed a framework for analyzing the sustainability performance of countries. Today, we continue to develop innovative tools and solutions that span SDG- and climate-aligned equities as well as biodiversity and engagement-focused equities.

Figure 4.1: At the forefront of SI for more than a quarter century



Source: Robeco, 2023

Leveraging experience

Soren Kierkegaard once said, *'Life can only be understood backwards; but it must be lived forwards.'* We bring forward the wisdom gained from nearly a century's worth of financial experience.

Within a year of our founding in 1929, half of our launch capital was lost in the aftermath of the Wall Street crash. It was a tough start, but it compelled our first CEO, Wim Rauwenhoff, shortly thereafter to declare that 'every investment strategy should be research driven.' Our sustainable investment strategies are powered by that spirit and built on hard evidence, rigorous analysis and thoughtful design. That's why we call ourselves 'The Investment Engineers'.

Our guiding beliefs

As an active asset manager with a long-term investment view, we create added value for our clients in the following ways:

- Our research-driven investment strategies are 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.

We believe that ESG integration leads to better-informed investment decisions and enhanced risk-adjusted returns throughout an economic cycle, and that:

- 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 to societal progress.

Pushing the pace of transition

Sometimes, pursuing sustainable objectives is too big to do all by ourselves. They say if you want to walk fast, walk alone, and if you want to walk far, walk together. We know we cannot solve big problems such as climate change on our own. What we can do is set a clear example, work together, and encourage others to follow suit. As part of our commitment to making financial markets more sustainable, Robeco collaborates with a diverse range of academic and standard-setting institutions such as the Principles for Responsible Investment (PRI), the Institutional Investors Group on Climate Change (IIGCC), and the Climate Action 100+ group, as well as NGOs working at the coal face of sustainability issues globally. When joining an initiative, Robeco makes sure to take an active role.

Following megatrends

Such collaborations work well when dealing with the three main megatrends facing humanity, namely, climate change, biodiversity loss, and human rights. These are not only urgent sustainability challenges, they pose unprecedented material risks to companies, investment portfolios and future economic development.

Therefore, we feel it is part of our fiduciary duty to participate in global initiatives that educate, equip, and empower us with the know-how and tools needed to understand the impacts and opportunities that these megatrends create for our portfolios. An active voice in targeted platforms helps push corporate and policy changes in these areas (see text box).

Sharing our sustainability IP – the Robeco SI Open Access platform

Participating in institutional platforms is only one avenue for sharing knowledge and driving sustainable investing. In 2022, we launched Robeco's Sustainable Investing Open Access initiative, a data and knowledge-sharing platform aimed at fostering deeper understanding, collaboration and innovation from a broader set of external stakeholders interested in advancing sustainable investments.

THREE MAIN MEGATRENDS

Biodiversity

In September 2020, Robeco signed the Finance for Biodiversity Pledge, committing to assess and manage biodiversity impacts in our portfolios and report progress by 2024.

Since 2020, Robeco has been actively involved in the development and testing of beta versions of the Taskforce on Nature-related Financial Disclosures (TNFD). This is helping us learn how to apply the guidelines to mitigate nature-related risks and impacts in our portfolios.

In January 2022, Robeco and the World Wide Fund for Nature Netherlands (WWF-NL) entered a partnership to work together in integrating the consideration of biodiversity in asset management.

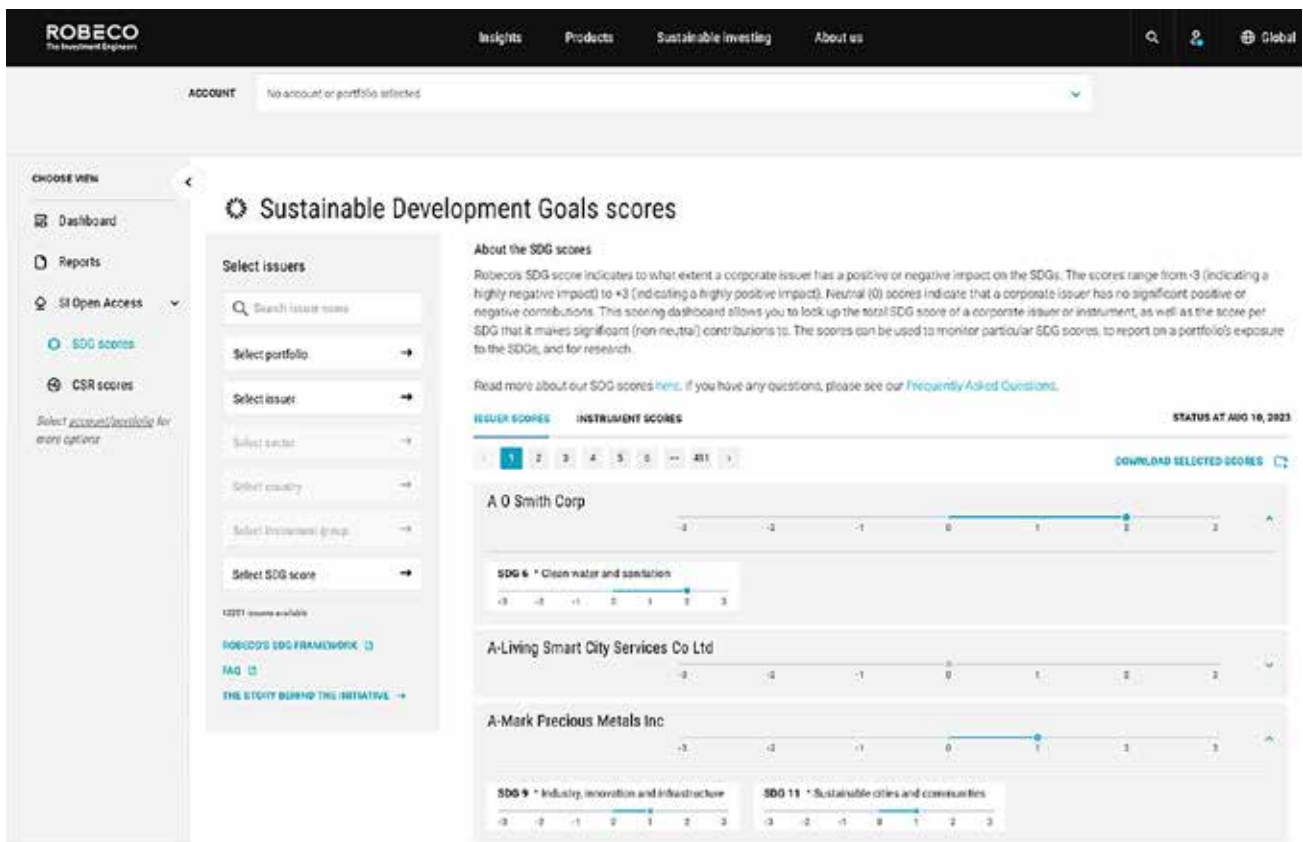
Climate change

In December 2020, we became a founding member of the Net Zero Asset Managers Initiative where we pledged to achieve net-zero greenhouse gas emissions across all assets under management by 2050.

Human rights

We are long-time signatories of the UN Global Compact (UNGC) and have also endorsed the OECD Guidelines for Multinational Enterprises. Robeco's human rights approach is aligned with International Labor Organization (ILO) standards and the UN Guiding Principles for Business and Human Rights (UNGPs).

Figure 4.2: A view of the SDG and Country Sustainability Ranking portals



Source: Robeco, 2023

The platform currently provides free, up-to-date access for clients and academics to our corporate SDG scores and country sustainability rankings. SDG scores allow users to see whether companies are contributing positively or negatively to relevant SDGs. They can also be used to monitor the SDG performance of many of Robeco's investment strategies.

Country sustainability scores and rankings were added to the platform in 2023 and provide users with a comprehensive overview of the performance of 150 countries on environmental, social and governance criteria.

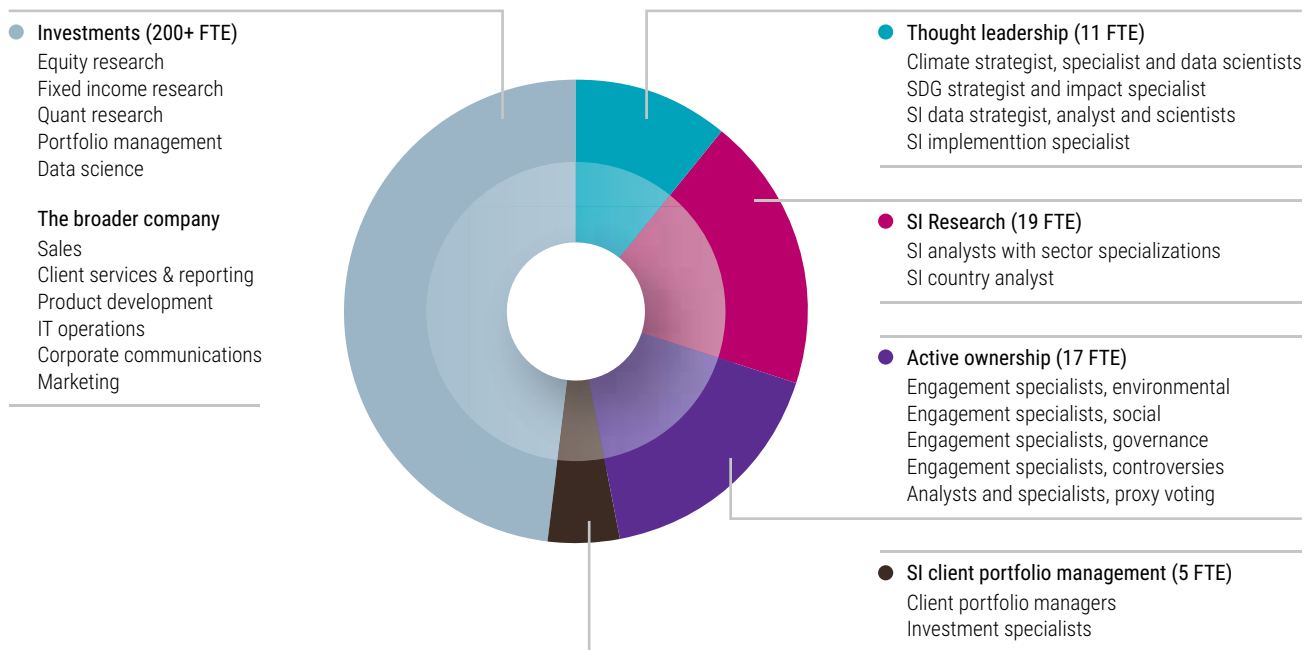
In addition to SDG and country sustainability scores, users are also provided with the detailed methodologies used to produce them. In later stages, we hope to expand access to other proprietary toolkits and to the broader public.

Creating wealth and well-being through an integrated approach

The investment industry is slowly beginning to recognize that fiduciary duty to clients means more than keeping a short-sighted view on capital accumulation. Next-generation clients, led by millennials, are concerned about taking care of our world and its diverse inhabitants and are increasingly prioritizing impact alongside returns. Shifting from solely creating wealth to creating wealth and well-being requires an integrated approach, combining honed investment acumen, the latest sustainability analytics as well as collaborative teams working together to translate information and data into meaningful insights for investment portfolios.

Our SI Center of Expertise sits at the intersection of this process. It is an interdisciplinary group of more than 50 sustainability specialists from SI Research, Active Ownership and Client Portfolio Management. It also includes specialized teams of data scientists, analysts, and strategists working exclusively around the critical topics of climate change, biodiversity, human rights and the SDGs.

Figure 4.3: Sustainability experience is embedded across the organization



Source: Robeco, 2023

The SI Center is a living example of the principle that the sum of the whole is more than the sum of its individual parts. The collective sum of our teams of sustainability experts gives us an arsenal of tools and a leading edge in understanding the implications of complex sustainability risks for companies and investments. Moreover, our modular approach to incorporating ESG tools throughout the investment process enables us to create bespoke solutions that cater to different client preferences and needs.

Translating sustainability data into investment frameworks

We are passionate about the ability to quantify sustainability by interpreting the wide variety of data that is now available from different vendors. The main problem is not the lack of data – far from it. In some cases, investors face a deluge of ESG information that is often overlapping and sometimes even contradictory. The real issue lies in what you do with it.

Interpreting data requires skilled analysts and sharp tools to understand context, identify patterns, create connections, and draw insights. We then use our interpretations to inform security selection decisions across a diverse range of asset classes and investment strategies. We also cross-pollinate ideas and insight with other SI experts to help inform and enrich their respective analyses, processes and reporting outputs on behalf of clients.

Here we outline some of the primary analytical frameworks that have been developed by teams within our SI Center of Expertise.

Table 4.1: Overview of Robeco's sustainable investment frameworks

Framework	 Thematic investing framework	 SI company profiles	 Country Sustainability Ranking	 Country SDG scores	 Corporate SDG Scores
Intention	Obtaining exposure to companies addressing specified global sustainability challenges	Focusing on the financially material factors which drive value creation	Using ESG insights as an early warning sign for country-specific risks	Prioritizing and obtaining exposure to countries based on their contribution to the SDGs	Obtaining exposure to companies aligned with the SDGs
Description	Identification of companies worldwide that offer products and services within the thematic fit	Fundamental insights into the sustainability performance of a company	Comprehensive framework for analyzing a country's ESG performance	Comprehensive framework for analyzing a country's SDG performance	Assessing a company's alignment with the SDGs through three-step framework
Application	Eligible universe screening for our thematic strategies	Fundamental investment analysis of corporates	Fundamental investment analysis of sovereigns and quant selection models	Eligible universe screening for some portfolios	Eligible universe screening for our thematic and SDG strategies

Framework	 ESG-labelled bond frameworks	 Environmental footprint	 Sector decarbonization pathways	 Traffic Light assessment	 Climate scores (in progress)
Intention	Checking whether a ESG-labelled bond meets internal criteria and thereby mitigate greenwashing	Reducing portfolio emissions through a comprehensive approach	Understanding sector pathways aligned with the Paris Agreement	Identifying companies' alignment with the Paris Agreement	Aligning portfolios with climate change contribution preferences
Description	Assessing how green a green bond is through a five-step framework	Measuring GHG emissions, as well as water and waste consumption	Analysing companies' decarbonization trajectory based on technology readiness	Getting insights into companies' decarbonization targets and the credibility of them	Assessing companies' contribution to climate change
Application	Eligible universe screening for our green bond strategies	Corporate issuer performance and country issuer performance	Input for ESG integration frameworks, traffic light and climate scores	Identifying potential climate-related engagement cases and voting	TBD

Source: Robeco, 2023

Continuous development

The world of sustainable investing is dynamic and constantly evolving. To lead by example and stay ahead of the curve means we must continually work to develop new frameworks.

In 2023 we launched a new Country SDG Framework to assess countries' commitment and progress on the SDGs. Similar to the corporate SDG framework, it uses a three-step approach. First, we assess if a country's policies advance or detract from the SDGs. Second, we determine if a country lacks access to capital markets and thereby provides investors with an opportunity to help close that gap. Lastly, we look at controversies and whether countries comply with key SDG principles.

ROBECO'S NET-ZERO ROADMAP

In 2020, we announced our commitment to the Paris Agreement's climate ambition and created a net-zero roadmap to guide us in decarbonizing our assets to reach carbon neutrality by 2050. Announcements are easy. The hard work comes in gathering the data and constructing the frameworks that allow us to translate targets into meaningful action.

To align with the Paris Agreement, our aim is that our portfolios have a 30% lower carbon footprint than 2019 levels by 2025 and 50% lower by 2030. This means we need to decarbonize our portfolios by an average of 7% per year.²⁹ The rationale behind this and our approach to decarbonization are explained in our Net-Zero Roadmap.³⁰ Our portfolios' carbon footprint in 2022 was 45.1% lower than the baseline of 2019, which means we are on track for reaching the next milestone.³¹

SECTOR DECARBONIZATION PATHWAYS

We believe that systematically considering climate change in our investment processes is essential for the future success of our investment strategies. Our research determines the sectors and industries for which climate change will have a material impact and over what time horizon. In cases where we deem climate change to be material for a company within a particular investment horizon, our sustainability and financial analysts work together to analyze the company's climate-change strategy, understand how it compares with its peer group and assess the impact of climate on the company's business model, products, services and financial results.

In 2022, we expanded our research program on sector-level decarbonization pathways for carbon-intensive sectors such as steel, cement, power and oil and gas. As part of this research, we analyze how each sector needs to decarbonize over time to keep its carbon budget well below the 2 °C pathway and what types of technologies and policies are needed to help it do so. We then analyze how individual companies are performing against their sector

Figure 4.4: Forward-looking climate metrics for investment teams



Source: Robeco, 2023

benchmark, considering both their current carbon emissions and their forward-looking transition plan. Our analysts use this knowledge to assess the financial implications for each company, considering factors such as capital expenditure and carbon pricing.

ENGAGEMENT WITH CLIENTS AND INVESTEE COMPANIES

We offer our clients a broad range of low-carbon investment strategies, and in 2022 we launched a net-zero 2050 climate equities strategy. As part of Robeco's net-zero strategy we will continue to launch innovative low-carbon investment products. We will also help those clients who invest with us via mandates to achieve their individual decarbonization goals. We estimate that nearly 60% of assets in mandates are managed on behalf of clients that have made a commitment to net zero.

In 2023, we intend to set up a team that will target specific client groups to boost their commitments to net zero and integrate these commitments into their mandates.

Our climate engagement program aims to leverage our influence as an investor to help accelerate climate action by companies and countries. Our climate engagements with corporates focus on high-emitting companies that are lagging in the energy transition. For some of these companies, divestment may be the ultimate consequence if our engagements prove unsuccessful. In addition to energy companies, our climate engagement program also includes banks as it is important to also engage with the sources that provide the funding for projects that generate emissions (such as new oil fields) as well as the companies that are involved.

29. Due to methodological limitations, our decarbonization target only applies to the equity and corporate bond holdings in Robeco funds. These account for around 40% of our total assets under management.
30. Robeco's Net Zero Roadmap.
31. Please see Chapter 6, Reporting (Figure 6.8) for an overview of Robeco's net-zero progress.

Furthermore, we have built investment frameworks for measuring company and portfolio performance on climate (see box, Robeco's Net-Zero Roadmap) and are nearing completion of a framework for measuring corporate impact on drivers of biodiversity loss. We are also laying the groundwork for assessing companies' human rights performance within operations and across supply chains. Our end goal is to help our investment professionals strengthen the resilience and real-world impact of client portfolios.

Continuous development also means refining existing work streams and frameworks to ensure they capture new data and trends developing across companies and markets. To this end, we are working to simplify and streamline data to further our ability to integrate sustainability considerations throughout the investment process (see insert box on page 48, Essential ESG analysis).

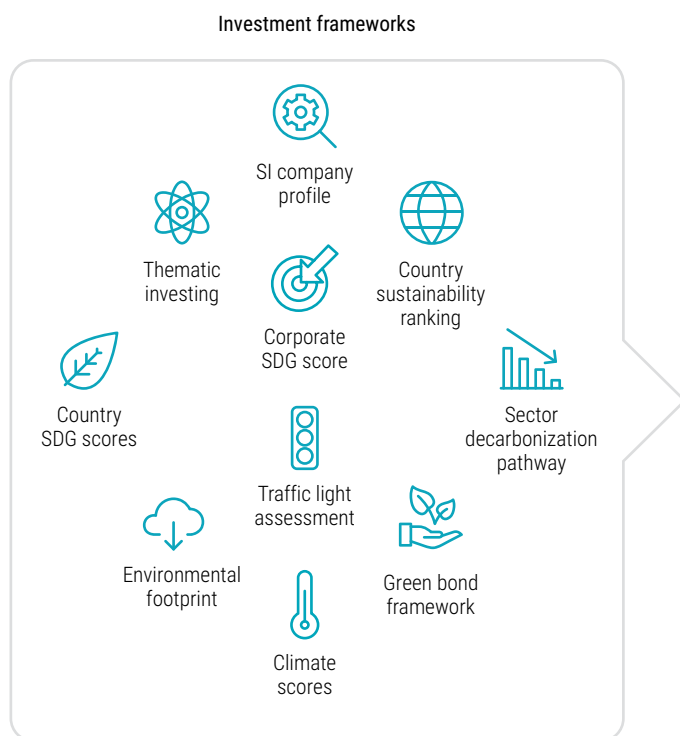
Integrating sustainable innovation into investment portfolios

So, how does all this raw data and sustainability R&D find its way into client portfolios? We are an international asset manager offering investment products across the spectrum of equities, fixed income, quantitative, thematic and emerging market investing. This means creating investment strategies that are tailored to the asset class or theme at hand, integrating ESG every step of the way.

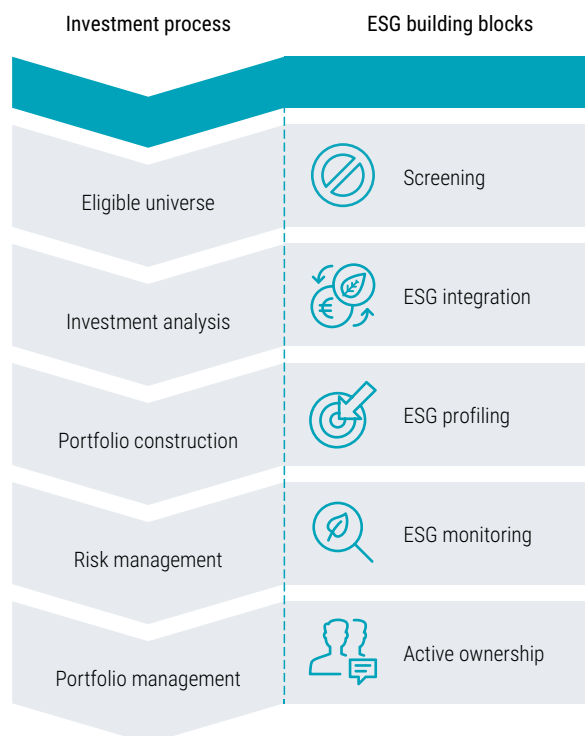
To do this, we use a five-step process: establishing the eligible universe; investment analysis; portfolio construction; risk management; and portfolio management through active ownership.

Figure 4.5: A process overview – transforming raw data into ingredient blocks for portfolios

Translating sustainability data into investment frameworks



Incorporating sustainability into the investment process



Source: Robeco, 2023

1. The eligible universe – exclusions and screens

The first step starts with defining the eligible universe, and this means first deciding what you want to avoid. We do this using an exclusion policy that has been in effect for equities, credits and government bonds for many years.

Robeco's Exclusion Policy

Robeco views exclusions as a measure of last resort. Furthermore, it is also necessary to comply with regulations that can lead to investment restrictions.

Robeco's exclusion policy serves three purposes:

1. **A minimum standard:** It sets a minimum standard that eliminates products, services and business practices which Robeco deems detrimental to people and planet. Also included in this category are companies with a severe risk of stranded assets, where Robeco believes the impact of engagement is limited.
2. **A measure of escalation:** It is used as an escalation step in cases where engagements have been initiated due to misconduct.
3. **Compliance with regulation:** It ensures compliance with external regulations across global jurisdictions.

Robeco uses exclusions to eliminate extreme sources of financial risks or sources of conflict with clients' values. In addition to our exclusion policy, we also use negative screens to comply with more stringent ESG criteria in many of our investment strategies. For example, we screen out companies performing below certain ESG performance thresholds in our Gender Equality Equities strategy.

Conversely, we use positive screens to identify companies that are positive sources of impact. For portfolios which target an SDG objective, the screening in our SDG Framework ensures that the eligible investment universe is constructed with companies aligned with clients' SDG preferences.

Moreover, we use proprietary, theme-based criteria to ensure sustainable thematic investment universes only contain companies which contribute to the respective sustainability theme.

2. Investment analysis – integrating ESG

Once the investible universe has been constructed, the second step is integrating ESG. ESG analyses is not just a 'nice to have' factor – it's a 'must have' given the financial materiality of sustainability factors on a company's bottom line. Not all ESG factors will be relevant for every industry. For example, human rights and water consumption do not pose significant ESG risks to institutions in the banking sector. It's much more useful to focus analysis on corporate governance structures, risk management processes and cyber security infrastructure – ESG factors that represent significant material risks that could affect a bank's financial success.

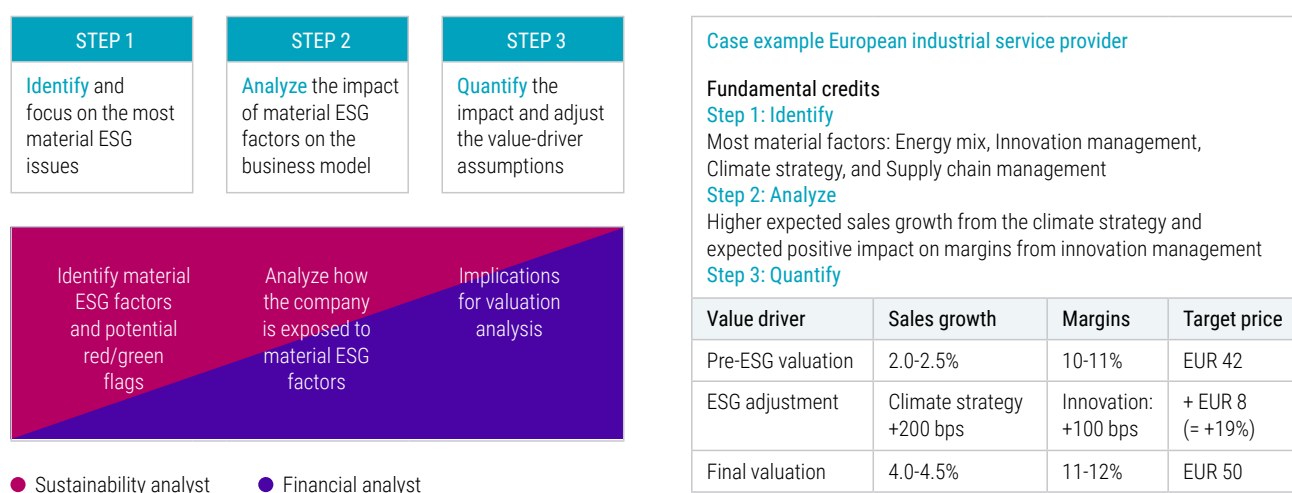
On the other hand, labor practices and water-use are sources of material financial risks to a clothing manufacturer given their dependence on suppliers in emerging markets which often ignore international standards for employee safety, waste management and water quality. When manufacturers neglect these ESG issues, it endangers lives, communities, and the environment and can cause serious damage to firms' reputations, revenues and market value.

ESG integration is based on three steps (Figure 4.6):

1. **Identifying** the most financially material ESG risks and opportunities affecting the company
2. **Analyzing** the likely impact of these factors on the company's financial performance
3. **Incorporating** this information into the valuation analysis

Our investment teams cooperate closely with SI Research analysts to determine and understand the most financially material ESG factors for a particular sector or company. They also work with our Active Ownership specialists for insights into whether engagement efforts have improved a company's sustainability standing and therefore its future financial performance.

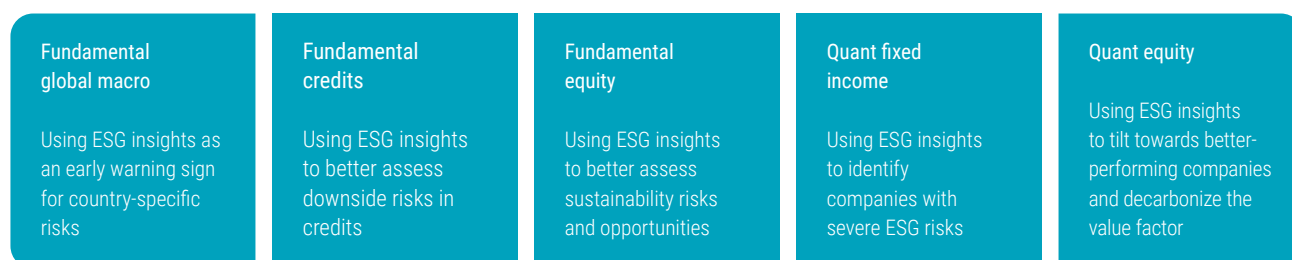
Figure 4.6: Applying ESG research to security analyses



Source: Robeco, 2023

Even though the same three-step process is followed, the outcome of ESG integration can differ across asset classes. For example, in equities, ESG is more often used to assess the potential upside from companies with higher sustainability. With bonds, default is the ultimate risk, and ESG analysis can give warning signs that do not necessarily appear in a credit rating. Therefore, in fixed income, ESG analysis is more often used to assess downside risks.

Figure 4.7: ESG integration – customized to asset classes



Source: Robeco, 2023

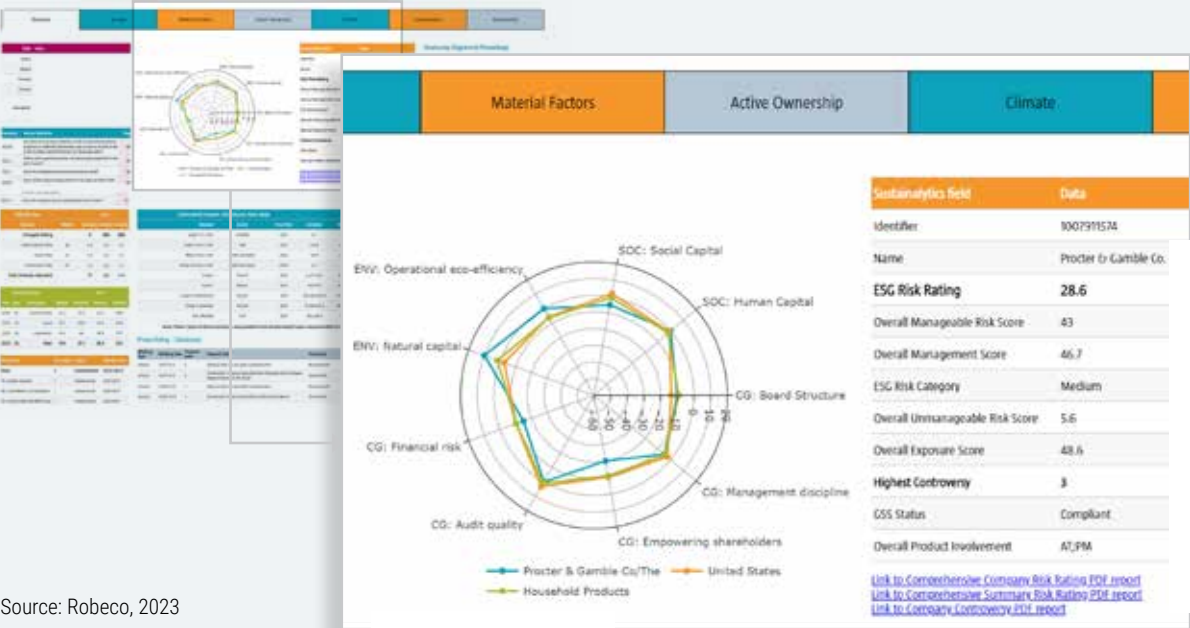
ESSENTIAL ESG ANALYSIS – AVAILABLE IN JUST A CLICK

Robeco's investment teams have access to cutting-edge external and internal sustainability data and research, all in one central location.

Company ESG dashboards provide investment and SI analysts with access to external research from S&P, MSCI

and Sustainalytics, Robeco's SI research team provides comprehensive sustainability coverage spanning ESG data and ratings, SDG performance, sustainability trends, emission trends, regulations, and their impact on company value drivers. Company dashboards also provide insights into the voting rationales and company engagements from Robeco's Active Ownership team.

Figure 4.8: A company ESG data dashboard



Source: Robeco, 2023

3. Portfolio construction – accentuating ESG performance

As described earlier, asset management is fundamentally changing. Asset Management 1.0 was fixed on generating alpha. But it's no longer just an alpha game. Next-generation clients want to grow their wealth responsibly, in a way that addresses mega-risks in addition to promoting well-being for the planet and society.

Asset Management 2.0 captures this new normal. It incorporates clients' desires for alpha, a suitable tracking error and some kind of sustainability budget.

More importantly, the new normal also means that one size does not fit all – customer risk, investment return and sustainability preferences differ across geographies and client segments. Our diverse sustainability toolbox enables us to apply a building-block approach where we can create custom-made solutions to match clients' investment values and risk-return preferences.

Figure 4.9: Asset Management 2.0 requires more than maximizing alpha



Source: Robeco, 2023

For example, many of our clients have their own views when it comes to setting minimum standards for exclusions. Others go further by requiring specific sustainability promoting portfolio characteristics, such as lowering the carbon footprint of a portfolio or having better ESG scores than the benchmark. Others go further still by requiring real-world impact through exposure to bespoke sustainable themes or through SDG-promoting investment strategies. Some even want exposure to specific SDGs. For example, a property and casualty insurance company may wish to enhance its exposure to companies that are contributing to resilient urban infrastructure and climate mitigation via a portfolio tilted towards good performance on SDG 11 (Sustainable cities and communities) and SDG 13 (Climate change).

The desire to align investment portfolios with the Paris Agreement is also increasingly important for clients across asset classes. For these we offer net-zero aligned strategies with a greenhouse gas budget that matches either Paris-aligned (PAB) or Climate Transition Benchmarks (CTB). For example, our quantitative teams use an algorithm that can ensure portfolios reduce their carbon footprint by 7% per year for clients wishing to follow a net-zero decarbonization trajectory.

Our building-block approach during the investment process means we can cater to a broad range of client preferences. Clients can choose from a menu of sustainability options based on their risk, return, and sustainability appetites. Further tailoring is possible on specific exclusions, customized ESG profiling (distinctions between E, S & G), reduced footprint (for specific dimensions), and the integration of SDGs.

QUANT CUSTOMIZER TOOL

Our quantitative investment team has made it even easier for clients to optimize their portfolios. The team developed the Quant Customizer tool which allows clients to design a portfolio around their risk, return and sustainability options. The tool then shows the impact their sustainability choices will have on the financial metrics of their portfolios.

Figure 4.10: The Quant Customizer tool

ROBECO The Investment Architects Robeco Quant Solutions

Select index

Main Developed Emerging Global Sustainable Thematic

Index MSCI World

Show details >>

Select enhancements

Excess return Excess return Es ESG Max ESG ESG MinRisk

Low risk Value Quality Momentum

Risk budget Enhanced - TE: 1.0%

Sustainability

SI Inside SI Focus

Exclusions SI Focus

ESG Risk Ratings

off 0 5 10 15 20 25 30 35 40 45 50

10% better than BM

SDG strategy

Exclude Poor SDG

Footprint

SI Focus: 30% Cb / 20% Wt / 20% Ws

CO2 (%) 30 CO2 limit

Water (%) 20

Waste (%) 20

Source: Robeco, 2023

4. Risk management – risk protection via consistent ESG monitoring

Our proactive approach to sustainability risks is based on three pillars. The first pillar is linked to our exclusion policy and preventing investments in controversial issuers; the second pillar is focused on monitoring a portfolio's commitment to sustainability, risk limits and individual sustainability characteristics; and the third pillar relates to sustainability risk analysis and awareness.

Our Financial Risk Management (FRM) team maintains an overview of the entire process and carefully monitors that portfolio-risk criteria are properly applied in each pillar.

All portfolios are evaluated by FRM using multiple types of sustainability data and risk scenarios. If outliers are identified, they are analyzed to get a better understanding of the sustainability risk drivers. For climate risk analyses, several climate-risk scenarios are used to estimate the potential financial impact on strategies, both on an absolute and relative level. These scenarios entail internally developed scenarios as well as external scenarios provided by the Dutch Central Bank and MSCI. Using these scenarios, we measure our portfolios' climate-risk sensitivities and expected performance. The results of these assessments are shared with the investment teams in monthly sustainability risk reports.

5. Portfolio management – the importance of stewardship

Engagement and voting are critical elements of meeting our fiduciary responsibility to clients. They are also critical ingredients in our overall strategy to create long-term shareholder value and enduring real-world impact.

Our Active Ownership team has a long and experienced track record dating back to 2005. The team is responsible for all engagement and voting activities undertaken by Robeco on behalf of our clients and is currently composed of specialists located in Rotterdam, London, Hong Kong and Singapore.

Every engagement is extensively researched focusing on the most material ESG factors that drive long-term company performance.



Voting

Through proxy voting on behalf of our shareholders, we encourage good governance, sustainable corporate practice, and safeguard shareholder value through collective action on shareholder proposals.

All proxy voting activities are carried out by dedicated, in-house voting analysts. Robeco votes on behalf of clients at over 7,000 meetings per year in markets globally.

Robeco's Proxy Voting Policy forms part of our Stewardship Policy and is based on the widely accepted principles of the International Corporate Governance Network (ICGN), which provides a framework for assessing companies' corporate governance practices. All voting recommendations made on behalf of Robeco investment strategies can be found on our corporate website.



Engagement

Engagement is designed to improve the sustainability of a company according to pre-defined metrics that can encompass one or more ESG factors. An engagement program typically aims to raise awareness of the problem, share data and knowledge on best practice, and develop a measurable and time-bound action plan to address environmental, social and governance issues at risk.

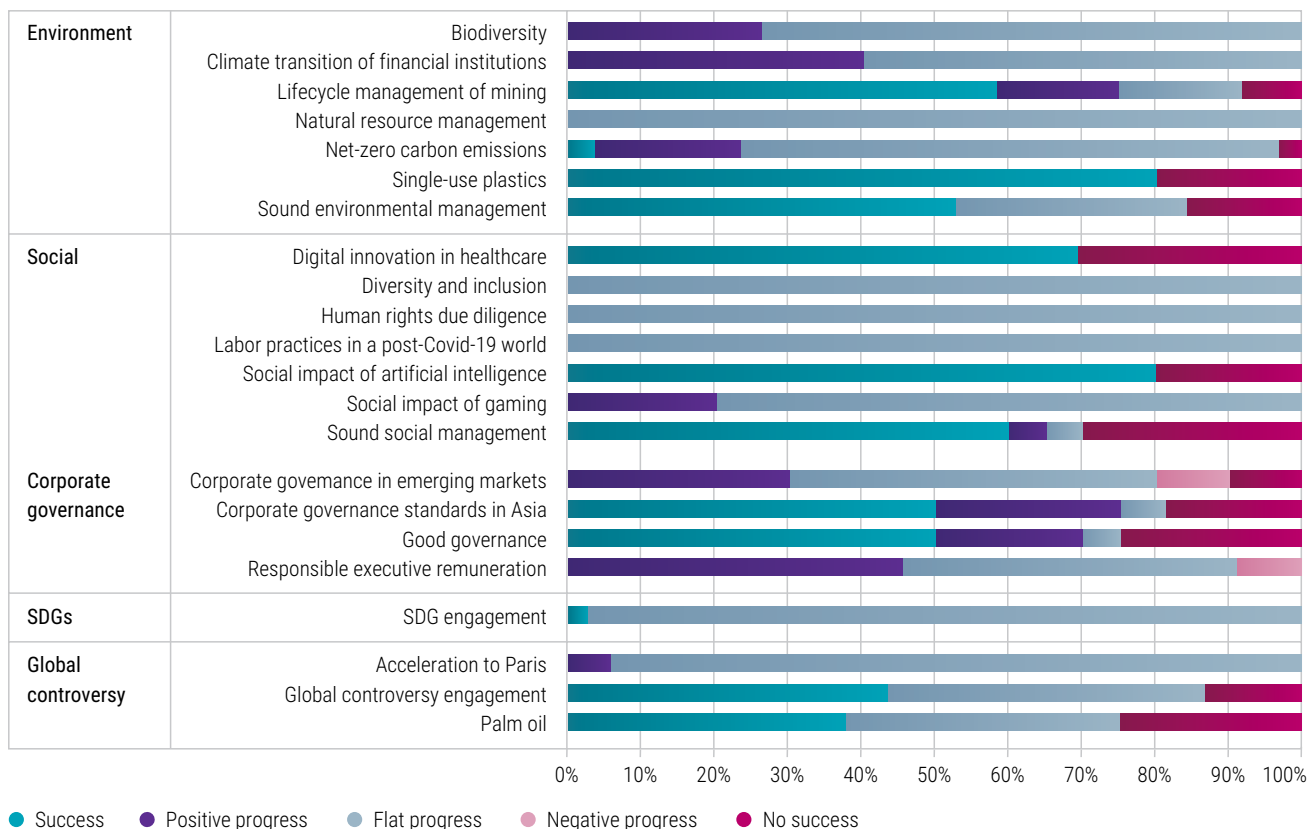
Our ultimate goal is to reduce a company's exposure to financially material ESG risks, enhance the portfolio's risk/return profile and, over the long run, improve long-term value generation for society.

We tailor engagement to address specific portfolio risks and opportunities:

1. **Value engagement:** Proactively approaching investee companies with the aim of improving their sustainability performance and corporate governance on financially material ESG risks and opportunities.
2. **Enhanced engagement:** A reactive intervention with companies to address breaches of internationally accepted codes of conduct in areas such as human rights, labor, environment and corruption.
3. **SDG engagement:** Targeted engagement with companies willing to improve their contributions to relevant SDGs.

Our engagements typically run over a three to five-year period, during which regular contact with company representatives is made. We track engagement outcomes to measure and report on progress. Figure 4.11 is an example of a progress report for our engagement themes.

Figure 4.11: Engagement progress by theme



Source: Robeco Stewardship Report 2022

CLIMATE ENGAGEMENT

We've stepped up our active ownership on climate change, prioritizing high-emitting companies that are lagging behind in the energy transition. We have developed a proprietary climate traffic light assessment, which helps identify priority companies for engagement. We also play a leading role in the Climate Action 100+ collaborative investor group engaging with the world's largest emitters.

SOVEREIGN ENGAGEMENT

We continue our collaborative approach to engaging with governments in our sovereign bond portfolios. We are engaging with Brazil and Indonesia on deforestation in collaboration with the Investor Policy Dialogue on Deforestation (IPDD). We also initiated a climate-focused engagement with the Australian government. Robeco is a member of the advisory committee of the PRI-led Collaborative Sovereign Engagement on Climate Change, a pilot investor initiative to support governments in taking action to mitigate climate change in line with the Paris Agreement.

BIODIVERSITY ENGAGEMENT

Robeco launched a three-year engagement program in 2020 to address the problem of biodiversity loss linked to habitat destruction in the agricultural sector. The program aims to improve the sourcing and production practices of companies whose commodity supply chains are closely linked to deforestation and environmental degradation. In 2022, we extended the program to focus on other drivers of biodiversity loss including pollution and overfishing.

Inside, Focused or Toward Impact – A spectrum of solutions for clients

Robeco is a global asset manager, serving institutional and wholesale clients globally. Clients are at the heart of what we do. Our ambition is to be their first contact point whether they are yet to start their sustainable investing journey or have been on it for years. An important pillar of our sustainable investing strategy is that we provide clients with a full range of investment solutions that cater to their sustainable investing preferences.

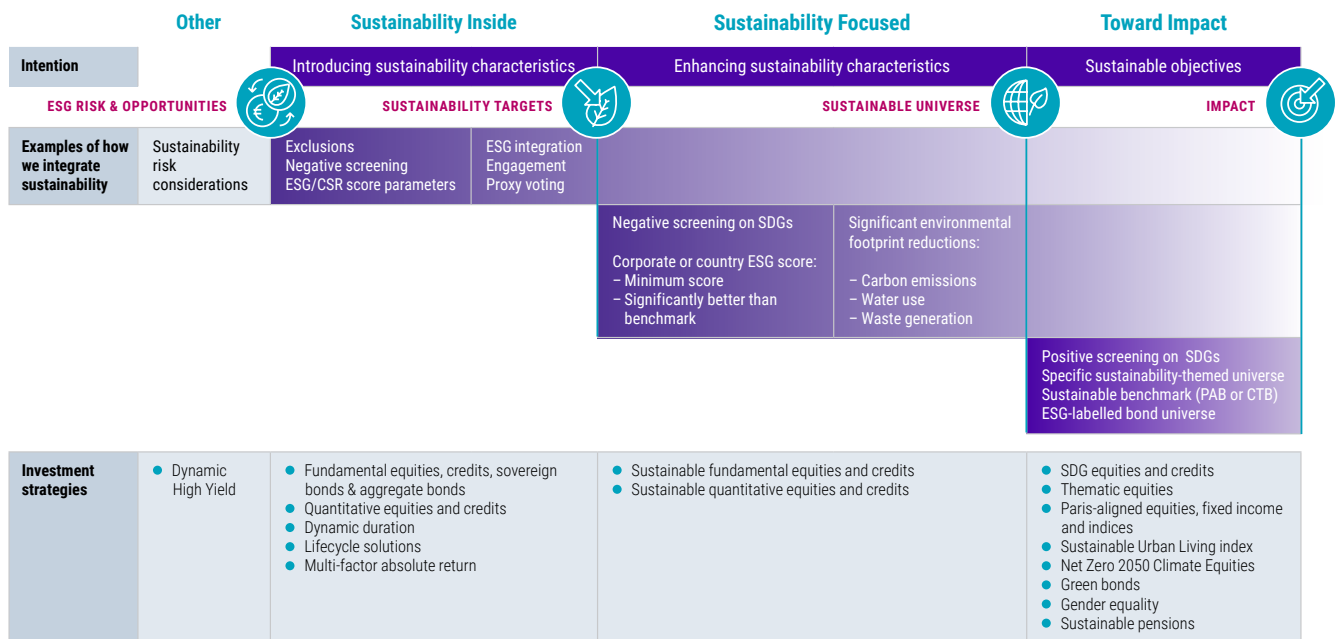
To make it easier for clients to apply their chosen level of sustainability, we came up with three ways of defining investment strategies based on their approach to integrating sustainability. We put the 200+ products currently in the Robeco repertoire into one of three categories: Sustainability Inside, Sustainability Focused, or Toward Impact.

Sustainability Inside – These strategies include ESG integration, exclusions, as well as voting and engagement as part of their investment processes. The key focus is on considering the financial materiality of ESG factors for the securities in which they invest. Simultaneously, we introduce elements for avoiding significant negative impact by setting a minimum standard through our exclusion policy and engaging with companies breaching international standards. Compared to our Sustainability Focused and Toward Impact strategies, the degree of impact materiality considered is lower.

Sustainability Focused – These strategies incorporate all sustainability components Robeco employs in its 'Inside' strategies but have higher ESG performance ambitions. Focused strategies seek to beat their benchmarks by achieving lower environmental footprints (in terms of water usage, waste production and greenhouse gas emissions) and also implement a more extensive range of exclusions (based on minimum ESG and SDG scores). We refer to these strategies as sustainable, as they focus on both impact and financial materiality.

Toward Impact – These strategies only invest in securities that are deemed sustainable investments. Their investment universe may be determined by, for example, alignment with the SDGs or membership in a Paris-aligned benchmark. These strategies include our sustainable thematic, sustainable indices, SDG and climate strategies. As they focus on impact materiality and producing attractive investment returns, we refer to them as 'Toward Impact' strategies.

Figure 4.12: Our spectrum of sustainability solutions



Source: Robeco, 2023

Conclusion

'Life can only be understood backwards; but it must be lived forwards.' This poignant piece of insight nicely underscores Robeco's fundamental approach to investing. It is in our DNA to apply conviction, research, collaboration and thoughtful design in everything we do, and that includes sustainable investing.

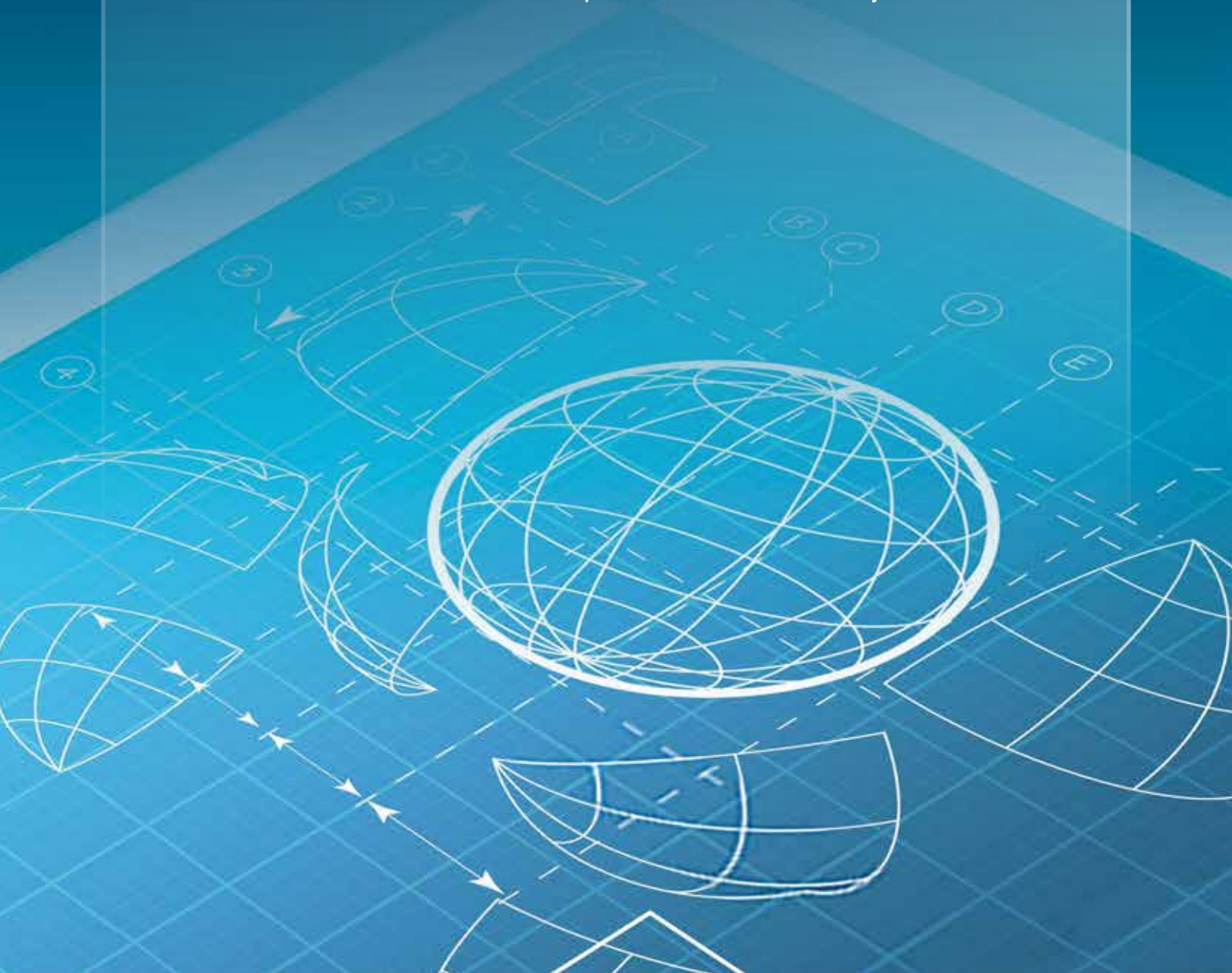
While research and data analyses are fundamental to our sustainability approach, it is equally important to build the models and frameworks that translate R&D into meaningful insights that enhance financial returns and contribute to real-world impact. Our SI Center of Expertise lies at the heart of this process. Their core role is to help us move beyond the data and bridge specialized research with investment practice, active ownership, client education and industry collaborations.

Moreover, we understand that clients' sustainability knowledge, values and investment criteria are diverse. One size does not fit all. That's why we often customize our data, frameworks and processes to offer clients a menu of options tailored to their investment and impact preferences. This is important as sustainability broadens to mainstream investors and asset managers are measured on more than just their risk-adjusted alpha.

Through knowledge sharing and active collaborations with leading sustainability institutions, we aim to leverage our long-standing experience on behalf of the industry and our clients. Our pioneering spirit and engineering rigor leaves us well positioned to help clients navigate an investment frontier that is loaded with pitfalls and uncertainties but also brimming with potential and growth. ●

5. The SDGs: a blueprint for sustainable investing

The aim of sustainable investing is to invest in activities that contribute to sustainable development. More practically put, sustainable development ensures that current and future generations can lead happy, healthy, and prosperous lives. That means safeguarding the natural environment and our ecological assets as well as cultivating a social environment that nurtures human potential in all its diversity.



While noble aims in theory, they are difficult to implement in practice. Ecological and social systems in regions around the world are complex, diverse, and interconnected. This makes defining, prioritizing and then integrating environmental and social objectives into an investment strategy a challenging exercise.

This chapter introduces the UN's Sustainable Development Goals (SDGs) as a blueprint for sustainable investing. It explains what the SDGs are, their rise in popularity, and how they can be used by companies and investors to measure contributions to sustainable growth and development. It also highlights essential differences between ESG ratings and SDG scores, and shows that although they are complementary, they are not interchangeable. Both should be used by investors looking to construct portfolios that capture positive social and environmental impact alongside financial returns.

A universal vision for companies, countries and civil society

In 2015 the United Nations member states unanimously adopted 17 goals for sustainable development and launched a bold new agenda for improving human well-being and preserving ecological sustainability. The goals address a broad range of issues from mitigating climate change, eliminating hunger and reducing social inequalities, to encouraging job creation, stimulating innovation and promoting inclusive economic growth – all by 2030.

The goals are not just aimed at governments and policy wonks, but are a call to action for all society, including 'big business', asset owners and private investors. In fact, governments recognized the difficulty of achieving the goals without the financial capital, innovative know-how, business models, and global reach of the private sector and included leaders from business and finance in setting targets that address the world's most serious sustainability challenges.

This inclusive design helps to ensure that all stakeholders, whether public or private, are moving in the same direction, towards the same goals, using the same targets to measure and report progress. For the first time in history, the world's sustainable development agenda has been shaped and developed with a unified approach that includes every stratum of society.

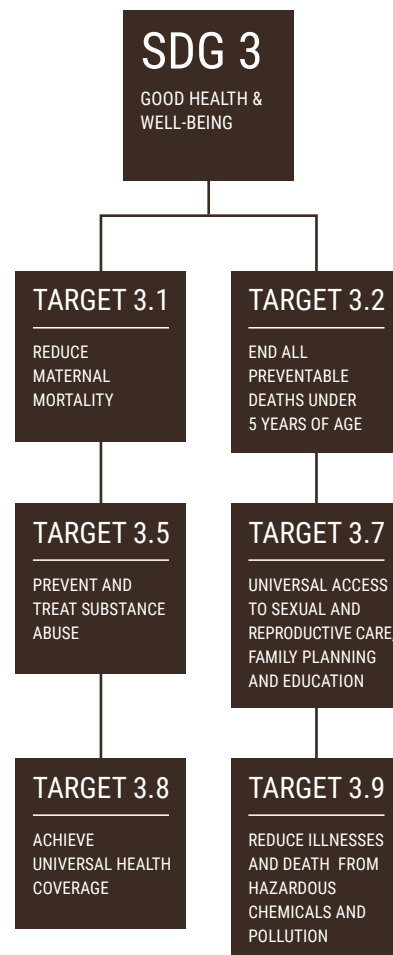
A detailed playbook – lowering barriers, empowering action

The SDGs are specifically designed to provide clarity, facilitate adoption and accelerate progress on a global scale. As was the original intent, they lower the barriers of contributing to sustainable impact, making it easier for countries, companies, citizens and investors to play their part. The goals are also universally applicable, meaning every economic sector can contribute.

Though the goals are broad and sweeping, their power lies in the details.

The goals are supported by 169 well-defined, time-bound sub-targets that define the criteria that must be met in order to reach each one. Sub-targets are broken down further into 230 indicators of success to help stakeholders focus their efforts on specific, achievable metrics that, when measured in the aggregate, paint a picture of overall progress. See Figure 5.1.

Figure 5.1: SDG targets and sub-targets structure helps facilitate metric making



Source: Robeco, 2023

For example, the targets for SDG 3 (Good health and well-being) are to end premature mortality, halt the spread of communicable diseases such as malaria and HIV/AIDS, and promote the attainment of affordable universal health coverage. The corresponding indicators measure factors such as a country's child mortality rate, the number of new malarial or HIV infections, and the number of people covered by health insurance. In terms of tangible investing, health care companies can contribute to SDG 3 by developing drugs that combat certain diseases, or by improving people's access to affordable medicines. Conversely, some companies may negatively contribute to the SDGs by producing harmful products such as alcohol, tobacco or firearms.

In another example, building broadband towers and mobile networks means telecom companies are enabling access to information and communication services around the world. This contributes to SDG 8 (Decent work and economic growth), SDG 9 (Industry, innovation, and infrastructure) and even SDG 16 (Peace, justice and strong institutions) as the free exchange of ideas and information are crucial for modern democracy.

A powerful tool for companies and investors

The UN estimates that USD 5-7 trillion per year is needed to achieve the SDGs, which is far beyond the capacity of the public sector, development banks or private philanthropy. That makes companies and investors critical agents for change. Moreover, the SDGs are broad, meaning companies in every sector and industry, regardless of geography, size or their listed status, can contribute to achieving them.

Companies that align their products, services and supply chains with the SDGs can become powerful drivers for sustainable growth and real-world impact. Raising the urgency of sustainability still further, companies and entire industries are realizing the dependencies their businesses and markets have on properly functioning environmental and social systems. In other words, without secure resources, both business supply chains and environmental ecosystems are threatened.

The UN Global Compact, which aims to align corporate activity with sustainability objectives, reports that nearly 8,000 public and private companies across economic sectors globally are committed to following the SDG principles.³² Publicly listed companies are particularly potent vehicles for targeting and tracking impact given their heightened visibility, regulatory disclosure requirements and exposure to public scrutiny.

That's also good news for investors who wish to channel their capital for purposeful impact but who are limited by multiple factors, including access to investment opportunities, the skills needed to understand and monitor complex private investment vehicles, or their own risk/return constraints.

The granularity of the SDGs helps listed companies create specific environmental and social performance indicators that can be reported and monitored internally by management as well as externally by regulators and investors. Finally, the increasing acceptance and adoption of the SDGs by the business community is helping build their reputation as a global standard for measuring corporate contributions to sustainable impact.

32. Please visit the UN Global Compact's website (<https://unglobalcompact.org/interactive>) for detailed information on more than 17,000 supporting participants from small-, mid- and multi-national businesses, local and national governments, academia, NGOs, community groups, philanthropic foundations and global advocacy organizations.

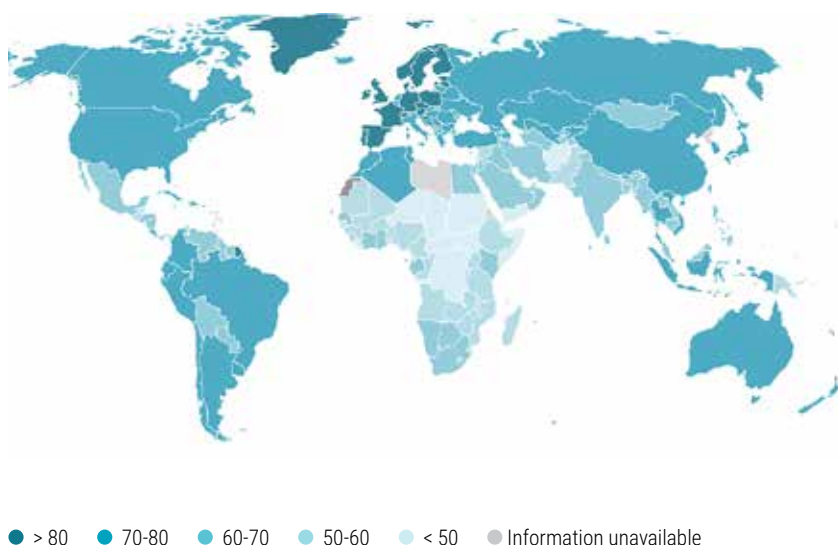
Ready, set, slow – the pace of sustainable progress

Since their adoption, the urgency for action has grown more acute. The world is warming, biodiversity is diminishing and serious geopolitical conflicts are deepening. Meanwhile, the Covid-19 pandemic not only devastated communities globally, it also diverted attention and resources away from the SDGs. Subsequently, at the half-way stage between launch and the desired deadline of 2030, the world is seriously behind on every goal and has actually gone backwards with some of them. A funding gap of USD 3.9 trillion was identified, after the Covid outbreak led to public money being diverted to tackle the consequences of the pandemic.³³

Meaningful action is therefore needed, led by a massive stepping up of investment, and the legislation or regulation needed to produce it. Until recently, governments have been slow to enact pro-SDG legislation or mandate shifts in resource allocation. And while many companies are now using the SDGs to frame sustainability reporting, they fall short on actually integrating SDGs into business strategy.^{34,35}

Figure 5.2 features a snapshot of the global status of the SDGs taken by the Bertelsmann Stiftung and the Sustainable Development Solutions Network. Darker shades of blue indicate countries with better progress in hitting targets; those with lighter shades are lagging in the face of significant challenges.

Figure 5.2: Shadowlands – A global snapshot of SDG progress reveals a rich-poor divide



Source: Bertelsmann Stiftung and Sustainable Development Solutions Network. <https://dashboards.sdindex.org/map>, as of 2022

In general, high-income countries are further ahead on attaining some of the goals, but that does not hold across all SDGs. For instance, emerging markets tend to do better on SDG 13 (Climate action) than their wealthier counterparts which often generate negative impacts on this goal. The SDG's level of detail and the increasing availability of supporting data are sharpening our understanding of the sustainability challenges faced and the solutions needed by the global community.

33. "Global outlook on financing for sustainable development." OECD. 2023.

34. Biermann, F., Hickmann, T., Sènit, CA. et al. "Scientific evidence on the political impact of the Sustainable Development Goals." *Nature Sustainability* 5, 795–800 (2022).

35. Van Zanten, J.A., van Tulder, R. "Improving companies' impacts on sustainable development: A nexus approach to the SDGs." *Business Strategy and the Environment*. Vol. 30, Issue 8, p. 3703-3720.

United for change – the growing SDG movement

Yet, there are reasons for hope. Some companies are putting their backs into thinking systematically about how goods are designed, produced and consumed, and are putting their budgets behind novel production methods and creative business models to reach consumers. Members of civil society are standing up for the environment and social rights via small grassroots movements and massive organized protests. Researchers, policy analysts, and advocacy activists across academia, development banks, think tanks and NGOs are studying the SDGs and their implications for catalyzing sustainable development. And investors such as Robeco are building tools and frameworks to integrate the SDGs into investment strategies.

The market for measurement

Investors consider the SDGs as a reliable framework for determining if the companies in which they invest are contributing to sustainable development. With it, they can allocate financing away from companies that hinder progress on the goals and towards those that provide solutions. In addition, active ownership can be applied to encourage investee companies to become more sustainable.

But a framework's output is only as good as its inputs and many companies face challenges in measuring their contributions to the SDGs. A recent GRI survey of global companies found that while more than 80% supported the goals, less than half had set measurable commitments, and only 20% were assessing them for positive impact. When companies fail to properly assess and disclose their SDG contributions, the same problem is transferred to investors and their portfolios.

However, progress grows out of motion, and despite some data challenges, solutions are emerging that can help investors align their capital with the SDGs.

Asset owners – The Sustainable Development Investments Asset Owner Platform (SDI-AOP) is a coalition of large asset owners from markets in North America, Europe, and Australia which in 2021 launched their own methodology for measuring contributions to sustainable development using the SDGs. Using a proprietary rulebook, artificial intelligence software is used to comb through company and market data seeking to match SDG solutions and contributions.

ESG data providers – Leveraging massive databases of company ESG information, traditional ESG data providers have also entered the business of assessing SDG contributions. Individual ESG criterion are mapped based on contribution to the SDG (which could be positive, neutral or negative). How a company performs on these specific ESG criteria determines its SDG score.³⁶

36. Examples include MSCI and ISS-Oekom.

Asset managers – Sitting in-between, asset managers, including Robeco, have also developed their own proprietary frameworks. These are most often characterized by the creation of a proprietary SDG taxonomy for the business activities of each economic sector. The taxonomy is then applied to each company within an investment universe to generate a company SDG score.

The approaches above fall into roughly two categories. The first is based on determining the percentage of a company's revenue that positively contributes to one or more of the goals. For example, a food sector company would be measured according to the percentage of revenue generated from creating foods that are nutritious and safe to eat or employ farmers that use ecologically friendly production methods.

In addition to measuring revenues dedicated to SDG supporting activities, safeguards are applied to identify companies that perform poorly in their ESG operations and practices. The outcome of this first approach is the ability to calculate a percentage of revenue linked to a single SDG for each company that contributes positively or negatively. More revenue means more SDG contributions or detractions.

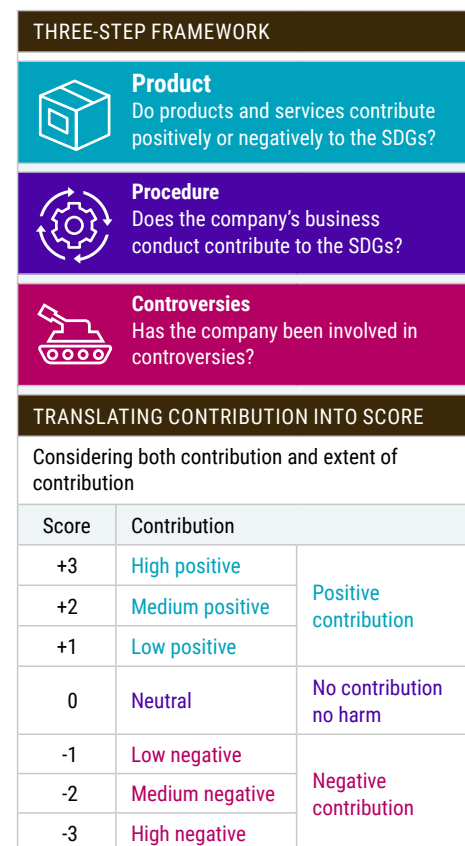
The second approach uses a 'pass or fail' system where positive and negative effects of companies are assessed, and the net effect determines the overall level of SDG impact. This means material, negative impacts of other business areas or operations of the company will offset positive revenues. The outcome is a score determining if a company contributes to SDGs positively, negatively or not at all.

The Robeco approach

Robeco was one of the first asset managers to formally develop a proprietary SDG investment framework that combines elements of both a revenue-based as well as impact-netting approach. The framework analyzes companies in three different steps, consecutively determining the impacts that a company has on the SDGs stemming from the products it sells, the way it operates, and from any controversies that it may be involved in. A company's overall performance across relevant SDGs aggregates into an overall company SDG score. The framework and scores are visualized in Figure 5.3.

Financial metrics such as threshold revenues for strategic business lines as well as negative impacts are considered in the first step. A detailed sector-specific rulebook is used to determine the direction (positive, neutral, negative) and intensity (high positive to high negative) to guide our analyses. An example taken from the rulebook for the banking sector is shown below.

Figure 5.3: Robeco's SDG Framework



Source: Robeco, 2023

Figure 5.4: Sector-specific SDG performance indicators: Banking sector

STEP 1: Product				STEP 2: Procedure	STEP 3: Controversies
KPI	Threshold	Score	SDGs	Illustrative guidance	General controversy guidance
Starting point		+1	8, 9	Track-record showing very strong or very poor	Global standards:
1. % SME loans / total loans	≥15%	+2	8, 9	– Climate change focus (SDG 13)	Does the company breach international standards, such as OECD guidelines for MNEs and UN Guidance on Human Rights?
2. % mortgage loans / total loans ≥25%	≥25%	+1	11	– Supply chain treatment (SDG 12)	Controversy screening:
	≥50%	+2		– Client treatment, incl (ir)responsible selling, excessive fees, predatory sales (SDG 12)	
3. % financial inclusion microcredit revenue	≥15%	+2	1	– Employee health and safety (SDG 8)	– Is the company involved in controversies?
4. % emerging market loans / total loans	≥33%	+2	1	– Safeguarding of human rights (SDG 16)	
	≥66%	+3		– Reducing inequalities and promoting diversity (SDG 10)	– If High or Severe**, a good reason is needed for non-negative score
5. % consumer loans in developed markets / total loans	≥25%	0*	1, 8, 9, 11	– Governance and business ethics, incl corruption, bribery (SDG 16)	
6. % PPI from market income/IB	≥25%	0*	1, 8, 9, 11	– Environmental management, incl. product lifecycle, circular economy, and repeated patterns of environmental issues (SDG 12, 13, 14, 15)	Relevant factors:
7. % PPI from (U)HNW	≥25%	0*	1, 8, 9, 11	– Innovation for sustainability solutions (SDG 9, 12)	
8. % revenues from predatory lending operations	≥10%	-1	1	– Data privacy and data security issues (SDG 16)	– Has management dealt with it adequately?
	≥33%	-2			
	≥67%	-3			

* Dominant KPI: All prior ratings become neutral if this threshold is met ** Following Sustainability Controversy Screening

Source: Robeco, Guidebook for SDG Framework, August 2022. These examples are for information purposes only and not intended to be an investment advice.

Despite their differences, the methodologies are becoming more aligned. For example, the SDI platform which uses the positive revenue generation method is beginning to incorporate negative impacts into its methodology.

Still, despite high-level similarities, there are still significant differences in rules for what constitutes an SDG contribution as well as the weights assigned to individual indicators that can alter results between methods for the same company. As a result, investors need to determine which approach best fits their values and goals.

Applying SDG scores in investment strategies

SDG scores can be readily applied across asset classes (equity, fixed income) and investment styles (fundamental, quantitative, indices). Scores can be used in a variety of ways depending on the investment objectives of the portfolio. Some strategies only invest in companies with high positive SDG scores – in other words, in those companies that are expected to support the most impact. Others use the scores to avoid companies with negative scores that are harming SDG progress.

Scores can also be used to inform engagement activities, not only for equity shareholders but increasingly for corporate credit and sovereign bondholders as well. There are even invest-and-engage portfolios that use scores to screen for negative SDG performers with the aim of transforming them into positive contributors through active dialogue with management.

SDG scores can also be used to target one or more goals for investment purposes. For instance, a physician's pension fund or health insurance company may be interested in a portfolio of companies with significant contributions to SDG 3 (Good health and well-being), whereas academic endowments may be interested in SDG 4 (Quality education). It's also common practice for asset owners to target multiple but interrelated goals. For example, an environmentally themed focus could target SDG 13 (Climate action), SDG 14 (Life below water) and SDG 15 (Life on land).

There are significant opportunities for focused investment towards a wide swathe of goals. Figure 5.5 illustrates the most targeted SDGs based on a sampling of nearly 3,000 companies within the MSCI ACWI index.

SDG metrics versus ESG integration – different aims, different measures

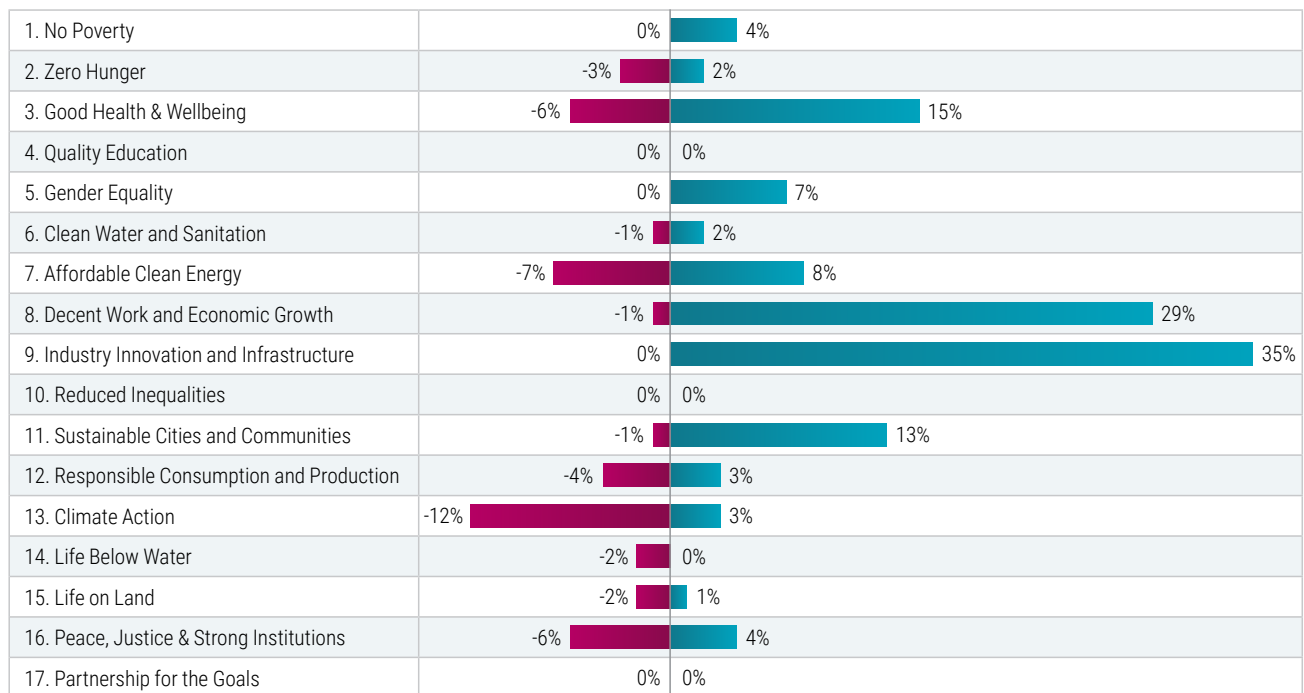
There is a clear difference between ESG integration and SDG investing. ESG integration is focused on avoiding the downside of ESG risks while capturing the upside of ESG opportunities. In contrast, SDG-based investing is unrelated to financial materiality or market performance; its goal is to measure positive impacts on the SDGs.

The differences in aims, measures and outcomes mean that rather than being competing approaches, ESG integration and SDG investing are complementary activities. When both tools are combined, they can illuminate both risks, enhance returns and support companies contributing to sustainable development.

Despite these fundamental differences, SDG scores and ESG ratings are often viewed as synonyms. If this were true, then the scores should be strongly correlated and, more importantly, both should be equally useful for creating impact-oriented investment solutions.

There is a clear dichotomy between ESG and SDG measurement objectives – one aims to avoid risks and enhance returns, while the other seeks to contribute to real-world impact. They subsequently use different input data (financially material ESG factors versus SDG-focused targets) and underlying assessment frameworks (contributions to portfolio returns versus contributions to SDGs).

Figure 5.5: Proportion of companies with positive and negative impacts on the SDGs



● Positive impact ● Negative impact

The graphic represents the SDG contributions of constituents (n=2,888) of the MSCI All Countries World Index as of 31.03.2023. Source: Robeco, 2023.

Our own research suggests otherwise. In a recent research paper entitled ‘ESG to SDG: Do Sustainable Investing Ratings Align with the Sustainability Preferences of Investors, Regulators, and Scientists?’ we found that there was no correlation between a company’s SDG score and its ESG rating. For example, a well-managed tobacco company or weapons manufacturer may have a high ESG score but would rank poorly on its SDG score.

This presents an interesting question: if one cannot be substituted for the other, then which one best captures companies’ contributions to sustainable development? If ESG scores adequately capture contributions to sustainable development, then why bother applying SDG scoring metrics?

We put the question to more rigorous analysis and tested how both sets of metrics (ESG scores versus SDG scores) performed at identifying companies at the extremes – companies which investors, regulators, and climate scientists found very unsustainable and those they found very sustainable.

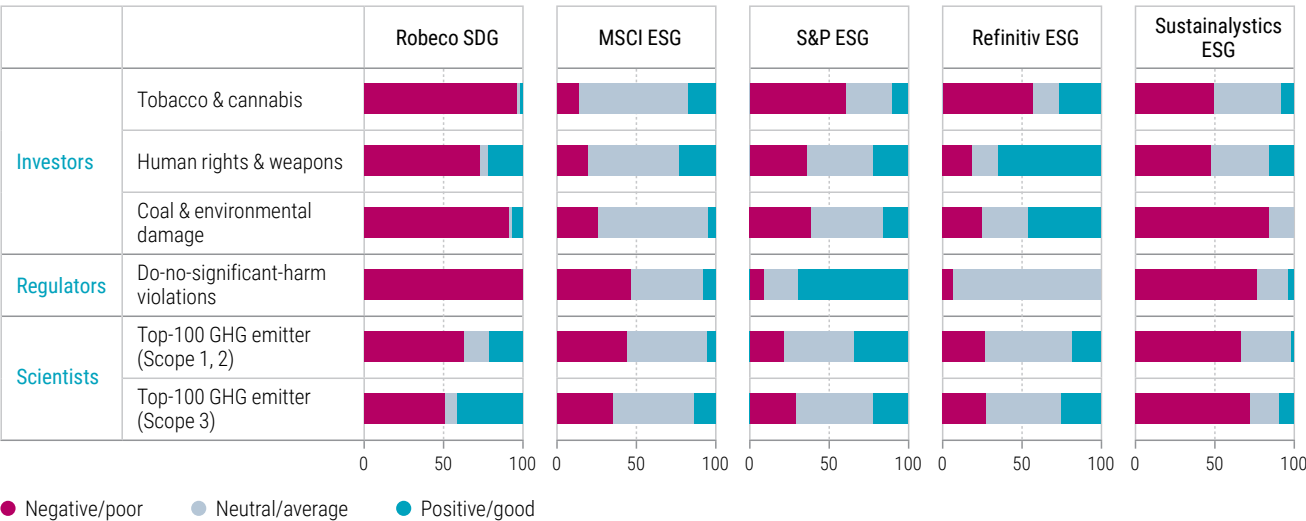
SDG scores – more effective at identifying negative impact

First, we assessed whether SDG scores and ESG ratings capture companies with negative impacts. These are defined as poor scores on the following criteria:

- Companies on the exclusion lists of asset owners due to their negative impacts;
- Companies violating the ‘do-no-significant-harm’ principle of the EU taxonomy; and
- The top 100 contributors to climate change, using Scope 1 and 2 and 3 emissions.

Figure 5.6 summarizes the findings. Robeco's SDG assessment methodology correctly identified and assigned unsustainable companies with poor SDG scores. In stark contrast, the ESG ratings of multiple data providers for the same group of clearly unsustainable companies ranged from neutral/average to positive/good.

Figure 5.6: Do SDG and ESG ratings capture negative impact?



Source: Robeco, 2023

The chart shows how SDG and ESG scores perform at correctly identifying unsustainable (or negative) impact companies based on select criteria used by investors, regulators and scientists. The colors denote the proportion of companies within the measured category (e.g., from tobacco and cannabis to a top-100 greenhouse gas emitter) which received a poor, average, or good sustainability rating from score providers. Within each category Robeco's SDG score consistently detected and assigned a high proportion of unsustainable companies with negative/poor scores. In contrast, most ESG rating providers failed at identifying high proportions of clearly unsustainable, negative-impact companies.³⁷

37. Source: Van Zanten, J. A., & Huij, J. (2022). "ESG to SDG: Do Sustainable Investing Ratings Align with the Sustainability Preferences of Investors, Regulators, and Scientists?". SSRN Working Paper.

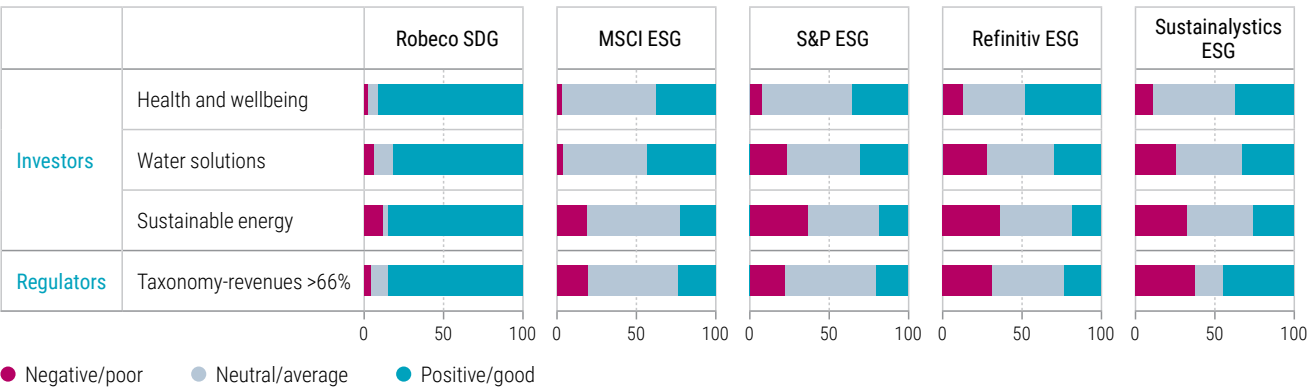
SDG versus ESG – effectiveness for signaling positive impact

Second, we tested whether both sets of ratings could identify companies with positive impacts. This is defined as positive/good scores on the following criteria:

- Companies that are included in sustainable thematic investment strategies;
- Companies that generate more than two-thirds of their revenues from activities that are in line with the EU taxonomy.

The results, displayed in Figure 5.7, reveal that most companies in these groups receive positive SDG scores. However, ESG ratings for these companies frequently range from neutral/average to negative/poor.

Figure 5.7: Do SDG and ESG ratings capture positive impact?



Source: Robeco, 2023

The chart shows how SDG and ESG scores perform at correctly identifying sustainable impact companies based on select criteria used by investors, regulators and scientists. The colors denote the proportion of companies within the measured category (e.g., from 'Health and well-being' to 'Taxonomy revenues > 66%') which received a poor, average, or good sustainability rating from score providers.

Within each category Robeco's SDG score consistently detected and assigned a high proportion of impact companies with positive/good scores. In contrast, most ESG rating providers failed at identifying high proportions of clearly sustainable, high-impact companies.³⁸

38. Ibid.

Perfect complements

A comparison of SDG versus ESG scoring approaches reveals clear differences in purpose, metrics and measurement framework. So it is unsurprising that large differences in outcomes emerge when applying these approaches to measure the sustainable impact of companies.

SDG scores are reliable for identifying companies' sustainable impact while ESG scores are good for identifying the upside potential and downside risk of sustainability factors. Both sets of scores can be combined to create sustainable investment solutions that provide superior impact and superior risk-adjusted returns.

Conclusion

Sustainable development that leaves no one behind while considering those generations which still lie ahead is a considerable challenge. It requires a unified effort from diverse stakeholders across political, business and civil society. The UN SDGs provide a powerful agenda to help prioritize global activities and channel investment across a comprehensive range of critical environmental and social goals designed to ensure optimal and sustainable growth for all.

Companies and investors are increasingly committed to aligning their business activities and investment portfolios with the goals, but struggle with its implementation on a practical level. Differences in approaches and debate over which metrics to follow can get in the way.

Still, despite the challenges, committed institutions that recognize the power of SDGs for advancing real-world impact are pushing forward by testing and refining innovative approaches to capture and integrate companies' SDG performance into investment portfolios. Though the path is not paved and obstacles remain, the direction of progress is clear. With the right motivation, the world can keep moving forward. ●

6. Sustainable investment reporting

A person is holding a tablet computer, displaying financial data and charts. A white stylus is pointing at the screen. The background is blurred, showing a person in a blue shirt. The text is overlaid on the right side of the image.

As explained in Chapter 3, 'The State of Play', there is a diverse range of instruments and reporting features that allow investors to tailor how their invested capital is put to work to accomplish their sustainability goals and preferences. In this chapter, we highlight some of the primary tools that Robeco uses to implement, measure and report on sustainable investing within our portfolios. These include controversial exposures, ESG scores, carbon footprints, SDG alignment and engagement and voting.

In addition, we provide some cautionary commentary on the challenges of quantifying and integrating real-world impact into investment processes. One of these challenges is data. While tools and techniques for incorporating ESG data and sustainability criteria in investing have advanced significantly, measurement and reporting are still hampered by data availability and quality issues.

To conclude, we explain how investment managers, asset owners, data providers and other financial institutions should benefit from regulatory measures aimed at increasing transparency, standardization, and comparability of data.

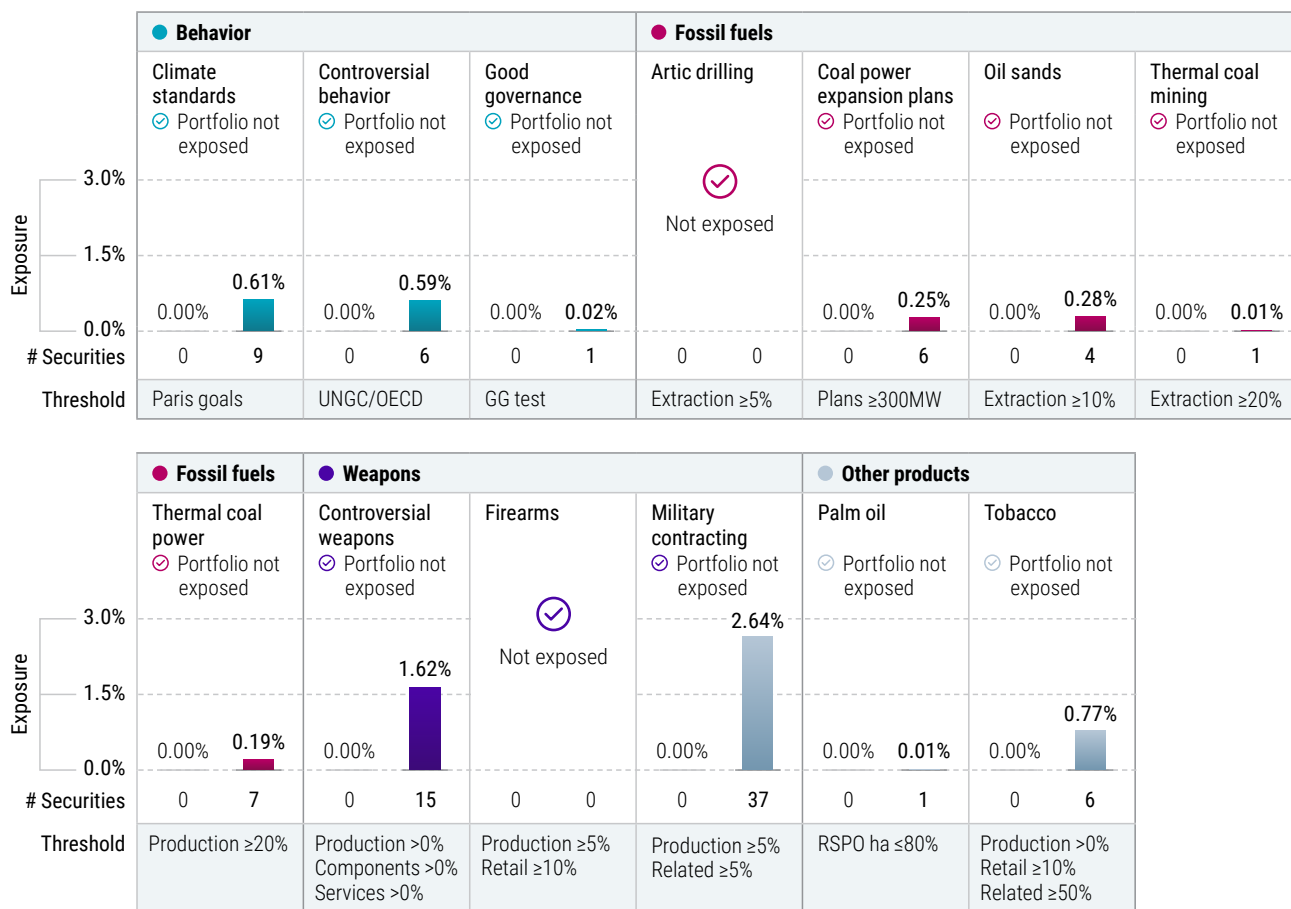
Controversial measures

Reducing exposure to business practices that do not align with an investor's vision of sustainable development is an easy way to begin to incorporate sustainability into portfolios. Preferences may be values driven, which are oftentimes shaped by domestic views or regionally specific investment labels. They may also be financially driven; for example, to avoid stranded assets such as oil reserves that may become obsolete in a low-carbon economy.

Exclusions allow investors to put these preferences into practice. Companies can be excluded based on the products they make (e.g., fossil fuels, tobacco, military weapons) or the services they deliver (e.g., online gambling or adult entertainment). Exclusions can also extend beyond individual preferences. Company and country issuers that are structurally breaching internationally accepted codes on human rights, labor and environmental standards can also be eliminated from investment consideration.

An example of a report on controversial exposure can be found in Figure 6.1. It depicts the weight and number of holdings of the portfolio and benchmark across the respective controversial business activity. The parameters used to determine whether the activity is controversial are also listed. Thresholds can be qualitative (e.g., descriptive disclosures) or quantitative (e.g., the percentage of revenues devoted to a controversial activity, the percentage reduction in carbon intensity) and are constructed under the guidance of global reporting standards.

Figure 6.1: Reporting on controversial exposures



Portfolio versus benchmark exposure to controversial activities including international behavior norms (blue), fossil fuels (red), weapons (purple) and other products (gray). Threshold determinations are based on the authoritative guidance of regulatory bodies, institutional investors, and sustainable investing industry standards. Source: Robeco, 2023

The rating game: Peer ranking for corporate ESG performance

ESG ratings measure how companies are managing a broad set of sustainability issues such as business ethics, supply chains and climate strategy. These ratings can differ substantially among providers, creating large discrepancies on company (and portfolio) sustainability performance. The main issue is less about what sustainability themes and topics are considered and more how they are weighted and measured.³⁹

Before selecting ESG data and reports, it is essential that investors understand the research and methodology behind the scores and whether the approach fits the sustainable investing goal that needs to be measured and achieved. ESG scores can be used in several ways including:

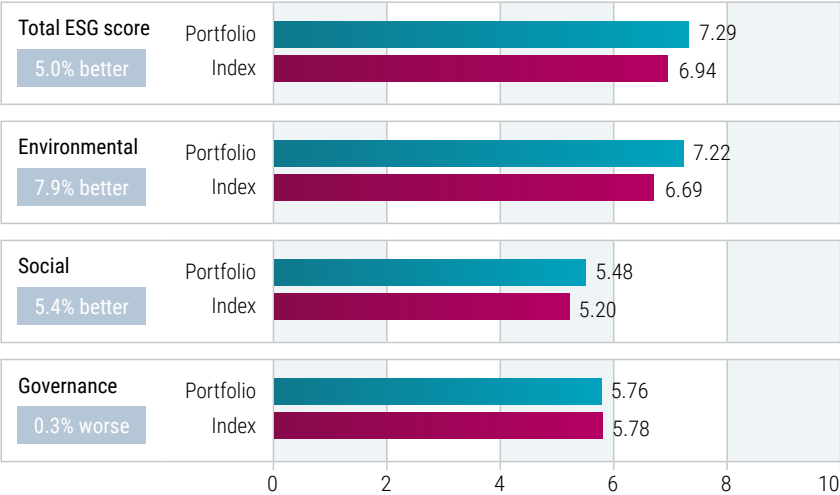
1. Negative screening: avoiding the worst-in-class issuers
2. Positive screening: investing in only the best-in-class issuers
3. Setting a minimum threshold for the ESG score
4. Targeting a (significantly) better-than-benchmark ESG score for the entire portfolio

The chosen approach should be reflected in the reporting to determine whether targets are met.

39. Berg, Florian and Kölbel, Julian and Rigobon, Roberto, Aggregate Confusion: The Divergence of ESG Ratings (15 August 2019).

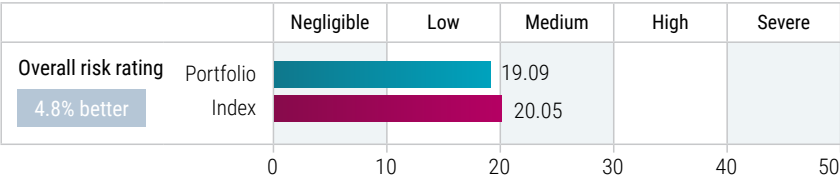
The figures that follow show the ESG scores of a specific investment portfolio from two different data providers (Figure 6.2, MSCI; Figure 6.3, Sustainalytics). General reporting shows the portfolio's ESG score and ESG risk performance to be better-than-benchmark for both providers.

Figure 6.2: Average MSCI ESG score (portfolio vs benchmark)



The graphic above shows a portfolio's ESG performance overall as well as in specific environmental, social and governance areas against its benchmark. The portfolio has a slightly better ESG profile than its benchmark overall but a more detailed look reveals it fared a whisker worse on governance factors. Source: Robeco, MSCI ESG data, 2023

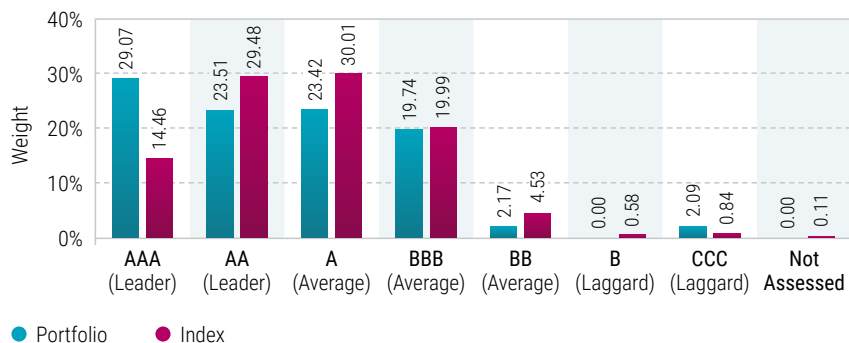
Figure 6.3: Average Sustainalytics ESG risk score (portfolio versus benchmark)



The graphic above shows the portfolio's overall ESG risk is 4.8% lower than its benchmark. Source: Robeco, Sustainalytics ESG data, 2023

Other types of reporting can yield additional insights into the portfolio's ESG performance profile. For example, Figure 6.4 shows the share (or weight) of companies within the portfolio from Figure 6.2 that fall into specific ESG performance categories (from AAA leaders to CCC laggards). Investors can see that though its ESG profile was better-than-benchmark, the positive screening approach for best-in-class issuers has not been applied. Figure 6.5 shows the same analysis for the same portfolio based on the Sustainalytics risk rating.

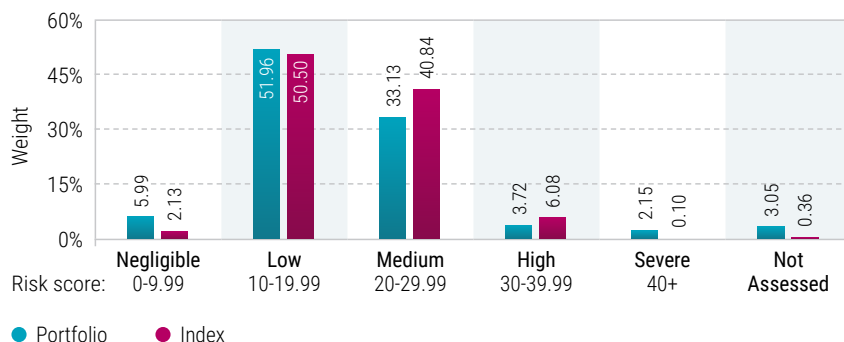
Figure 6.4: Distribution of MSCI ESG scores (portfolio versus benchmark)



Reporting the distribution of all ESG scores of companies within the portfolio allows investors to see whether poor ESG performers or controversial companies were included and the likely impact on the portfolio's ESG performance.

Source: Robeco, MSCI ESG data, 2023

Figure 6.5: Distribution of Sustainalytics ESG risk scores (portfolio versus benchmark)



Reporting the distribution of all ESG risk scores across the entire portfolio can reveal whether high-risk companies have been included.

Source: Robeco, Sustainalytics ESG data, 2023

Reporting challenges for asset owners

Sustainability data and reporting is still relatively immature compared to financial disclosure. Though ESG reporting has increased significantly, data quality from investee companies is still low. Moreover, reporting coverage across multiple ESG metrics is often inconsistent, and clear industry-wide standards are lacking. Providers and asset managers must estimate when company data is insufficient, raising the risk of measurement error.

Fortunately, solutions for disclosure issues are emerging. For example, the Corporate Sustainability Reporting Directive (CSRD) is Europe's answer to the transparency problem. Regulations that mandate company disclosure across a standardized set of ESG metrics are taking shape globally (see Chapter 10). Meanwhile, the EU's Sustainable Finance Disclosure Regulation (SFDR) introduced in 2021, should also improve transparency among investment managers and comparability among the investment products they market.

Another challenge is the low correlation between the ESG scores of different data providers. Low correlations indicate large variations in underlying scoring assumptions and calculation techniques. These variations make data aggregation across different managers unreliable for high-level sustainability performance reporting.

Moreover, to comply with disclosure regulations for their own investment portfolios, some asset owners use ESG data that differs from that used by the investment managers of their outsourced investment strategies. This may lead to confusion and raise reliability questions when differences surface. Regulations aimed at harmonizing data metrics and quality among ESG providers are on the horizon. But until clear standards arrive, asset managers must embrace a policy of 'know thy data' in order to explain scoring differences to clients and stakeholders.

In the meantime, sustainability and impact reporting should be used as a starting point for deeper discussions on how to implement sustainability to match client needs.

Measuring exposure to CO₂ emissions

For investors focused on monitoring the risks and opportunities related to climate change, reporting on carbon emissions is mission critical. Investors can measure the progress made towards decarbonizing their portfolio and/or aligning it with 'Net Zero 2050' transition pathways. However, as with ESG scores, investors must be aware of the choice of ingredients in the reporting mix and understand their limitations and impact on their climate-related investment objectives.

Common emission metrics:

- **Carbon intensity** is often used to gauge the carbon efficiency of a company. Carbon intensities are a useful tool for normalizing emissions to a standard scale so that companies with vastly different sizes/revenues can be compared against peers or a benchmark. It is calculated using a company's greenhouse gas emissions in terms of CO₂ equivalents divided by its revenues.

This makes it a useful reporting metric for Paris-aligned benchmark (PAB) portfolios as well as those which have strict emission-reduction objectives and/or science-based trajectories to track through 2050 and beyond. Moreover, portfolios which include hard-to-abate sectors such as materials, chemicals, utilities and energy stocks tend to prefer carbon intensity metrics to determine which companies within a specific sector are most successful at cutting their emissions-to-output ratios.

- **Carbon footprints** measure the total greenhouse gas emissions of a company (i.e., no normalization to scale) and are useful for determining total CO₂ emissions financed by investors. It is calculated using a company's total emissions in CO₂ equivalents divided by its enterprise value.⁴⁰

- **Carbon footprint metrics** are used by investors who are climate conscious but who are not following a specific emissions-reduction pathway or Paris-aligned benchmark. They can also be used for engagement activities to reduce the overall environmental impact of a portfolio.

40. Enterprise value, EV, includes a company's market capitalization, debt and cash levels and is a more accurate reflection of its overall worth.

- **Time** is also a critical consideration, as carbon intensities and footprints metrics are influenced not only by actual changes in actual carbon emissions, but also by changes in company revenues and/or market valuations over time. If the market value of a company's securities significantly increases, its carbon intensity will decrease even if absolute emissions have seen little to no change. This could artificially reduce a portfolio's emissions intensities without having a substantial impact on emissions in the real economy.

In addition, when aggregating emission numbers across portfolios, a shift in the asset mix over time can change a portfolio's emissions profile. For example, a portfolio that divests from high-emission industries and sectors could rapidly decarbonize, again without making much impact on emissions in the real economy. Robeco's emission reduction targets are illustrated in Figure 6.8.

Please refer to the text box 'Applying adjustments' where we explain how we adjust for changes in assets and pricing to more accurately express emission reductions in our investment portfolios.

- Lastly, there are **absolute emissions**. These require companies to reduce their emissions to meet specific targets regardless of size, revenues or output. Many governments have set absolute targets to ensure they can reach net zero by 2050.

None of these metrics are perfect, and it is important for investors to choose those that best reflect their intended goals and purpose. In the end, 'net zero 2050' means that all metrics need to go towards achieving carbon neutrality to limit global warming.

Other considerations:

- **Scope:** The Greenhouse Gas Protocol considers three scopes of emissions:

Scope 1: The emissions produced by the company itself in its production processes

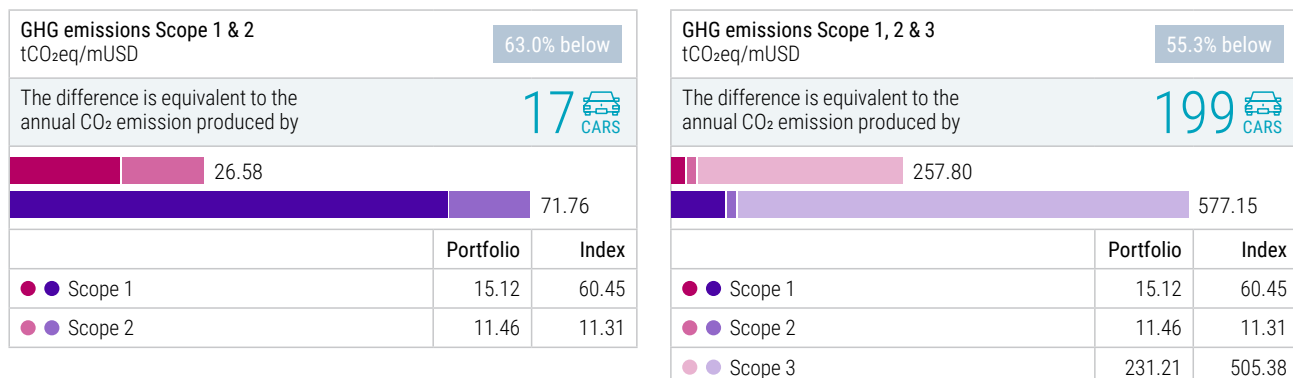
Scope 2: The emissions generated from the electricity needed to make the product, and

Scope 3: All indirect emissions (not included in Scope 2) that occur across the company's value chain, including the end-user.

The data for Scope 1 and 2 emissions is relatively good; however, due to the complications and costs of collecting data across complex value chains, many companies do not accurately report Scope 3 emissions. Dubious or incomplete data is estimated using industry averages and national statistics, and even here, emissions are often double counted if both the supplier and the company report the same thing.

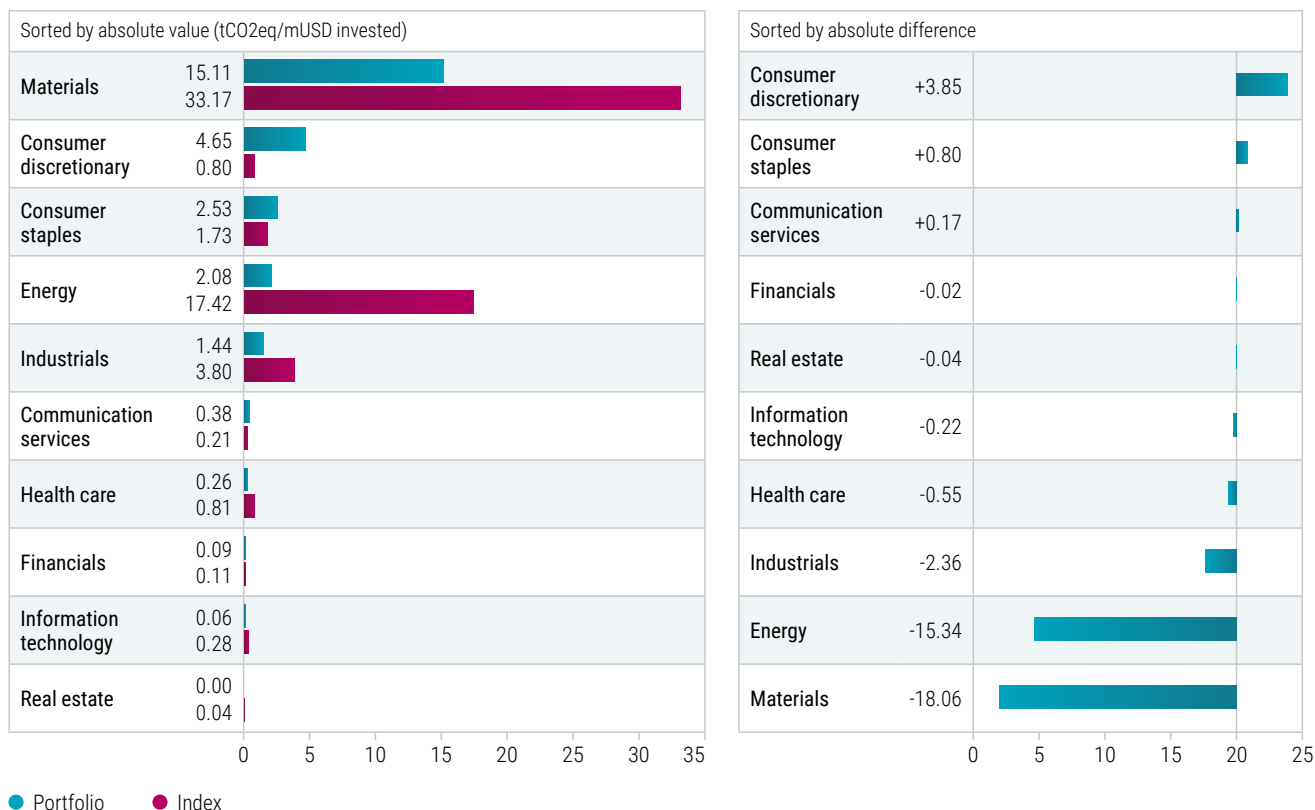
In most sectors, Scope 3 emissions from value chains dwarf Scope 1 and 2 emissions from operations. As a result, investors must have a clear understanding of what's included (and more importantly, what's left out) of a company's emissions profile in order to make informed investment decisions.

The reporting examples below show the carbon footprint for all three scopes for a portfolio and its benchmark.

Figure 6.6 | GHG emissions for portfolio and benchmark


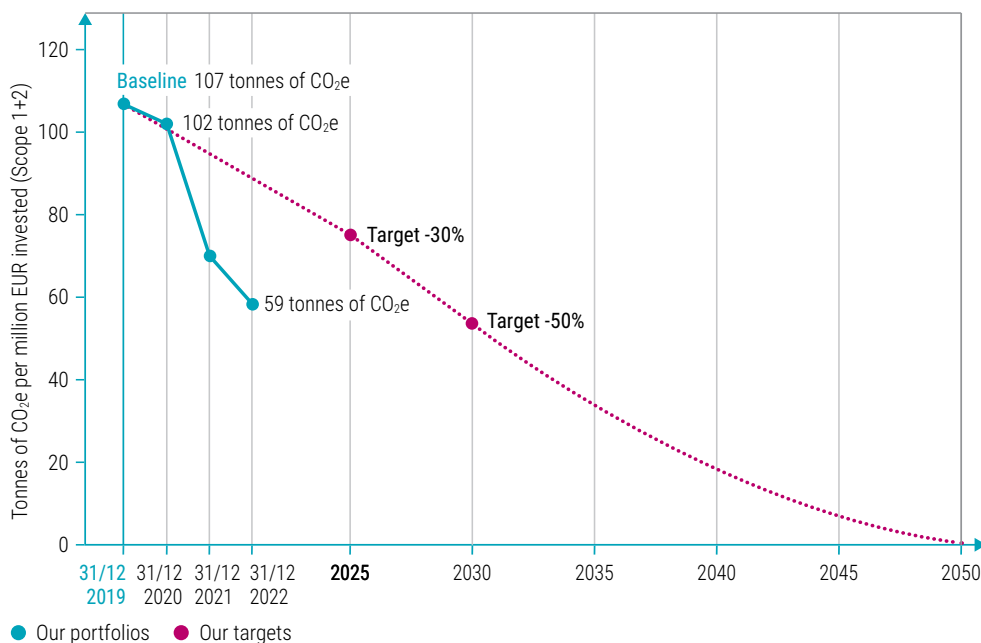
Scope 1 and 2 emission reports show the portfolio has lower emissions than its benchmark for aggregated Scope 1 and 2 emissions (63% lower) as well as aggregate Scope 1,2 and 3 emissions (55.3% lower).
Source: Robeco, Trucost data, 2023

Investors can drill down further to reveal emission sources from sectors, countries, regions and even top contributing companies (Figure 6.7). Finally, while the current status of emission levels is important, estimations of future risks/opportunities are significantly enhanced by tracking an investment portfolio's carbon emissions over time against a net-zero trajectory (See Figure 6.8).

Figure 6.7: Scope 1 and 2 emissions per sector (portfolio and benchmark)


A more granular view of emissions by sector for both portfolio and benchmark. The portfolio had significantly less GHG emissions than the benchmark for materials and energy sectors, but consumer discretionary and consumer staples sectors reported larger GHG emissions.
Source: Robeco, Trucost data, 2023

Figure 6.8: Decarbonizing Robeco's investment portfolios



The graph displays the emissions of Robeco's equity and credit portfolios over time. To align with the Paris Agreement, we aim for our investment portfolios to have a 30% lower carbon footprint by 2025 (compared to 2019) and to have a 50% lower footprint by 2030 (or an average 7% annual reduction through 2050).

Source: Robeco

APPLYING ADJUSTMENTS FOR CHANGES IN ASSET PRICES AND THE ASSET MIX

Adjusting for year-to-year asset price changes: To counteract asset price inflation, which could artificially reduce portfolio carbon footprints, Robeco adjusts the decarbonization amount using a market-weighted average EVIC growth factor, in line with the PCAF standards.⁴¹

Adjustments for year-to-year changes to asset mix: Changes to a portfolio's asset mix could also have an artificial carbon-reducing (or alternatively a carbon-increasing) effect. For example, reductions could be more rapidly obtained by eliminating certain sectors or switching to cleaner asset classes (e.g., from high yield bonds that have a disproportionate exposure to 'dirtier' businesses to green bonds).

Robeco recalibrates historical footprints (and estimations of future decarbonization trajectories) based on emissions of the current asset mix. This helps to avoid an artificial decarbonization effect resulting from client outflows from dirtier asset classes and client inflows into greener asset classes.

The process of adjusting the carbon footprint to reflect changes in asset prices and the asset mix is called re-baselining and helps to accurately track carbon emission reductions in portfolios over time.

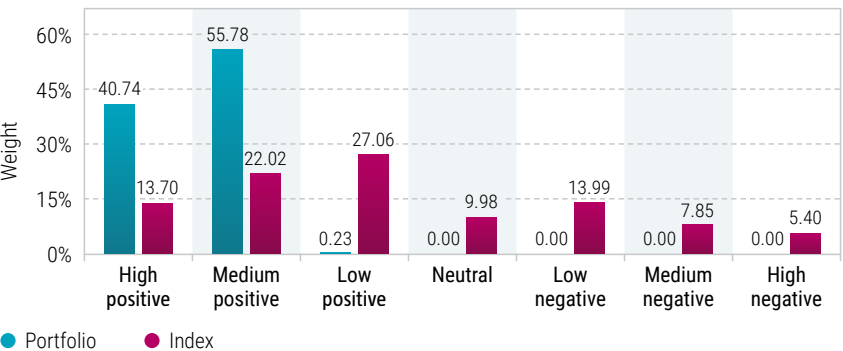
41. Launched in 2019, the Partnership for Carbon Accounting Financials (PCAF) is a global coalition of financial institutions (including commercial and development banks, asset owners/managers insurance companies and pension funds) representing nearly USD 90 trillion in assets. Members are committed to creating global standards for measuring and disclosing GHG emissions (e.g., carbon accounting) within lending and investment portfolios.

Measuring SDG alignment

The SDGs are an increasingly accepted standard that can help companies understand, prioritize and maximize the value (or the detriment) that their products and services have on society. Consequently, measuring and reporting on the SDG contributions of listed companies provides a powerful means of demonstrating the overall impact of the players that dominate business and the global economy. Moreover, it can show asset owners how their investments align with their sustainability commitments (see Chapter 5 for more insight into SDG and ESG scores).

More specifically, tracking the SDG contributions of companies and reporting on the aggregate SDG alignment of investment portfolios can be used to show investors their exposure to all 17 SDGs, as well as the quality of those contributions. In Robeco’s framework, these range from highly negative (a minus-3 score) through neutral (zero score) to highly positive (a plus-3 score). Figure 6.9 shows how an SDG-aligned strategy can significantly outperform on SDG exposure if all its holdings contribute positively to the SDGs.

Figure 6.9 | Percentage of investments according to degree of SDG impact alignment



This distribution across SDG scores shows the portfolio weight allocated to companies with a positive, negative and neutral impact alignment with the Sustainable Development Goals (SDG) based on Robeco’s SDG Framework.
Source: Robeco, 2023

SDG impact alignment can also be provided for individual SDGs. Figure 6.10 illustrates the measured impact on individual goals of the same portfolio relative to its respective benchmark.

Figure 6.10: Percentage exposure to companies positively aligned with the UN SDGs



Results of the portfolio and benchmark performance on SDG contributions across all 17 SDGs.
Source: Robeco, 2023

Impact reporting: Quantifying companies' real-world impact

In order to truly understand the impact of an investment portfolio, investors need to quantify the real-world outcomes of their investee companies.

Companies' SDG contributions can be captured through units and metrics that are linked to one of the 169 SDG targets and 232 indicators. These could measure, for instance, the number of people provided with microfinance, the volume of wastewater treated, the millions of euros extended to small businesses, or the tons of plastic recycled. By using a set of predefined indicators, impact can be measured in a concise, consistent and comparable manner.

Figure 6.11 provides an overview of the SDG impacts over a one-year period that are associated with a EUR 100 million investment in an SDG-focused equity strategy.

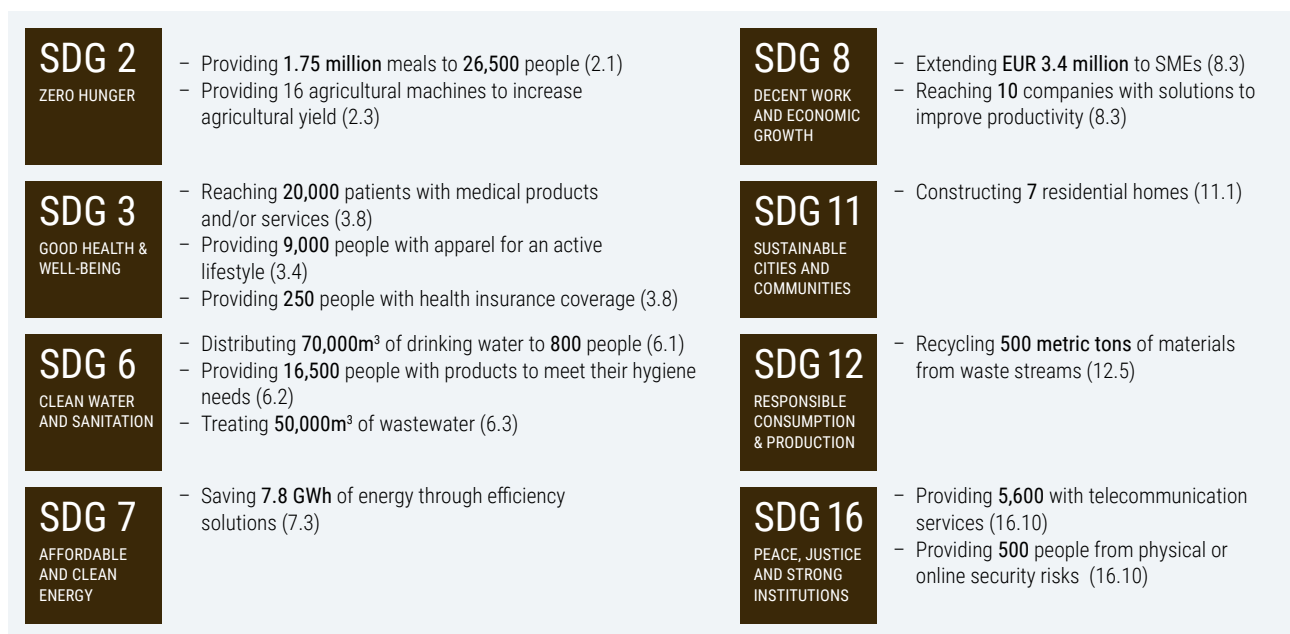
SDGs IN FOCUS

The SDG-focused strategy referenced performs significantly better than the benchmark on SDG 5 (Gender equality) where 38% of the portfolio is invested in companies contributing positively to this specific goal. In contrast, only 12% of the benchmark's invested companies contributed positively to SDG 5.

The portfolio's holdings had a neutral impact on SDG 13 (Climate action), producing neither material positive nor negative contributions. In contrast, 10% of the benchmark's holdings produced a negative contribution to this key goal, while 3% produced a positive one.

Note: Impact scale: positive contributions can be +3, +2, +1 (high positive to low positive), 0 (neutral), -1, -2, -3 (low negative to extremely negative).

Figure 6.11 | Impact metrics for an SDG-focused equity strategy



Robeco reporting translates high-level figures on SDG performance into meaningful real-world metrics that can be understood by stakeholders of all stripes. The graphic shows to which SDGs the portfolio is most significantly contributing in terms of specific UN SDG target indicators (UN sub-targets in parentheses).

Source: Robeco, 2023

Impact measurement: An evolving practice

Impact measurement is still in its infancy, partly due to the lack of standardization or availability in company disclosures. This means practitioners must conduct their own research and make informed assumptions in case of data gaps. As a result, impact metrics are not at a stage where they can be integrated systematically into investment processes.

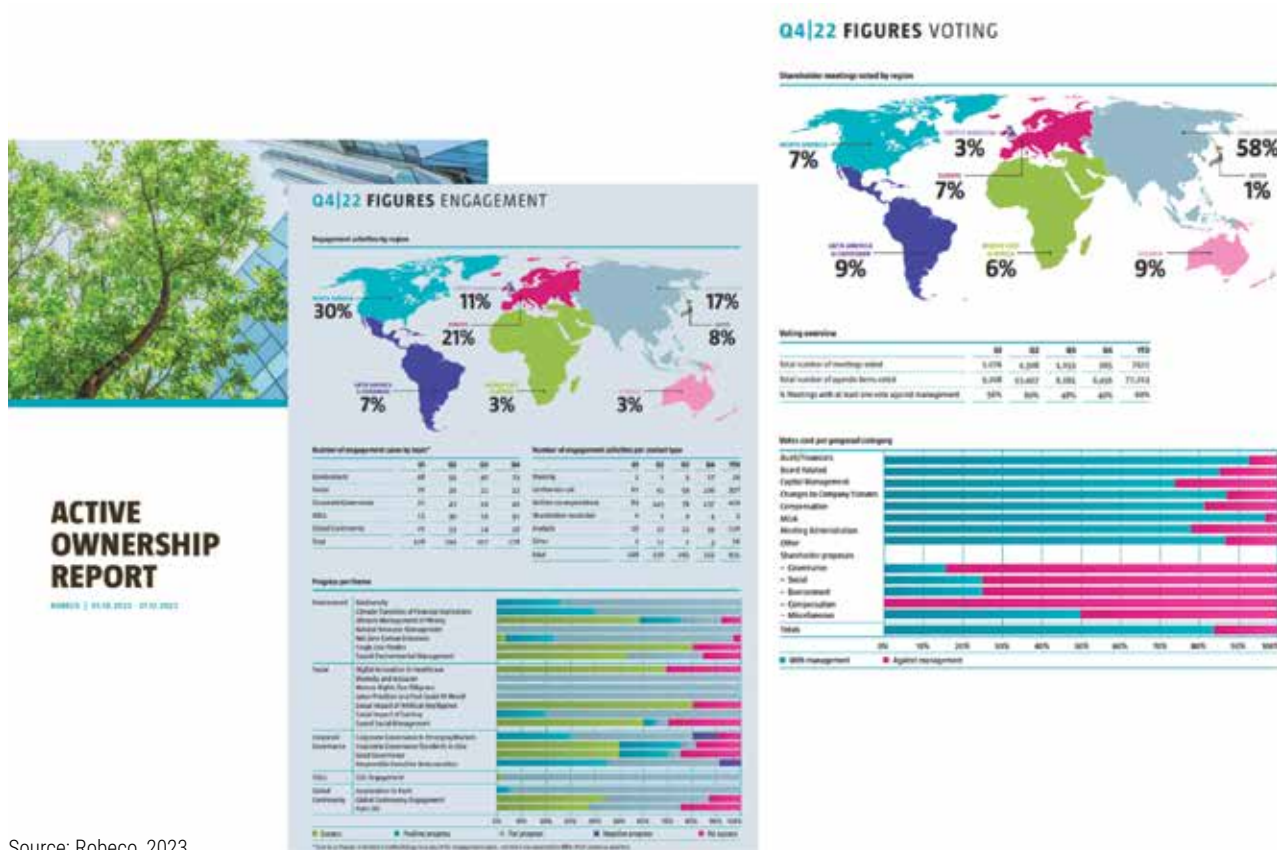
However, this should not be the objective of efforts to measure and report impact. The focus should rather be on understanding and creating transparency around how a portfolio contributes to (or detracts from) the global sustainable development agenda (see Chapter 5).

'Impact' is becoming a key consideration of asset owners. As such, it is the fiduciary duty of investment managers to identify and report the real-world impact of the companies in which their clients are ultimately invested to the fullest extent possible.

Engagement and voting

Engagement and voting reports are often completed across an asset owners' entire portfolio. Within these reports, engagement and voting statistics are shown and the results explained using case studies and special reports on thematic or sector engagements. The companies that are under engagement and the topics for which they are engaged are often mentioned in an appendix to annual reports.

Figure 6.12: Public engagement and voting reports



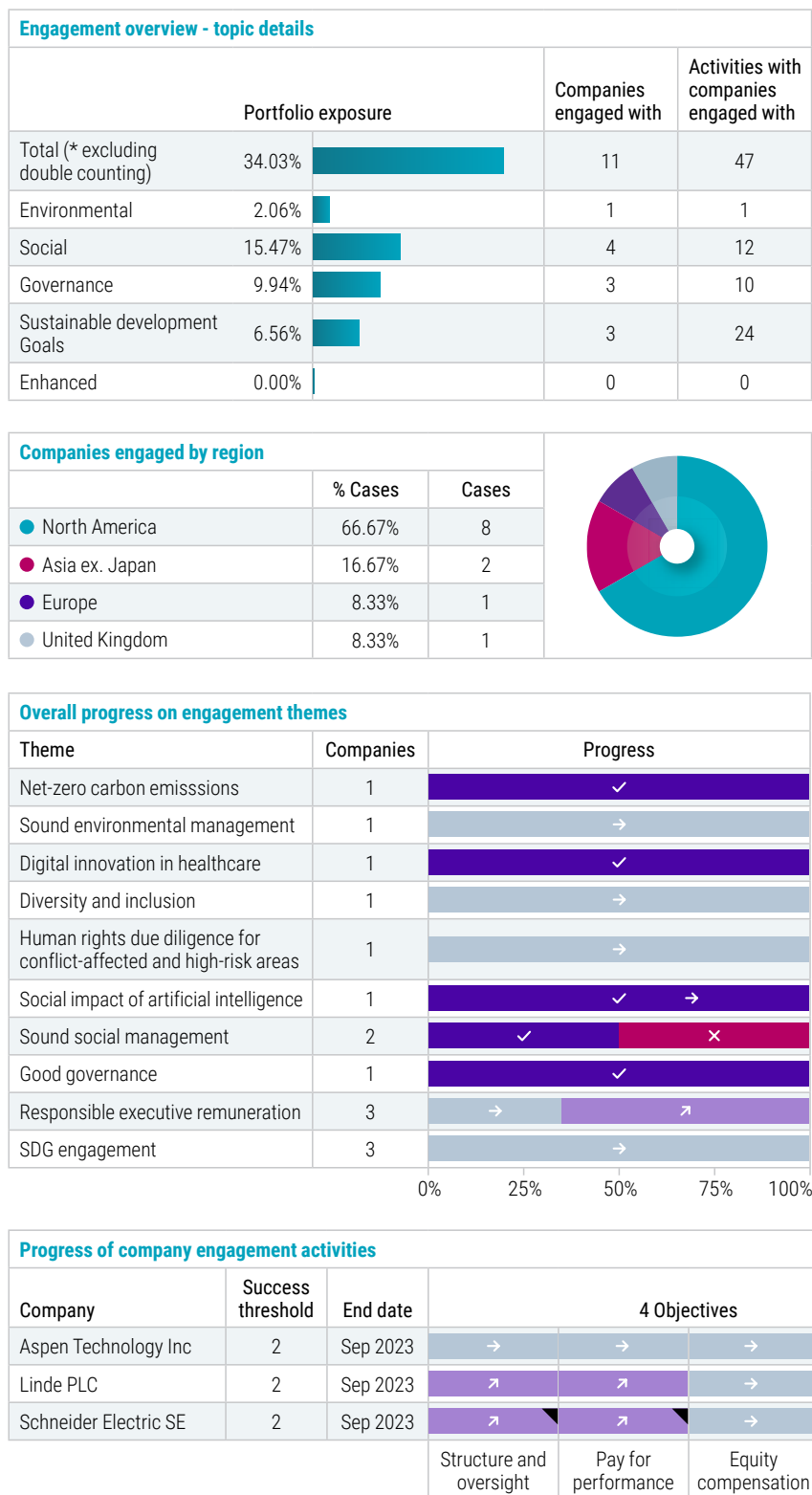
Beyond high-level engagement details, investment managers can also report on their engagement activities for portfolios, or even on specific companies within portfolios. Reporting capabilities include the proportion of the portfolio being engaged, engagement topics, target companies, engagement activities distributed across sectors and regions, as well as the progress made by companies in critical areas.

Excerpts of an engagement report for an investment portfolio are shown in Figure 6.13.

Conclusion

Here, we've highlighted some of the staples of our reporting capabilities that demonstrate a portfolio's sustainability performance which can be tailored to clients' values, risk-return, and impact-driven objectives. Along the way, we have explained some of the caveats associated with reporting including data availability, quality and measurement inconsistencies which could skew interpretations and potentially mislead investment decisions.

Reporting directed at clients represents only a small fraction of the analytical resources and reporting output used daily by our investment, SI research, and engagement teams. To avoid information overload that can lead to decision paralysis, Robeco applies a 'less is more' approach, equipping clients with succinctly synthesized results geared to yield understanding, insight and actionable investment decisions. ●

Figure 6.13: Engagement reporting for an investment strategy


Source: Robeco, 2023

7. ESG and performance

A close-up photograph of a line of ants walking along the edge of a green leaf. The ants are brown and their legs are clearly visible. The leaf's veins are prominent. The background is a soft, out-of-focus green.

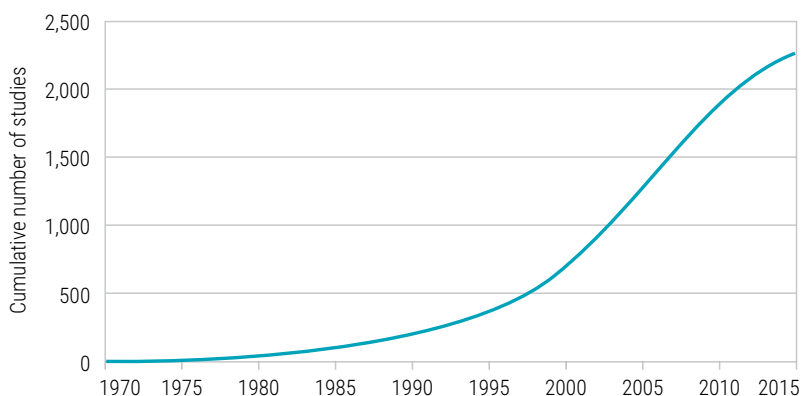
We are convinced that using financially material ESG and sustainability information in our investment processes leads to better-informed investment decisions and better risk-adjusted returns in the long run. This conviction is supported by a growing body of evidence as well as by our own investment experiences.

Studies show a positive link between sustainability and financial performance

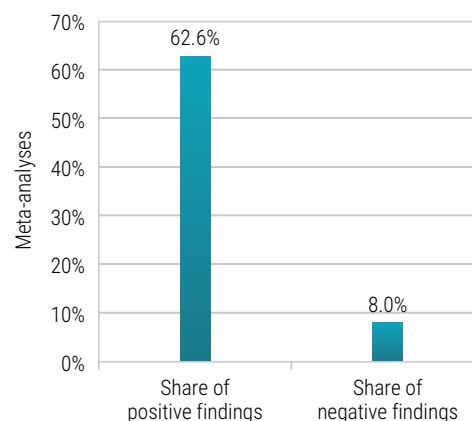
There is an undeniable intuitive link between sustainability and financial performance, which already struck researchers more than 50 years ago. As sustainability challenges have grown more visible, relevant and costly to stakeholders, particularly companies and investors, accounting for that link has grown at a frenzied pace. In 2015, a meta-study from Friede et al. undertook an exhaustive, quantitative study of the entire universe of 2,250 published academic studies on ESG performance spanning four decades of data from 1970 to 2014.⁴² The analysis concluded that ESG made a positive contribution to corporate financial performance in 62.6% of meta-studies and produced negative results in only 10% of cases (the remainder were neutral), see Figure 7.1.

42. Friede, G. Busch, T. and Bassen, A. "ESG and financial performance: aggregated evidence from more than 2000 empirical studies." (2015). *Journal of Sustainable Finance & Investment*, 5:4, 210-233

Figure 7.1: Thousands of academic studies from 1970-2015 point to ESG-financial performance link⁴³



Source: *Journal of Sustainable Finance & Investment*, 2015



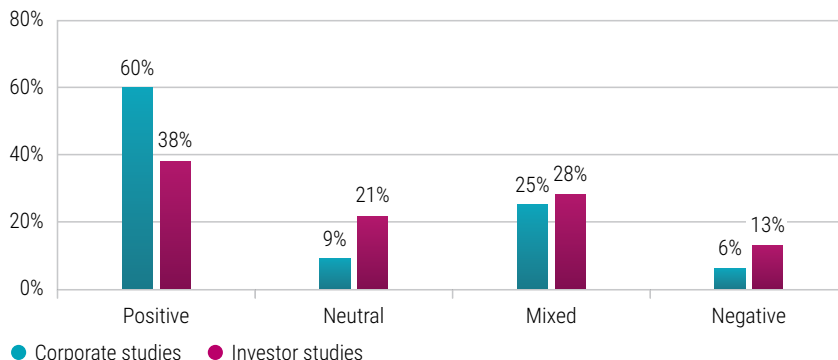
43. Ibid.

A more recent analysis of ESG studies (individual studies and meta-analyses) from 2015 forward by Atz et al. produced similar results. More precisely, the authors cited that companies that performed well on ESG criteria also performed well financially. A robust and positive effect between corporate ESG and financial performance was found in 60% of cases studied.

In the same study, however, Atz's team reviewed whether the same positive impact found on individual companies also extended to investment portfolios. Surprisingly, they did not. While these portfolio studies were more positive than negative (sustainability data positively influenced portfolio returns 38% of cases, while a negative influence was found only 13% of the time), they were still less robust than corporate performance results. See Figure 7.2. Moreover, Atz's team found that when comparing portfolio returns at the aggregate, ESG investing has on average been indistinguishable from conventional investing.⁴⁴

44. Atz, U. van Holt, T. et al. "Does sustainability generate better financial performance? review, meta-analysis, and propositions." (2022). *Journal of Sustainable Finance & Investment*.

Figure 7.2: ESG impact on corporate and portfolio performance (2015-2020)



Source: Journal of Sustainable Finance & Investment, 2022

Given the strong and positive financial impact of ESG for companies, the authors themselves were puzzled by the seemingly neutral ESG effect at the portfolio level. They posit that larger differences between ESG and ex-ESG strategies may have been found if earlier studies had distinguished between sustainable portfolios that emphasized financial performance from those that focused more on values-based investing. In the next section, we explain the primary problems with portfolio studies that do not consider the diverse range of preferences across sustainable investors.

Addressing sustainability's critics

As with most aspects of life and learning, negative studies tend to garner the most attention from the general public and current discussions still focus predominantly on whether sustainability actually adds value. An influential paper by Hong and Kacperczyk (2009) showed that employing sustainable investing approaches such as exclusions to avoid 'sin stocks' sacrificed returns, rather than adding to them.⁴⁵

How can these negative views be reconciled with the significant empirical evidence that positively links ESG with performance gains?

Recall the mixed results of Atz et al. which found strong positive correlations between ESG information and corporate financial performance but no significant impact on returns when applied to investment portfolios.⁴⁶ Atz (and many other researchers) conclude that most portfolio-focused studies do not appreciate the broadness and diversity of sustainable investing objectives and expected outcomes. As a result, they pooled together all types of sustainable investment portfolios, even those that prioritize sustainability and impact criteria over financial performance.

Varying definitions for high performance portfolios

In practice, sustainable investors have vastly different risk-return and sustainability preferences.

For example, for some investors, sustainability simply means avoiding certain companies because their business activities do not align with their beliefs. The institutional investors cited in Hong and Kacperczyk would fall into this category.

While negative screening of negatively perceived stocks help achieve a values-to-capital alignment – an important criterion for many investors – it may not always generate excess returns when employed in isolation without the aid of other ESG interventions.⁴⁷

45. Harrison, H. and Kacperczyk, M. (2009). "The price of sin: The effects of social norms on markets", *Journal of Financial Economics*, pp. 93-1

46. Atz, U. van Holt, T. et al. "Does sustainability generate better financial performance? Review, meta-analysis, and propositions." (2022). *Journal of Sustainable Finance & Investment*.

47. From Optimization theory, we know that the optimal solution over a smaller set (i.e., investment universe with exclusions) is always dominated by the optimal solution over a larger set that includes the smaller set (i.e., investment universe without exclusions). For more details, see Boyd and Vandenberghe (2014).

This phenomenon was clearly illustrated in 2022, when many non-sustainable investment strategies received a significant performance lift from the surge in energy and aerospace and defense stocks – which are excluded from many sustainable investing strategies – as a result of the European energy crisis and the war in Ukraine.

Other sustainable investors wish not only to screen out negative companies but also to actively orient their portfolios towards companies meeting ‘higher’ values criteria. These could be thought of as impact investors who wish to see their capital proactively allocated to companies and sectors whose products are positively responding to global sustainability concerns. Investment strategies focused on the climate crisis, resource scarcity, habitat degradation on the environmental front as well as workforce inequalities and human rights abuses on the social front are all examples of the impact investment approach.

While investing in sustainability trends such as these can provide excess financial returns, especially over the long-term, it is the positive impact rather than maximizing returns that is the main investment driver. Hence, many impact investors are willing to forgo some alpha generation to gain more real-world effects.

Different sustainability objectives lead to different outcomes

Distinguishing between sustainable investors’ different goals makes it easier to rationalize sustainability’s value and financial performance. Investor motives and imposed constraints can influence investment results. For example, Statman & Glushkov (2009) were among the first to research and find a neutral and even negative effect associated with altruistic investors’ that have little to no financial motives for incorporating ESG methods into their portfolios.⁴⁸

48. Statman, M. and Glushkov, D. “The Wages of Social Responsibility.” (2009). *Financial Analysts Journal*, 65(4), pp. 33–46

Their findings are significant and robust as they not only replicated the results of Hong & Kazpercyk on the outperformance of sin stocks, but also found that positive ESG integration – in other words, using ESG information to actively select higher quality securities versus just negatively screening sin stocks – led to better investment results.

The investment impact of exclusions

Our own research in sustainable quantitative investing shows that while certain ‘sin industries’ have produced above-average returns in the past, this can largely be explained by attractive factor characteristics.⁴⁹ For fundamentally managed equity strategies, excluding stocks need not matter too much as such portfolios are typically already concentrated. In other words, even if certain stocks or industries are excluded, the portfolio remains focused and may still retain most or all of its factor exposure.

49. Blitz, D. and Fabozzi, F. “Sin stocks revisited: resolving the sin stock anomaly.” (2017). *The Journal of Portfolio Management*. 2017, 44(1) pp.105-111

For quantitatively managed strategies, however, restrictions usually tend to limit the power of the factor model, and therefore its expected performance. However, historical tests show that if the number of excluded stocks is modest, the universe is still large enough to retain most or all of its factor exposure.

Despite their simplicity, investors in low tracking error or passive strategies should be cautious when applying exclusions. As previously noted, there is evidence that many of the typical sin stocks have distinct factor characteristics, so simply excluding them could lead to lower factor exposure and lower expected returns. Managers must remain vigilant in managing risks to ensure that the strategy’s risk/return characteristics do not deteriorate.

Materiality matters

Another issue that could be used to respond to studies skeptical of ESG's value is their lack of focus on financially material ESG information. To distinguish among the different aspects of ESG, Khan et al. (2015) introduced the concept of materiality in their study, 'Corporate Sustainability: First Evidence on Materiality'.⁵⁰ They show that investments in material sustainability issues can enhance value for shareholders, while investing in immaterial sustainability issues has, if any, little impact on returns.

50. Khan, M. Serafeim, G. and Yoon, A. "Corporate Sustainability: First Evidence on Materiality." (2016). *The Accounting Review* 91-6, pp. 1697-1724

Going on two decades, Robeco has analyzed the potential of harvesting sustainability signals to improve a portfolio's risk-return profile. Early on, our applied research revealed that companies with higher ESG scores tend to exhibit strong quality factor characteristics. As a result, we began to integrate scores into our stock ranking in the early 2010s. We've continued to build on those early successes, designing quantitative tools to capture material SI signals that can be exploited to maximize portfolio sustainability while not sacrificing alpha.

Examples of how material ESG research can add value to investments

To give a bit more concrete context, we look at four examples for which a positive relationship between ESG and financial performance has been documented in academic literature. These include considering sustainability risks of companies in terms of governance, resource efficiency, human capital management and carbon footprints.

Governance

There are several studies that examine the contribution of ESG to corporate performance. One of the first and most famous was that of Gompers et. al in 2003, which found a strong positive link between good corporate governance and results. More specifically, they found that companies with stronger shareholder rights had higher firm value, higher profits, higher sales growth, lower capital expenditures, and made fewer corporate acquisitions.

Eco-efficiency

Generally, carbon emissions are typically seen as an output of the production process. Creating these emissions requires combustion (Scope 1 emissions) or electricity consumption (Scope 2 emissions), both of which require resource inputs, most notably, fuel. That means there is a direct relationship between emissions and inputs (fuel or electricity) and a company's production process – information that can be used to generate a resource efficiency coefficient that characterizes its performance in generating output (emissions) per unit of input (fuel, electricity).

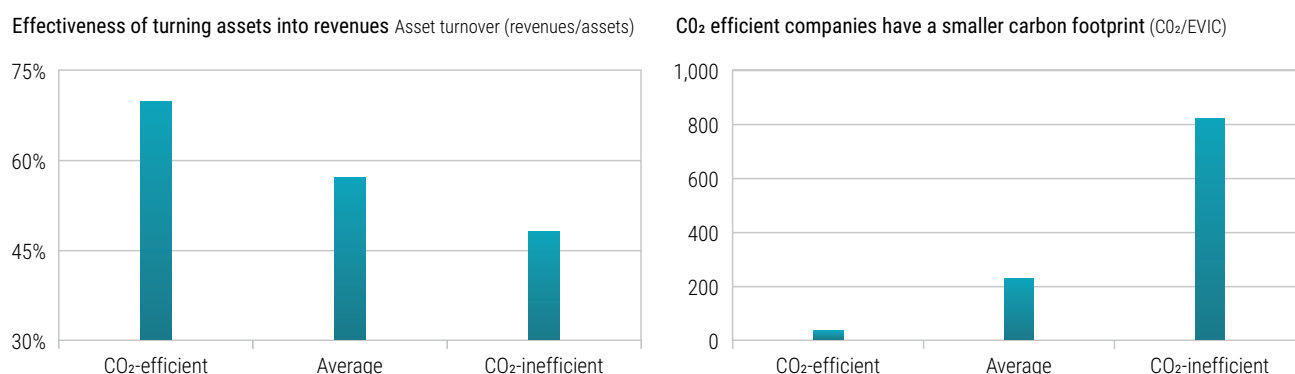
Of course, this relationship's strength depends on the production process; it will be more meaningful and material for analyzing heavy industries than for companies with less capital-intensive production processes. We can apply the resource efficiency coefficient to compare competitors. If one can generate more revenue per unit of input, then all else equal, the company that generates more output can be thought of as having more efficient and profitable processes.

The aforementioned study by Derwall et al., and a more recent paper by Trinks et al. show that this level of resource efficiency hasn't been fully priced into stock prices, leading to above-average returns for more resource-efficient companies.^{51,52} Robeco research also shows that resource efficiency positively correlates with other measures of operational efficiency.⁵³

51. Derwall, J., Guenster, N., Bauer, R., & Koedijk, K. (2005). 'The Eco-Efficiency Premium Puzzle', *Financial Analyst Journal*, pp. 61-2

52. Trinks, A., Mulder, M., Scholtens, B. (2020). "An Efficiency Perspective on Carbon Emissions and Financial Performance", *Ecological Economics*, Vol.175,106632

53. Robeco Quantitative Research. (2023). "Having your cake and eating it, too: Finding alpha in sustainability."

Figure 7.3: Resource efficiency equates with operational efficiency

Source: Robeco Quantitative Research. Asset turnover for CO₂ efficient and CO₂ inefficient companies; CO₂ efficient and CO₂ inefficient companies are defined by the top and bottom quintiles of sorting stocks based on CO₂ efficiency. Averages for 2010-2022 are shown. EVIC stands for enterprise value including cash.

Employee satisfaction

Employee satisfaction provides another example of an under-researched, non-financial factor that improves a portfolio's sustainability profile and its expected returns. Amongst all types of non-financial assets, human capital is arguably one of the most important for companies. However, human capital is difficult to measure, and its worth is not readily available from financial statements. Edmans (2011) attempts to measure this human capital effect by using Fortune's '100 Best Companies to Work For' list as a proxy for satisfied employees. He observed that companies ranking high on the list also outperformed the average company in terms of stock returns.⁵⁴

Building on Edmans' research, a recent paper from Green et al. makes use of crowdsourced employer reviews and found similarly positive results.⁵⁵ The economic rationale for using such a stock selection factor is that a happy workforce is expected to be more motivated, efficient and above all productive. One could hypothesize that happy employees might require less monetary compensation to do their work compared to their miserable peers. Indeed, this corroborates with our own research on companies and labor inputs where we found that companies with unhappy employees needed to spend more for each unit of revenue generated compared to peers with happy workforces.⁵⁶

Carbon footprints

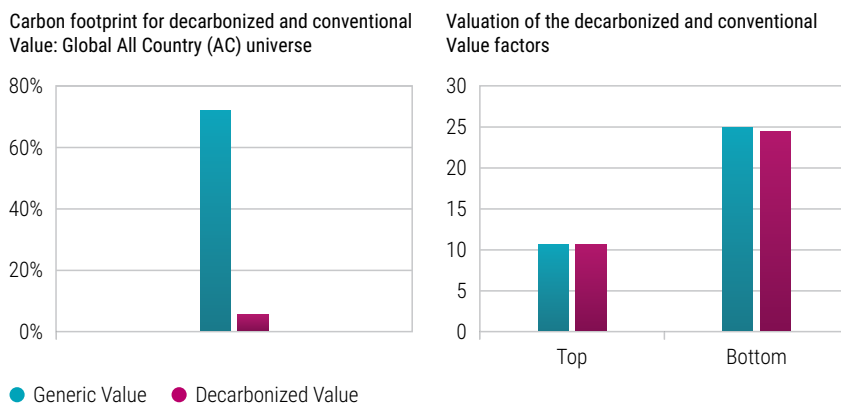
Lastly, our research has found that generic value factor strategies often have large environmental footprints due to their structural tilt towards companies within heavy-asset sectors such as energy, utilities and materials. To address this, we developed an innovative way to improve the environmental footprint of value signals without lowering their return potential.⁵⁷ In other words, investors get the same exposure to cheaper value stocks without having to accept a lower sustainability profile. See Figure 7.4.

54. Edmans, A., (2011). "Does the stock market fully value intangibles? Employee satisfaction and equity prices", *Journal of Financial Economics*, Vol 101(3), pp. 621-640

55. Green, T.C., Huang, R., Wen, Q. Zhou, D. (2018). "Crowdsourced employer reviews and stock returns." *Journal of Financial Economics*, Vol. 134 (1), 2019 pp. 236-251

56. Robeco Quantitative Research. (2023). "Having your cake and eating it, too: Finding alpha in sustainability."

57. Ibid.

Figure 7.4: Mitigating the undesirable while preserving the desirable

The left graphic shows the carbon footprint of a generic value-factor portfolio compared to Robeco's sustainable decarbonized value-factor portfolio. The right-side graphic shows the valuations of the respective portfolios. Robeco's quantitative approach is able to significantly reduce the carbon footprint of portfolios without sacrificing valuations and expected returns.

Source (left-graphic): Robeco, Refinitiv, Trucost.⁵⁸ Source (right-graphic): Robeco, Refinitiv, I/B/E/S.⁵⁹

Regardless of what sustainability factor is chosen or the strength of its correlation with other proxy measures such as emissions output or payroll expenses, what matters most is how the market prices in such information. At some point, if all information is reflected in the price of a stock, then its returns are expected to behave more like the market average.

New streams of research

Another interesting stream of research on changes in ESG scores could help investors distinguish between stocks where ESG gains have been priced-in and those where ESG's potential is still underappreciated. When investigating the correlation between sustainability and future investment returns, researchers have traditionally looked at the link between a firm's current sustainability profile and its future investment returns. But more recently, we have begun to see studies examining the link between changes in a firm's sustainability profile and its future performance success. Here, the underlying hypothesis is that the best time to invest for those seeking to benefit from improvements in a firm's ESG standards is before the improvement is widely recognized – and more importantly rewarded – by the market.⁶⁰

Other research suggests that how ESG information is integrated is just as important as what information is used. Recent sustainability research by Lo and Zhang (2022) not only concludes that ESG integration is important for better informed investment decisions but also developed a quantitative framework to assess the financial impact of various ESG dimensions. Dependent on the expected relation between, for example, an exclusion policy or positive ESG integration, the framework can be used to estimate the reward or cost of a certain measure.⁶¹

Applying such frameworks can help investors along with other stakeholders understand and appreciate the expected financial benefits associated with employing different ESG approaches (see insert box, Creating the perfect blend).

Just as in traditional investment analysis, sustainable investing is constantly evolving and continuous research is needed to discover and substantiate new sources of ESG

58. The graph shows the average carbon intensity 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 value composite. A positive number means value stocks have a larger footprint than non-value stocks. Carbon intensity is the total GHG emissions in tons of CO₂ equivalent (tCO₂eq) per one million USD revenues across Scope 1+2. The investment universe consists of all non-financial constituents of the MSCI Developed and Emerging Markets indices. The sample period is January 1986 to March 2023.

59. The graph shows the average forward price-to-earnings ratio (FWD P/E) for the top and bottom quintile portfolios of a conventional and a decarbonized value composite. For each month, we compute the median forward price-to-earnings ratio per portfolio and take the average over time. The investment universe consists of all non-financial constituents of the MSCI Developed and Emerging Markets indices. The sample period is January 1986 to March 2023.

60. NN Investment Partners and ECCE report. (2016). "The materiality of ESG factors for emerging markets equity investment decisions: academic evidence."

61. Lo, A. and Zhang R. "Quantifying the Impact of Impact Investing." (2022). SSRN working paper, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3944367

information that can be exploited to enhance performance or reduce risks. Moreover, as more investors shift towards incorporating sustainability considerations into their investments, managers must also discover new tools to measure and optimize portfolio performance along a much wider scope of dimensions, including returns, volatility, ESG scores, climate risks, and SDG impact.

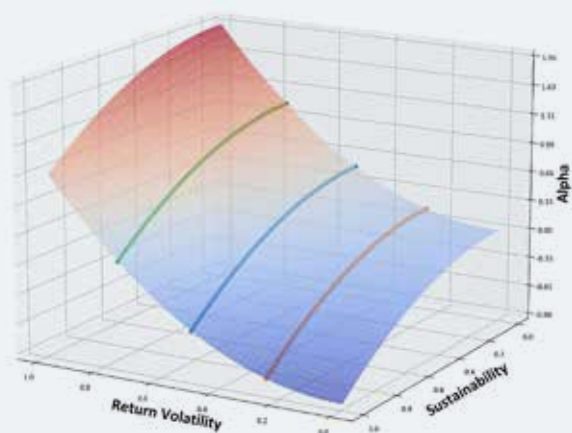
CREATING THE PERFECT BLEND FOR MULTI-OBJECTIVE PORTFOLIOS⁶²

Robeco optimizes constraints to create the perfect blend of expected returns while respecting the sustainability flavor and risk appetite of investors.

Our own experiences with clients over the past decade have revealed a shift in investor preferences that are impacting the investment space. Whereas traditionally investments were framed as a two-dimensional trade-off between risk-return, clients' desire for more sustainability in their portfolios means managers must now optimize across three dimensions – risk (volatility), returns (alpha) and sustainability characteristics (e.g., carbon footprint, SDG impact).

Based on basic portfolio optimization theory,⁶³ Robeco has designed a proprietary portfolio optimizer for its sustainable quantitative investment strategies to create the perfect blend that satisfies the alpha, sustainability and risk appetite of the multi-objective investor. The multi-colored surface in Figure 7.5 shows the maximal efficiency frontier (perfect blend) that can be created by combining different client investment objectives (flavors) to investment portfolios.

Figure 7.5: Illustrative three-dimensional efficiency frontier surface maximized across risk (return volatility), alpha (excess returns), and sustainability criteria



The three lines represent the maximized alpha and sustainability frontier for three different volatility levels.
Source: Robeco, 2023

Insider evidence

For Robeco's core fundamental equity strategies, ESG is not a political ideology but a key step in the investment process. Investment teams analyze and invest with the conviction that sustainable companies are creating value for society which should be reflected in superior business models, profitability and growth for companies and above-market investment returns for investors. Robeco's flagship sustainable fundamental equity strategy, the Sustainable Global Stars Equities strategy, buttresses its strong conviction with hard evidence. It found that integrating various ESG dimensions has positively contributed to 22% of the strategy's excess returns between 2017-2022.⁶⁴

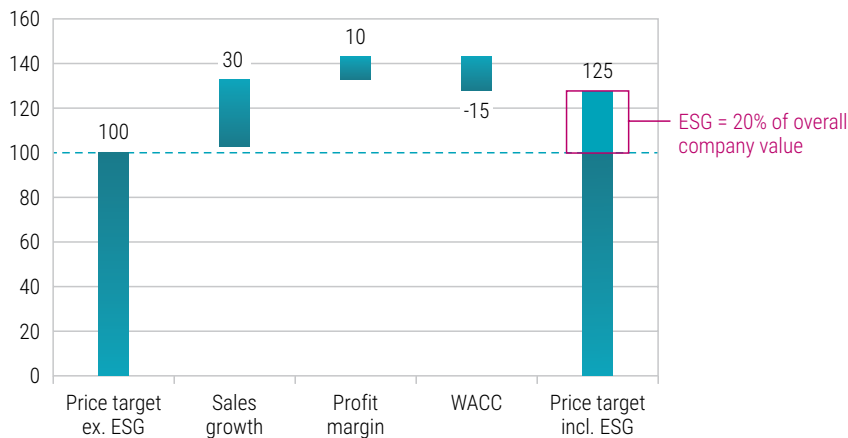
The team starts with an investible universe of about 4,000 stocks and uses research to narrow it down to the 30-50 best picks. The winnowing process includes a sharp focus on companies with high returns on invested capital (ROIC), strong free cash flows (FCF) as well as analyzing how material ESG factors impact a company's fundamentals. Sustainable investing is essentially about broad value creation, investing in companies that do business with respect for all stakeholders. In this way, fundamental valuation and ESG go hand-in-hand, as the latter can (in)directly impact a company's traditional value drivers such as sales growth, margins, investment needs and weighted average cost of capital (WACC). See Figure 7.6.

62. For more information on this framework see "Beyond risk and return: A multi-objective portfolio construction approach." (2023). Robeco's Quantitative Equities research working paper. Howard, C., Chen, M., Lohre, H., and Blitz, D.

63. See Boyd and Vandenberghe (2014).

64. The Robeco Sustainable Global Stars Equities strategy uses the MSCI World EUR Index as a reference index.

Figure 7.6: Quantifying the ESG contribution to fundamental valuation



The graphic shows how ESG information impacts the various components used by the investment team to calculate a stock's price target.

Source: Robeco, Sustainable Global Stars Equities strategy, 2022

ESG performance calculation methodology

We illustrate the value of ESG integration for the portfolio by way of example. The portfolio holds a large and innovative US pharmaceutical company. Based on ESG analysis, the team concludes that ESG generated around 11% to the company's overall value, owing to strong corporate governance and innovation management. Moreover, over the course of the year, the company contributed +156 basis points (bps) to the portfolio's overall performance. Multiply both figures and you get a proxy for the ESG attribution to the company's performance ($11\% \times 156 \text{ bps} = +17 \text{ bps}$). The team follows the same process for all holdings to calculate an ESG attribution at the portfolio level.

Although some analysis requires subjective judgements, given the team's long-standing expertise in fundamental analysis, it is considered a reasonable, research-based attempt to proxy ESG's contribution to investment performance.

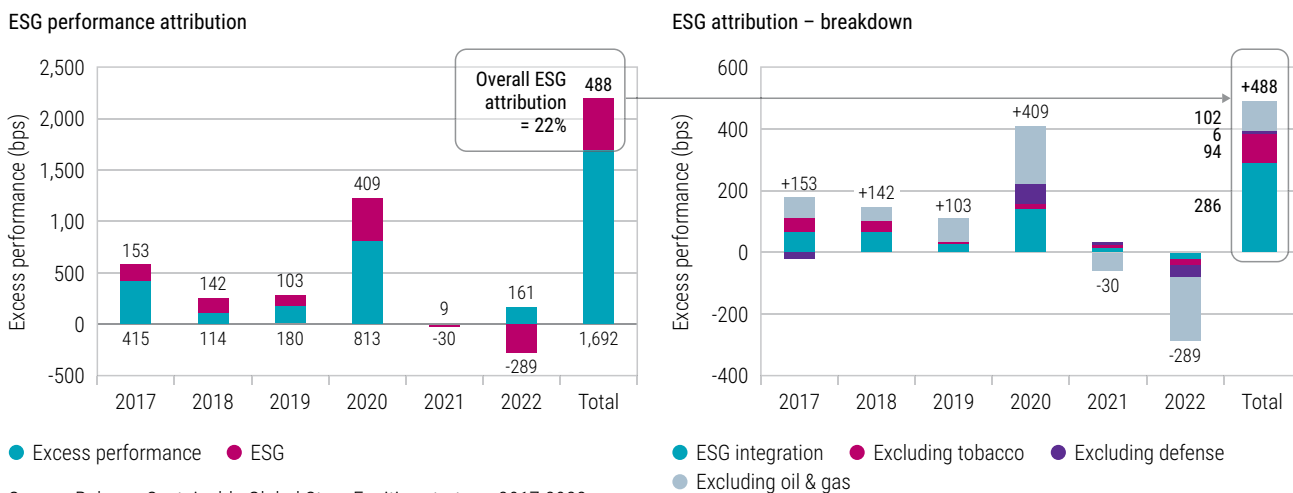
As explained earlier in this chapter, exclusions can impact expected risk-adjusted returns and portfolio factor exposures. However, since measurement of the sustainability attribution of the Sustainable Global Stars Equities strategy began, data has shown that over the last six years the exclusion of tobacco, unconventional oil & gas, and defense did not hurt performance. With the exception of 2021 and 2022, it actually contributed positively to performance.

Aggregating results

The strategy's six-year track record of measuring ESG attribution to investment performance is illustrated in Figure 7.7. The overall excess performance, including both ex-ESG and ESG alpha contribution, is shown to the left. The right-hand chart breaks down the different sources of attribution. The figures demonstrate that ESG integration has helped to generate 75 bps (22%) of the strategy's 334 bps of excess performance over the past six years.⁶⁵ Only in 2022, in what proved to be an exceptional year for the entire stock market, did ESG detract from performance.

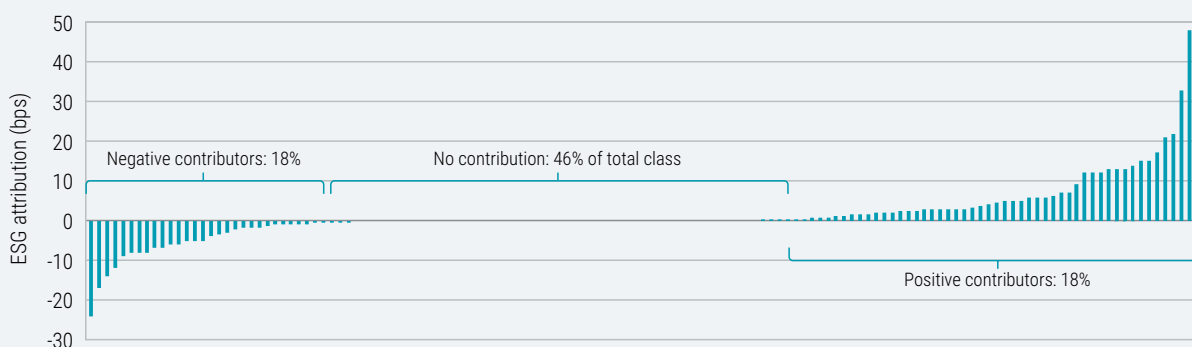
65. Results shown are for the Dutch incorporated Sustainable Global Stars Equities N.V. strategy. The Luxembourg incorporated CGF strategy has a slightly different absolute performance track record, yet the ESG performance attribution results are roughly similar.

Figure 7.7: Demonstrating ESG's contribution to performance in a sustainable equity portfolio



THE NUMBERS: DEEP DIVE INTO PORTFOLIO INVESTMENT CASES

Figure 7.8: ESG impact (bps): 2017-2022



Source: Robeco, Sustainable Global Stars Equities strategy, 2017-2022

Because the Sustainable Global Stars Equities strategy's investment philosophy focuses on companies with a high ROIC, high FCF generation and a strong sustainability strategy, there is a natural tilt towards a positive impact, reflecting the opportunity side of ESG.

ESG is also used for downside protection, when there are simply more ESG risks than opportunities given a company's

business model. However, this doesn't make the investment impossible. As long as the valuation upside, even after discounting the ESG risks, remains sufficient and the company does not violate other ESG requirements, it could still be within the scope of investment.

An example of such a stock would be a large, pure-play US liquified natural gas (LNG) producer. LNG looks unfavorable

when compared to renewable energy, but it is a much cleaner alternative when compared to coal. ESG analysis resulted in a 20% reduction of the stock's initial price target (ex-ESG). Yet, the valuation upside that remained was still significant. In combination with a growing ROIC and strong FCF generation, the team entered the position.

ESG integration in credits vs equities

Fixed income strategies have different priorities for selecting bonds compared to their equity counterparts, a fact which carries over to their use of ESG analysis. Equities seek to identify upsides that are not reflected in the share price, while bond analysis seeks to expose downsides that may not be reflected in an issuer's credit rating. The risk of default remains the paramount threat and is much higher in sub-investment grade (high yield bonds) than in investment grade securities. Hence, the oft-used expression that in credits, 'it's better to avoid the losers than always pick the winners.'

For example, good risk management systems at a bank do not in themselves lead to increases in a bank's credit rating. However, inadequate risk structures would signal heightened risks that could lead to critical failures, loss of revenue, regulatory fines and customer outrage – all of which could threaten future revenue streams for bond investors.

A system for identifying risks and opportunities in credits

So, how exactly are those losers avoided? A corporate bondholder's primary focus is the company's ability to repay the debt (and therefore avoid default). The key focus of credit analysis is therefore the cash generating capacity of the issuer and the quality of its cash flows. To do this, the credit team uses a proprietary five-point investment framework which includes a company's performance on material ESG factors as well as an assessment of its business position, corporate strategy, financial profile and corporate structure.

Assessments yield a fundamental score (the F-score), which ranges from +3 (highly positive) to -3 (highly negative). The F-score expresses the credit team's fundamental view on a company in relation to its credit rating.

If the bond is high risk (higher spread vs similar benchmark bonds or peers) but our internal team analysis renders a positive F-score (0 to +3), it's a good indication that the bond has strong underlying fundamentals and should outperform – a clear case for investment.

Despite credit's focus on using ESG for downside risk protection, in a limited number of cases, ESG factors have contributed to an improved fundamental view and positive upside capture for bonds.

This is often due to positive ESG analysis on specific features of a company's product line(s). For example, an industrial parts manufacturer which lowers the carbon footprint of its production process. The latter may not show up in the company's financial statements but it would help move it closer to net-zero climate goals and reduce future transition risks.

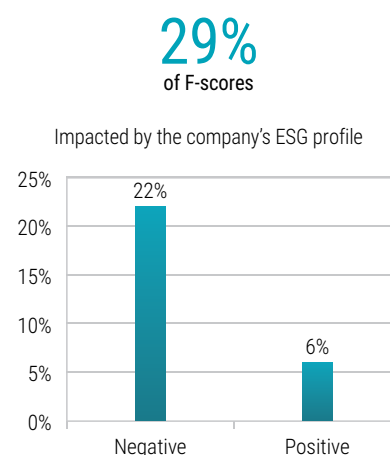
Quantifying the impact on portfolios: credits

The global credit's investment team regularly evaluates investment cases to quantify the number in which ESG factors contributed materially to our view on the fundamentals of the credit issuer. In 2022, incorporating ESG into fundamental F-score analyses led to a financially material impact in 29% of investment cases, 22% of which related to downside protection, whereas in 6% of cases the impact was positive, helping capture upside potential in bond prices. See Figure 7.9.

Figure 7.9: Contribution of ESG to sustainable bond portfolio



Contribution ESG factors to fundamental scores



Source: Robeco, calculated as of January 2023

The power of engagement as a sustainable investing strategy

It is unsurprising that another interesting stream of research focuses on the financial pay-off of engagements. Dimson et al. (2015) document positive market reactions to responsible investing engagements at 613 US public firms between 1999 and 2009. They show that after successful engagements, firms' investment returns are, on average, higher than would be expected. However, when the engagements were not successful, the resulting returns were, on average, consistent with what one might expect had there been no engagement at all. They also find that after successful engagements, companies experience improvements in their operating performance, profitability and governance.⁶⁶

Hoepner et al. (2022) use a more recent dataset and show that engagement can also help to reduce downside risk. Using data from a large institutional investor, they find that actual incidences were significantly reduced after successful engagements and that patterns were strongest for environmental engagements.⁶⁷

Conclusion

Robeco is convinced that using financially material ESG information in investment processes leads to better-informed investment decisions and better risk-adjusted returns in the long run. In this chapter, we have discussed the growing body of evidence that supports our investment belief. Most early studies found a positive effect from incorporating sustainability information on either company or investment performance. More recent studies found similar results at the corporate level, however, results at the portfolio level were less robust and even had a neutral to negative impact (in the case of 'sin stocks') on returns. However, these studies failed to distinguish between the different preferences of sustainable investors, many of whom seek to align their investments with their values rather than strictly prioritize financial returns.

Our own investment experiences of integrating ESG data and sustainability preferences have also been positive. For quantitative investors we have found that material ESG data can add value on its own or when used in conjunction with existing signals to remove unpriced risks. As a result, ESG, when applied in the right way, can be used to enhance alpha in factor-based investing. For example, a traditional quant value strategy that does not integrate ESG considerations, may result in a portfolio filled with cheaply priced companies with terrible environmental practices. Hence, the stocks of these firms might be cheap for a reason. Integrating sustainability data within the process could help overcome the risk of taking exposure to such stocks.

Moreover, investor preferences are mixed and can change over time, with alpha not always being the only objective. The desire for more sustainability means quant managers can optimize across three dimensions – risk, returns and sustainability – designing an optimal portfolio customized by investors' personal values, return expectations and risk appetite.

For fundamental equity and credit investors, integrating sustainability in the process helps identify sources of unaddressed sustainability risks that could reduce a company's ability to service its debt, in the case of bonds, or increase its cost of capital in the case of equities. For both asset classes, ESG integration can also work to uncover sources of sustainability opportunities that generate positive impact on a firm's fundamentals.

As there are many different methodologies for implementing sustainability, and new data becomes available at an increasing pace, we will continue to research ESG factors to ensure that this information is implemented in our portfolios in the best way possible and in line with our firm belief that its use in investment processes adds value to our strategies. ●

66. Zhang, L. "The Financial Return of Responsible Investing." (2017). Utrecht University and Sustainable Finance Lab. Dimson, E. O. Karakas, and X. Li "Active Ownership," (2015). *Review of Financial Studies*, 28 (12), pp 3225-3268.

67. Hoepner, A. et al. "ESG Shareholder Engagement and Downside Risk." (Revised version, Nov 2022). European Corporate Governance Institute – Finance Working Paper. No. 671/2020.

8. Client case studies

Until now, we've explained the importance of applying sustainability to investments and outlined the levers, tools and building blocks used to integrate it into portfolios. In this chapter, our clients describe their experiences collaborating with Robeco to create flexible solutions to fit their unique needs.

1. AIA Singapore

COMBINING COMPLEMENTARY STRENGTHS TO CREATE INNOVATIVE PRODUCT SOLUTIONS

In 2022, AIA Singapore took bold new steps towards advancing its sustainability agenda and began offering sustainable investment products to customers as part of their overall ESG strategy. Combining Robeco's sustainability expertise with its own insurance acumen, it created a first-of-its-kind sustainable fund uniquely tailored to meet the needs of customers desiring sustainable returns and measurable impact.

When AIA Singapore began its search for an external fund manager, it was on a two-fold mission. It needed an immediate solution to develop a thematic strategy for its investment-linked products ('ILP'). And in the longer term, it aspires to be a leader in the ESG space and provide attractive sustainable products to customers.

As AIA Singapore's Chief Investment Officer, Chunyen Liu played a key role in the selection process for a suitable replacement. From the outset she wanted a sustainable product distinguished by superior performance but also unique sustainability features. Liu says that although the AIA Group⁶⁸ is seen as a sustainability leader in Asia, the decision to push a sustainability product was shaped by the results of recent surveys that highlight Singapore's outsize demand for sustainable financial products.

According to Liu, a Singapore market survey revealed that nearly four in five respondents have sustainable investing and/or ESG funds in their investment portfolio.⁶⁹ Perhaps more surprisingly, close to half (47%) are only interested in investing in companies with good ethical policies. Singapore's results mirror global trends. Moreover, strong demand is being matched by supply as sustainable products continue to proliferate and draw sizable asset flows worldwide.

"Though the pace varies across regions, the direction is constant and moving towards investing to both support



Chunyen Liu, Chief Investment Officer, AIA Singapore

ABOUT AIA SINGAPORE

AIA Singapore is a wholly owned subsidiary of the AIA Group, Asia's largest independent, publicly listed life insurance company with more than 25,000 employees, 58 million individual and group policyholders and USD 2 trillion in insured assets. What began in Shanghai, China in 1919 has expanded to operations in the Asia-Pacific's largest economic markets including Hong Kong, South Korea, Taiwan, Thailand, Malaysia, Indonesia, the Philippines, Australia and New Zealand.

AIA Singapore's Multi-Thematic Sustainable insurance-linked product adds to a growing list of 'firsts in sustainability' for the Group. In 2022, the AIA Group ranked in the top 10 of Fortune's 'Change the World' list, a distinction awarded to global companies addressing society's biggest challenges. Also in 2022, it released a first-ever guide to help the insurance industry integrate ESG considerations throughout the underwriting process – a guide produced in partnership with the UN Environment Program Finance Initiative (UNEP FI) and Principles for Sustainable Insurance (PSI).

More recently, the AIA Group was included in Bloomberg's 2023 Gender Equality Index for its efforts to cultivate a diverse and inclusive management and equitable workplace.

economic growth while creating positive impacts for our future. Much of that growth will happen in Southeast Asia, thanks to an expanding middle class." Lui adds that consumers now have the means to not only live comfortably but also save for future generations – and they want to do it sustainably.

68. AIA Singapore is a wholly owned subsidiary of the AIA Group.

69. WealthLens™ 2022. Singapore Study (August 2022) Agility Research & Strategy. Powered by Affluentia™

Joint strengths

The AIA Sustainable Multi-Thematic Fund which launched on AIA Singapore's ILP platform in November 2022, is the culmination of a productive collaboration that combines AIA's insurance know-how with Robeco's long-standing sustainability expertise. Policyholders benefit from insurance protection and wealth appreciation while also generating real-world impact via the product's alignment with many of the UN Sustainable Development Goals (SDGs).

Liu acknowledges that while Robeco's presence in Asia is small compared to other managers considered, its exclusive sustainable investing (SI) focus gives it a competitive advantage. "We didn't need a flashy brand. AIA's client focus, market knowledge, agent and partner networks, and distribution capacity are second to none and those attributes have made it a household name in Singapore and throughout Asia." She says that while the Robeco brand is less known in Asia, in other markets, notably Europe, it is a powerhouse in sustainability research and product engineering. "We wanted a sustainability solutions partner that could match us strength for strength."

Asia needs sustainable impact

Liu says her team's demands were high. They wanted a highly differentiated, bespoke solution with mass-market appeal and attractive risk-return features. Moreover, while ESG integration was essential, it was not enough. "For many next-gen customers, investing is not just about earning a financial return, it's about channeling capital to companies confronting these challenges and creating business solutions that also bring positive change."

Singapore and its southeastern neighbors are particularly exposed to multiple sustainability risks. Rising sea levels

threaten city waterfronts and coastlines, and freshwater reservoirs face chronic stress. Clean cities are critical for ensuring good health and wellbeing for residents, young and old; yet, increasing urban density makes controlling air quality, water quality, and waste streams more intense and urgent. Meanwhile, too much processed food and too little exercise are contributing to an epidemic of chronic diseases.

Asia's role in the transition also figures large. Singapore, in particular, is a hub for many industries that will be key in the net-zero transition including gas and refined chemicals, chips and electronics, food and beverages as well as shipping and transportation. "Over the coming decades Asia is expected to be the world's economic growth engine. Asia must move in order to meaningfully contribute to global efforts," she argues.

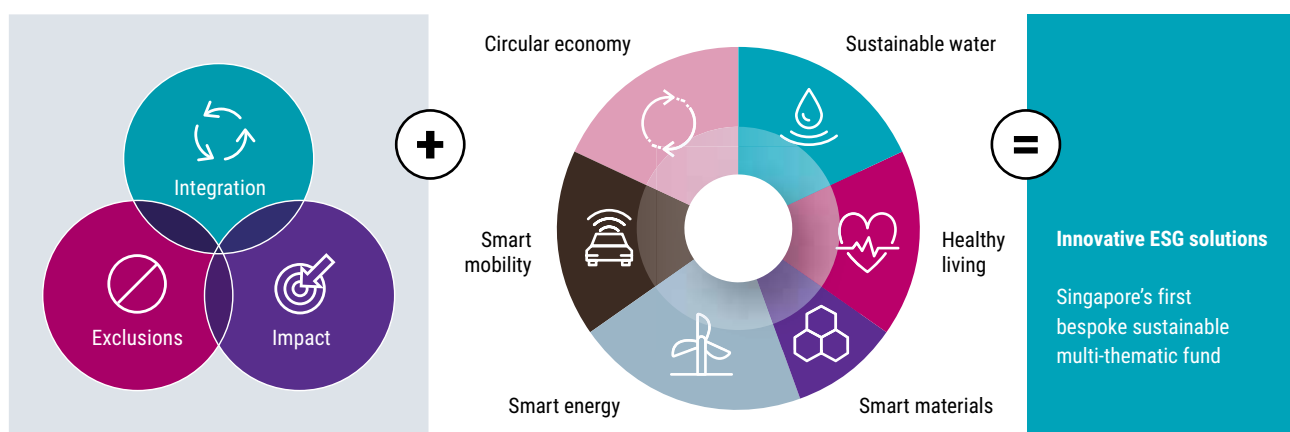
When AIA's insurance agents question the rationale for launching an impact-focused fund, she reminds them that Asia is behind in addressing sustainable challenges. "We won't catch up unless they contribute capital to companies creating sustainable solutions. Even though the investee companies might not be located in Asia, Asian populations, industries and portfolios will benefit from investments in sustainable innovation."

A powerful proposition

She says that's what makes the multi-themed approach powerful. "It gives clients diversified growth, diversified risk and measurable impact in areas that visibly confront Singapore and its bordering regions. That's a powerful proposition."

To achieve its investment objectives, the co-designed product will deploy client capital across six sustainable thematic equity strategies poised for growth and impact:

Figure 8.1: Sustainable multi-thematic equity solution



Source: Robeco, 2023

“ We wanted a sustainability solutions partner that could match us strength for strength.

Liu says the new product aligns well with AIA’s mission to help clients lead ‘healthier, longer, better lives’. And clients can be assured that their own financial security is contributing to positive outcomes for Singapore and the world.

Multi-dimensional partnership

The collaboration goes well beyond the multi-thematic investment-linked product. AIA is also using Robeco’s locally based marketing and SI experts to co-organize in-person events as well as co-create on-demand digital content for clients and AIA’s extensive network of insurance agents and partners. She admits there is still an SI knowledge gap but Robeco’s extensive resources are helping to address it. She says that in addition to supporting the new fund, Robeco is also in discussion with AIA Singapore to share its ESG frameworks and systems for advanced analytics.

“It’s truly a transformational experience for us as a company. But that kind of transformation only happens in an atmosphere of confidence. Asia is slightly behind the curve on sustainability, so it makes sense to work with an industry leader at the forefront of shaping sustainable investments.”

Shared discipline

Liu says Robeco came out on top of a competitive due diligence process that included a handful of global players. Though all had strong ESG credentials, she says her team was impressed by the purity and rigor of Robeco’s approach – an approach backed by specialized SI teams, well-defined processes, a sophisticated SI infrastructure and a diverse range of sustainable products. “That kind of authentic conviction and dedicated focus won our trust. It was clear that sustainability was embedded across the organization. That dovetailed well with AIA’s disciplined operational philosophy.”

Robeco’s strong performance track record across its sustainable thematic strategies also gave it a decisive edge. “We needed a manager that could demonstrably dispel the pervading myth about the trade-off between investing for sustainable outcomes and financial returns. We recognized

our combined strengths could create an effective partnership for bringing sustainable investing to insurance clients and mainstream investors in Asian markets.”

What’s ahead

AIA Singapore has taken the lead in introducing this multi-thematic investment strategy, but with time she expects the strategy will also appeal to customers across other markets in the Asia-Pacific. And although it was designed with retail clients in mind, Liu says the product’s focus on long-term wealth accumulation and diversified risk makes it ideally suited for all client segments in the ILP market.

Liu says her team is convinced that the collaboration with Robeco will deliver sustained value, superior long-term returns and measurable impact to clients. “At AIA we like to say that if you do the right thing, in the right way, with the right people, the right results will come.” ●

2. Phoenix Group

FINDING THE ALPHA OPPORTUNITY IN THE CLIMATE TRANSITION

As the UK's largest pensions and long-term savings business, Phoenix Group is no stranger to managing risk. Still, the scale and systemic nature of climate change present unprecedented risks that require new investment models, solutions and partners. We spoke with Sindhu Krishna, Head of Sustainable Investing within Phoenix's asset management unit to learn more about her team's collaboration with Robeco to design a bespoke multi-asset investment solution that not only mitigates climate risks but captures the growth opportunities emerging from the transition to a net-zero economy.

Resilience under stress

The phoenix is a mythological bird whose life spanned centuries and whose death resulted in a spectacular rebirth of its offspring rising from its ashes. Throughout history, the phoenix has symbolized strength, renewal and resilience. It is an apt name for a group composed of companies which have successfully navigated through devastating wars and market turmoil as well as spectacular innovation and global progress over a 240-year history. Each new generation brings its own unique risks and rewards. The key is vigilance, preparedness, flexibility and the courage and energy to adapt as the nature of risk and the rules of the game change.

The climate crisis, resource deficits and biodiversity loss are putting companies, industries, the financial sector and the entire global economy in a state of heightened risk of unprecedented scale. In addition to these factors, Krishna says customer attitudes, values and product preferences are also changing.

"A recent survey revealed that 80% of our clients are concerned about climate change. That's not surprising given the increasing frequency of extended droughts, heat waves



Sindhu Krishna, Head of Sustainable Investing, Phoenix Group

ABOUT PHOENIX GROUP

While Phoenix Group can trace its roots back through the centuries, it is very much looking to the future and remains committed to being a strong and sustainable business over the long term. Over recent years, Phoenix has grown to become the UK's largest long-term savings and retirement business, with over 6,000 employees, approximately GBP 260 billion in assets (USD 332 billion),⁶⁹ and around 12 million customers. Moreover, in line with its vision of sustainability, it has committed to being a net-zero business by 2050 and is a leading advocate and collaborator for sustainable policies and investments in the UK at the local and national level.

Through propositions such as the climate solutions fund, it is expanding its sustainable offering to help manage sustainability investment risk for its customers, while giving them exposure to sustainable growth opportunities as economies transition to a net-zero future. In 2022 alone, Phoenix Group invested over GBP 1 billion (USD 1.3 billion) in sustainable assets to support affordable housing, access to healthcare, and renewable energy projects.

Phoenix has always embraced the times. Today, it is a business with a clear social purpose and a core aim of 'Helping people secure a life of possibilities', which is driving everything it does. It will continue to manage risk and find new tools and vehicles to help customers save for their future through the ups and downs of markets ... and life.

69. 1 USD = 0.7748 GBP, July 2023, Bloomberg

and destructive floods in the UK and Europe. On top of that, it showed that 90% of clients expect us to invest in a responsible way."

"With nearly 12 million customers, Phoenix's results can be seen as a good gauge of shifting societal preferences with respect to the importance of climate change and our role in addressing it."

“It’s not a one-and-done process; there’s constant evolution and increasing sophistication.”

Customer interest

“We are committed to helping our customers to and through retirement. That’s generations away for our newest Gen Z customers who are in their mid-twenties and just beginning to invest. Meeting those future obligations requires executing responsible investing strategies now,” Krishna says. “Climate’s visibility and scale is dominating, but there are other financially material risks that cannot be ignored if we are to improve customer outcomes. At Phoenix Group we’re working hard to understand and integrate environmental, social, and governance factors into our investment portfolios. The acute nature of these risks from a financially material perspective are rising to the surface as companies internalize the costs of their actions on the environment and society. My team is helping bring awareness of the financial risks of externalities companies cause and what can happen down the road when these externalities are priced in.”

A clear vision and a strong partnership

Phoenix is committed to integrating sustainability across its business. It has pledged its commitment to be a net-zero business by 2050 and to using science-based targets for the investment portfolios under its control and influence. To build the knowledge and expertise needed to effectively tackle these issues, Krishna’s team has grown from one in 2020 to nearly 20 in just under three years.

“As a large asset owner working with leading asset management partners, we are much more than an information taker. We are an active collaborator, and to do that we aim to be as good as our best manager in bringing knowledge and adding value to investment portfolios. We have to constantly up-skill to ensure we have the capacity to be ahead of the curve.”

Moreover, they’ve also raised the bar for their asset management partners. In 2021, Phoenix alerted its 20-strong group of partners that they should be at the forefront of the net-zero transition and in achieving positive change and proving it through reporting on ESG metrics and climate-related disclosures. “We are not waiting for things to happen, but making sure we are pushing our external managers,

setting the expectations and holding them to account for taking actions. We want to work with leading asset managers in the space, whether in public or private markets, to get the right outcome for our customers.”

As part of its knowledge acquisition, Phoenix also enlisted the support of Robeco based on its reputation as an innovator and thought leader in sustainable investing. What impressed Krishna was Robeco’s “commitment to empirical research and evidence-based investing; its reliance on robust models and methodologies to translate research into investment practice; and its passion for sustainability that is embedded across the organization.”

She notes that the trust and confidence in the people, the processes and performance, built over years of collaboration made Robeco stand out.

The mandate

Krishna explains that while learning how to de-risk and decarbonize portfolios over the long term was critical, Phoenix also wanted to capitalize on the solutions providers that are enabling the transition. Robeco was able to draw from an extensive toolkit of investment methods and strategies to customize a solution. The bespoke strategy will allow them to manage climate risk, capture opportunities in clean and green technologies and drive the transition through active stewardship and engagement with companies.

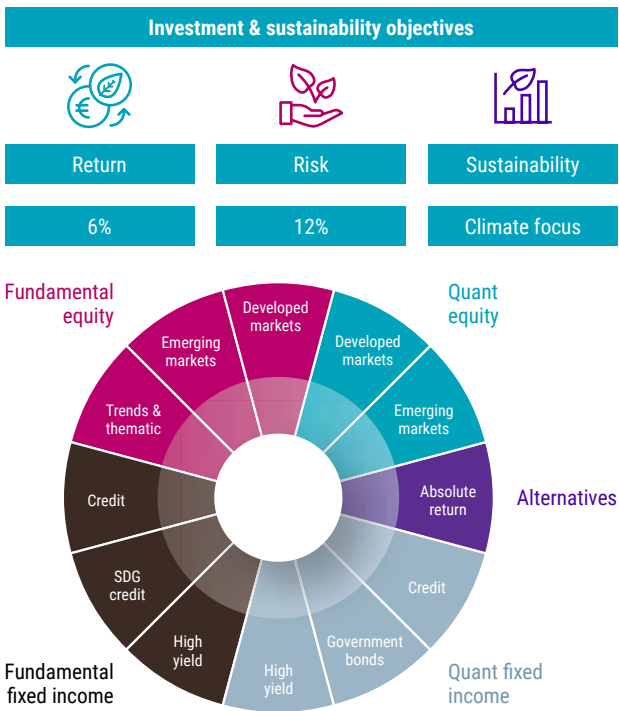
The new portfolio will consist of a 60-40 split between equities and credits focused on investing in leading companies with decarbonizing strategies as well as climate solutions providers that promote a green economy. In addition, the portfolio will use exclusions and ESG integration to enhance the portfolio’s risk-return profile. Moreover, it will use Robeco’s proprietary SDG scoring system to ensure investments positively contribute to SDG 13 (Climate Action) and related SDGs.

Asset allocations include net-zero climate equities, climate global bonds, global green bonds and SDG high yield bonds, as well as equities in areas such as smart energy, sustainable property, smart materials and smart mobility.

Figure 8.2: Multi-asset Climate Transition Solution

Objective	Return: 6% Carbon: Reduce emission through climate mitigation and climate adaptation. Achieved by avoiding emissions, carbon capture or investing in climate solutions.
Constraints	Allocation: 60% equity/40% credit Risk: 12% volatility Sustainability: No significant harm to other environmental or social objectives. SFDR: Ideally an Article 9 fund
Benchmark	60% MSCI AC World / 40% Bloomberg Global Credit Index (Hedged to GBP) Paris-aligned benchmark not chosen to allow investment in companies going through climate transition
Analytics	Risk: Volatility and VaR Regulatory: Climate scenario analysis Climate: Carbon footprint SDG: Robeco's proprietary SDG scores

Source: Robeco, 2023



Steering change and positive impact

Phoenix Group's sustainability ambitions don't stop with its asset managers. "As a large asset owner, we believe we need to play our part to influence the value system and the economic ecosystem. We want to use our position to encourage investee companies to embrace the transition by decarbonizing and switching business models that bring cleaner, greener solutions. This type of active engagement moves the needle closer to net zero and enhances a portfolios' risk-return profile."

Krishna says her team wants to be pragmatic about de-risking portfolios. "We don't want to deny capital to companies at the early stage of their transition journey. If they show commitment to change and evidence that they are headed in the right direction, we are willing to finance their transition. Exclusion is a tool of last resort for us."

Moreover, the genesis of the mandate is rooted in addressing SDG 13 (Climate action). Krishna liked the rigor and clarity of Robeco's SDG approach, which preceded even the EU's own taxonomy for defining sustainable investment activities. "There was a lot of emphasis on risk management which combined deep quantitative tools, fundamental experience, and systematic frameworks to measure alignment with SDGs related to the climate transition. Trillions in capital flows need to be funneled to the SDGs by 2030; there's money to be made

connecting investors with the opportunities across water, education, poverty and nature. Robeco's SDG framework helps convert these needs into an investable pipeline for investors who want to do good without compromising market returns."

Not a one-and-done process

"We closely monitor the capabilities and performance of our managers and have the capacity to be highly selective. It's important for us to be fully aligned on investment objectives but also in the way we operate. We see that alignment in Robeco. You combine long-standing conviction with evidence-based investing. Investment objectives are clearly articulated and decisions backed by rich sources of data, rigorous analytics and time-tested frameworks that systematically show zones of risk as well as areas of alpha."

"Moreover, it's not a one-and-done process; there's constant evolution and increasing sophistication. Everyone in the organization is trying to improve over time and that is critical to find sources of risk and growth as new data and methodologies become available."

"We share that same zeal for learning and improvement and look forward to more collaborative opportunities that help our customers and future generations achieve a life of possibilities." ●

9. Interviews

Sustainable investing continues to change in response to new trends and risks. We sat down with two notable SI experts to find out how new sets of data and innovative tools are helping to create new sources of value for investment portfolios.



Still pioneering in an increasingly complex and crowded market

We sat down with Rachel Whittaker, Head of SI Research, to learn more about the changing landscape of sustainable investing and how Robeco is navigating the new terrain.

Sustainable investing (SI) has witnessed astronomical growth in markets globally. But it hasn't always been that way. Relative to today's popularity, you were an early convert. Tell us more about your sustainable investing journey.

"I began my career in London in 2000 working as a sell-side analyst within the equity research team of a major investment bank in London. I did the pre-requisite CFA and spent six years rigorously analyzing company fundamentals and economically relevant factors such as leadership and market position that drive firm performance. Fundamental analysis training taught me to think like an investor, but I often wondered why we didn't pay more attention to the wider range of non-financial issues that could also impact a company's performance. So, I guess my SI journey was already underway."

"From there, I did a stint in investor relations for a global brewery... the kind of company you would not find in a sustainable portfolio! I educated investors on how the firm ran its business in emerging markets. Perhaps ironically, given the product, there was an enormous focus on managing environmental and social issues well, because they were clearly financially material to the business. That triggered my interest in how to run and invest in a business sustainably. That was in 2007 when the UN PRIs⁷⁰ were just taking off. Sustainable investing was at a turning point – moving from a mainly ethical focus to a broader understanding of sustainability considerations."

70. United Nations Principles for Responsible Investing, a network of investors, intergovernmental institutions and other stakeholders who since 2005 have been committed to promoting and incorporating the use of ESG issues into investment decisions.

“An ESG score can raise a red flag that helps filter a universe, but it cannot replace a smart analyst who understands the underlying variables and can interpret their implications. There’s a lot of nuance and art to investing, sustainable or not.”

“Since then, I’ve spent the past 17 years wearing various sustainable investing hats. I went from fund research and consulting to SI company research in asset management, and then from an SI asset class strategist for a wealth manager to where I am today as the Head of SI Research at Robeco.”

What have been some of the biggest changes you’ve observed since your SI journey began?

“I’ve witnessed massive growth in sustainable investing and the evolution of this industry from something that was more niche, often personal and very mission-driven, into a multi-faceted and multi-purpose mainstream investment category.”

“Today, a large swath of investors are using tools and concepts to mitigate risk and protect or even enhance financial returns – tools that were previously only within the domain of specialist investors. Investors are also paying more attention to using their capital as a force for positive change in the world. The transition from the Millennium Development Goals (MDGs) to the SDGs captured the zeitgeist of an increasingly connected and globalized world. The SDGs provide a common framework to think and talk about sustainable development in any context, not just investing.”

“Until recently, investment managers have had to define for themselves what constitutes a sustainable product or process. That’s led to some pretty liberal interpretations, or even outright ‘greenwashing’. The sheer growth in AuM has prompted another major shift in the SI space: it has intensified regulatory scrutiny. Laws and taxonomies are now trying to standardize these definitions to protect investors and the credibility of the sustainable investing industry.”

“That’s largely good; regulations aim to give much-needed transparency, unity and cohesion. It’s not a simple solution, as standardization can lead to oversimplifying sustainable investing. It’s a challenge to put clear definitions and priorities around something that historically has had multiple meanings and contexts. From its infancy, SI has never been black and white. It’s always meant different things to different investors, depending on their values and priorities; this diversity has allowed the space to grow.”

Why has ESG data come under fire recently, with critics complaining of its inconsistency, quality and reliability? How do you address those concerns with investors?

“You can’t throw the baby out with the bath water. Despite criticism, ESG data is still essential. As in any field, raw data is meaningless; how you use and interpret it is critical. Standardized scores and methodologies help users to navigate the growing volume of ESG data that is often complex, hard to measure or qualitative. There will always be differences of opinion in data analysis and interpretation. That’s normal with any type of data; the job of any analyst is to understand the various inputs that create differences. An ESG score can raise a red flag that helps filter a universe, but it cannot replace a smart analyst who understands the underlying variables and can interpret their implications. There’s a lot of nuance and art to investing, sustainable or not.”

"Moreover, a generalized score – even when it's backed by lots of analysis – is not a silver bullet. I think a lot of investors don't take the time to understand the objectives of individual ESG scores and frameworks. One score cannot be relied on to do all things for all sustainable investors. For example, an ESG score focused on financial materiality is designed for investors that are seeking well managed companies and who want to manage ESG risks. It is meaningless for an impact-focused portfolio. Impact scores will measure companies' performance on specific sustainable impact targets. These approaches are complements, not substitutes."

How can we perhaps better use the data that we do have?

"While some ESG data is certainly more useful than others, we shouldn't blame the data for deficiencies in analysis or inappropriate application. You can amass lots of data, but the real power is in understanding where it comes from, how it was calculated, how it should be prioritized against other data, and ultimately how it will impact the company or its industry in the short, mid and long term. It's the job of industry-specific SI researchers to not only identify the most useful information, but to unpack and interpret all this data according to the objectives of different investors, whether that's in terms of returns, risk, or impact separately, or in combination. That's what the analysts on my team aim to do."

"Greater transparency will go far to address these concerns. We need more detailed reporting that fully explains to investors, regulators and other stakeholders the rationales for certain holdings. When I was a fund researcher, a lot of asset managers practiced a 'black box' approach to sustainability frameworks and processes; investors saw end results but not a lot of detail about what was inside. Today, transparency is necessary for advancing sustainable investing. That's one of the reasons behind the launch of Robeco's SI Open Access Initiative. We want to provide the kind of information that helps generate insights for the whole industry. Data sharing and collaborative partnerships with academics and sustainability organizations will take us farther, faster."

How does Robeco define sustainable investing, and has that definition evolved over the years?

"We made an early pivot to SI already in the 1990s which means we're farther along and much more experienced in experimenting with new data and tools to meet our clients' needs, whether they are return- or impact-driven. More than two decades ago, we created our own proprietary tool to gather and assess corporate performance on ESG factors. That was ground-breaking at the time, but today increased corporate transparency has eroded the competitive advantage of in-house data collection."

"For example, stiffening regulatory requirements such as the Task Force on Climate-related Financial Disclosure (TCFD) are forcing companies to report on ESG risks, especially those related to climate change. Beyond required reporting, there is a lot more data in the public domain. Take diversity for example; online platforms exist where employees share info about employment experiences. This kind of transparency not only helps investment analysis, it leaves company management with fewer places to hide. It arms and intensifies engagement conversations and accelerates action."

"We still value ESG integration as a tool for finding sources of risk and even alpha. For us, ESG integration is a baseline activity from which we launch into other layers of sustainability, such as how a firm's activities and products positively or negatively impact the environment or society."

“As the meaning of sustainability expands to include net-zero transition risks, we’re now using specialist providers to capture more granular data and developing in-house tools to apply that data in meaningful ways to our portfolios.”

How are changes in the ESG landscape reflected in the research and tools we use?

“We’ve moved beyond trying to capture all aspects of sustainability in a single score and have created distinct internal workstreams to develop tailored tools for assessing corporate performance on specific sustainability challenges such as biodiversity loss, emissions reductions, workplace inequalities and human rights in supply chains. Having a comprehensive toolkit gives investment teams a starting point to understand what a company is doing and the kinds of risks and opportunities it faces.”

“That being said, we still use some of the big data providers and ratings companies for ESG integration including MSCI, Sustainalytics, Bloomberg and Glass Lewis. But as the meaning of sustainability expands to include net-zero transition risks, we’re now using specialist providers to capture more granular data and developing in-house tools to apply that data in meaningful ways to our portfolios.”

“One thing that hasn’t changed is our commitment to sustainable innovation to better understand the links between the data, in all its forms, and financial impact. When there was no readily available data on corporate sustainability, we designed our own tool. That approach hasn’t changed. Now we are trying to measure and automate difficult-to-quantify topics such as forward-looking Scope 3 emissions for companies and sector decarbonization pathways. You can’t buy these kinds of things off the shelf yet, so our data scientists are building proprietary solutions.”

How does all this innovation enhance investment products?

“We are able to offer more differentiated products to our clients which range from the newly initiated who are interested in ESG integration to improve a risk-return profile to the more sophisticated who want to see measurable real-world impact on specific sustainability challenges.”

“Sustainability is multi-layered, and separating data into separate workstreams allows us to drill down into those layers in order to detangle and isolate specific sustainability attributes and their outcomes. Increasingly, that means developing customized measurement frameworks that integrate science-based metrics from leading scientific, governmental, and industry alliances. We have current workstreams on climate change, biodiversity, the SDGs and human rights that bring together experts from across our SI Center to analyze the datasets, develop the analytical models and construct the internal frameworks needed to process the data in a meaningful way for investment portfolios.”

“The most important data and analyses are summarized in a central platform shared with all investment professionals. More data, transparency, metrics and measurement strengthen the ESG analysis undergirding our current product pipeline which includes ESG integration, exclusion lists, active ownership and engagement, and green bonds.”

"It also enables us to create new products across asset classes. For example, our suite of net-zero and Paris-aligned products for fundamental and quantitative fixed income strategies are specifically designed to reduce transition risks and ensure portfolios are aligned with the 2-degree temperature goals of the Paris Agreement. We're also using SDG frameworks and scores to enhance the impact profile of many of our investment universes and create new products based on companies that are significantly outperforming on the most strategically relevant SDGs."

Has the Covid pandemic affected the way in which investors view ESG and SI?

"The emergence of Covid demonstrated the unequivocal link between environmental and social issues and financial outcomes at a global scale. A foundational principle of ESG is that quality firms can be distinguished by their performance on managing non-financial issues, and we saw that play out in the pandemic. For example, the shift to work from home meant companies that had a strong focus on talent retention and employee well-being, and had made investments in IT infrastructure, cybersecurity and data privacy, faced less disruption. There was a visible flight to quality during the Covid crisis as investors sought companies that proved to be internally resilient, pandemic-proof and future-ready. As a result, many ESG funds outperformed."

"But beyond managing risks, it also showed that net-zero ambitions, which before had seemed so distant and unattainable, were in fact within reach. Economic shutdowns and population lockdowns led to the largest drop in carbon emissions ever recorded on a global scale. In some cases, the environmental benefits were immediate – lower fossil fuel demand, reduced air and water pollution in cities worldwide with knock-on restorative effects for the natural environment. Of course, the benefits reversed with re-opening, but still, it gave us a brief but tangible image of what was possible."

"Sustainability skeptics use the dire financial consequences following reductions in sectoral output as an excuse for inaction, or at least for foot-dragging. But Covid gave us some proof that we can make a difference and fast if the political will is there. I love that."

What about the war in Ukraine – has that also affected ESG investing?

"We've seen a reversal for ESG stocks as the war in Ukraine disrupted energy and other commodity markets, driving up prices in many fossil fuels, chemicals, fertilizers and defensive sector stocks, and driving down performance of SI funds that exclude or highly restrict investments in these industries. As a result, ESG investing has faced some serious criticism."

"Investors need to remember that sustainable investing is not a short-term trend focused on short-term gains. It's a long-term philosophy. The EU made the best case for what sustainable investors do when crisis hits. Instead of reversing in the face of energy shortages, they doubled down on their renewable energy targets and investments to protect long-term energy security. Supply crises provoked by the pandemic and war have also galvanized governments worldwide into similar action. The Infrastructure Act represents the US's largest investment in clean energy to date."

"The war and geopolitical tensions just show the fragility of the current system and further strengthens the need for change. One of the UN SDGs (No. 17) is a call to strengthen institutions and build stronger communities. That's fundamental to sustainable development – the recognition that we all need to work together to protect, preserve and prosper."

What are some key challenges facing sustainable investing this decade?

"As we saw in the last decade, a lot can change! The immediate challenge for companies and investors is the current geopolitical environment, and the reality that despite increasing regulation and a strong will within society to become more sustainable, companies still face considerable economic uncertainties. With inflation, trade tensions and a critically strategic war still raging, many companies face the dilemma of whether to invest in integrating sustainability into their operations and strategic growth plans. Ultimately, we believe that the world is moving in a more sustainable direction. Consequently, companies must think sustainably and invest in their business for the long term."

"The next few years will be critical to the success of new SI-related regulation and the emergence of similar frameworks in more regions. More hard data and disclosure-filing and less pledge-peddling and greenwashing from companies and asset managers will certainly be high in the mix of trends and challenges. For investors, greater clarity and comparability of investment products should arrive. The financial authorities in the UK, EU and US have all announced plans that are expected to come into force this year and next. This will certainly mean higher bars and stricter requirements for sustainable funds."

Finally, what else needs to be done to promote sustainable investing?

"For asset managers, less headline catching but nevertheless critical, is the need for more training of SI professionals. These days it takes a fleet of SI specialists in data science, legal, research, portfolio management, risk management and reporting just to name but a few. Ensuring you have the right knowledge from the right people in the right roles is going to be critical – but that takes time to accrue."

"There's going to be a talent gap moving forward that managers need to recognize and address. A real effort towards collaborative SI education is needed. We're addressing it externally through industry collaborations and knowledge sharing at an institution-to-institution level, but we're also addressing it internally via our SI Essentials modules for employees and clients. We're also offering SI internships to cohorts of university students and young professionals." ●

SI ESSENTIALS

With over USD 35 trillion in assets globally, sustainable investing (SI) has become a mainstream investment strategy preferred by investors globally. But SI assets have grown faster than SI knowledge. And as SI expands to cover a broader range of more complex topics, many investors still struggle with the basics. To keep pace, financial professionals need to invest in enhancing their own intellectual assets via continuous learning and development. Mindful of the volume of information and time commitment needed, Robeco launched a convenient, online study course designed by our internal SI experts.

Users can select from a menu of modules covering a range of SI topics, starting with basic sustainability principles and investment approaches. Topics then progress towards more in-depth themes such as how SDG challenges, climate risks and biodiversity losses can be addressed in investment portfolios. Each module consists of six to eight chapters and ends with a test which can be used to earn continuing professional development (CPD) credits. Credits are recognized by leading local and global institutes, including CII, FPI, CISI, FPSB and FPA. Modules are available on-demand and can be conveniently accessed and completed online anytime, anywhere.



The SDGs provide a valid, reliable way of working towards that impact question for investment portfolios

In 2017, Robeco launched an SDG Framework assessing the contributions that companies can make to one or more of the 17 UN Sustainable Development Goals. External feedback has proven essential in developing the usefulness of the tool. In this interview, Professor Koedijk shares his views on the use of the SDGs in investment portfolios, as well as the goals of his collaboration with Robeco.

You began your career in traditional finance. What triggered your interest in sustainable investing and finance?

"It began back in the early 2000s while I was a professor of finance at Maastricht University in the Netherlands. At the time, I was also working as an external advisor to the Dutch pension fund ABP and other members of the investment community. One of the issues that kept surfacing was the potential for applying ESG factors to investments. These issues drove me and fellow colleagues at Maastricht to study their impact at the portfolio level. We found that there was no real difference between the risk/return characteristics of conventional investments and those of sustainable portfolios."⁷¹

71. Bauer, Rob, Kees Koedijk, and Rog r Otten. 2005. "International Evidence on Ethical Mutual Fund Performance and Investment Style." *Journal of Banking and Finance* 29 (7): 1751–1767. doi:10. 1016/j. jbankfin.2004.06.035.

“Incorporating sustainability allows the product to become more focused and aligned with investor values, priorities or beliefs... the market won’t do that for you.”

“This was a really significant finding because, at that time, most academics and investors believed that ESG would introduce a new portfolio constraint that would limit the investment universe and ultimately a portfolio’s return potential. Our findings to the contrary triggered a lot of attention from institutional investors, think tanks, governments and other institutions, which led to many projects and collaborations on sustainable finance and development in the years that followed.”

What are you currently working on?

“I continue to do research in both traditional as well as sustainable finance topics; more specifically on examining the evidence of sustainable investing’s impact from real-world applications. I’m an academic who appreciates theory and models, but I’m also practical and want to see how things play out in reality. Right now, I’m focused on studying how deliberate choices made by investors can change company actions and limit such things as carbon emissions and climate change.”

“Together with others, I’ve helped launch two separate companies, Global Property Research (GPR) and Finance Ideas, which are focused on applied research. An outgrowth of Finance Ideas is the independent foundation GREEN (Global Real Estate Engagement Network) – an alliance of prominent asset owners and investment managers, including Robeco, who are devoted to incorporating ESG criteria into real estate and infrastructure investments. It provides a forum for things such as sharing and comparing building emissions data across developers globally to support recommendations that help improve building design and renovations.”

How is your current research informing and advancing sustainable investing?

“Some of the major questions that researchers are currently asking is whether all these sustainability criteria are having an effect on portfolios or real-world outcomes? Are we measuring something that is real, or is it greenwashing? One funny thing I’ve observed is how the sustainable investing market has changed after ESG and SFDR⁷² moved in. I am currently working on what the renaming did for market players. Sometimes the press reads it negatively, but I found that investors have used ESG positively in ways that can be measured, such as through fees, performance and behavior. We have not found any tangible evidence of greenwashing.”

72. SFDR – the EU’s Sustainable Finance Disclosure Regulations are designed to improve the ability of end-investors to distinguish between the sustainability features of investment products as well as to reduce greenwashing by mandating investment managers to provide evidence to back sustainability claims.

“In terms of impact, the key question is whether you can capture it in a proper way while also getting good risk-adjusted returns. I think the SDGs provide a valid, reliable way of working towards that impact question for investment portfolios. This is certainly the case when you have a physical asset like a building or infrastructure from which you can concretely measure the emissions and effects.”

I wanted to come back to the point that you had mentioned about not finding a performance difference between conventional portfolios and those incorporating ESG. Wasn't that discouraging?

"No, not at all. The thinking in finance was that limiting your choice worsens your risk/return trade-off. And everyone thought that integrating ESG factors would limit your choice, reduce your diversification and lower your expected returns. But we found that limiting the number of stocks as a result of incorporating ESG didn't really produce a big change in risk/return outcomes compared to traditional portfolios."

"That's a good thing because it shows that a portfolio's risk/return profile – which is crucial for investments – is definitely not deteriorating by incorporating sustainability. At the same time, you are allowing the product to become more focused and aligned with investor values, priorities or beliefs. We often think that market efficiency means that markets will take care of everything, but this is not the case. You need to maintain your own thesis, your own focus, your own ideals. The market won't do that for you."

"Moreover, sustainable investing realigns society and investing, which until now have been moving along different trajectories. If investors want to invest in firms with less of an environmental footprint, or which are aligned with the UN Sustainable Development Goals, they can without hurting returns."

That's interesting because it seems that asset managers are looking to find an alpha effect from ESG.

"It is very difficult to have continuous and enduring alpha from the same sustainability factors over the long run. At the beginning with the launch of a new sustainable product, you may be able to capture some alpha for a short time, maybe three to four years, because alpha from sustainability does exist. But you must be vigilant because markets are extremely efficient. We saw that in our research even as far back as the early 2000s with governance characteristics already being well incorporated into stock prices. This was followed by the 'E' and then the 'S' factors."

"Datasets are being updated all the time, and market participants are watching closely and learning quickly. All of this information is being integrated into stock prices. Beyond alpha generation, sustainable products should have other attributes that are important for investors, such as greater value alignment. Sustainable products shouldn't be bought or sold based solely on the need for alpha."

The EU's Sustainable Finance Disclosure Regulation (SFDR) emphasizes the concept of double materiality. That means companies and investors must get serious about accounting for how their products impact the real world as well as how real-world risks impact their bottom line. What's your view on the SFDR's impact on investments?

"I'm positive on the SFDR's effects. I think it's great that Europe is taking the early initiative and the lead on this. It really focuses the attention of investors toward more societal and environmental goals. On the negative side, you could argue that it will create a lot of bureaucracy; but on the positive side it provides a competitive edge. It should push investors to rethink and realign their portfolios."

"I can already see that it's moving things positively forward. I sit on a lot of investment advisory boards and even as of two years ago, no one was paying attention to it. However, now they are diving deep, rethinking what they are doing and asking their members and stakeholders what their preferences are."

Company executives, government leaders, the investment community, even celebrities, are talking about the SDGs. How do you explain their popularity?

"Everyone was looking for a common language and the SDGs provided that. Climate change has shown that we can no longer deny the negative impacts of business activities. Business, governments and investors have to confront these real-world issues because they are not going away. The SDGs are 17 goals that capture and prioritize sizable sustainable challenges that, like climate change, represent a risk to global business."

“ The finance industry has for too long neglected the societal and environmental effects of companies; the SDGs are a tool to help us get back on track.

“Another attractive aspect is that they were standardized right from the start and are relatively straightforward in terms of their intended goals and metrics to measure progress. That has helped companies, investors and a broad community of stakeholders to put them to use in measuring, managing and reporting on their impact.”

“But the idea and momentum behind considering real-world impact in investments has been building for a long time, it just wasn’t visible. What we are witnessing now is really the tip of the iceberg. Underneath, there is more than two-decades’ worth of work from academics, members of the investment community and other stakeholders. Moreover, climate has also been a big force for change. It’s a sustainability challenge that has evolved into an inexorable global crisis that business, governments, consumers and investors are being forced to confront. That’s increased the focus on what might be the next ‘in-your-face’ sustainability challenge with global ramifications.”

When it comes to the SDGs, are company data and disclosures adequate to measure impact?

“There are many companies that are intentionally making specific choices about their impact. Unilever is a great example. It focuses a lot on creating what we call ‘shared value’ among stakeholders. They’ve looked closely at what they are producing and where those things bring positive benefits but also negative effects across their supply chains. They’ve mapped out what they can cut out of the process and what steps it takes to do it. This kind of shared-value creation and the competitive advantages it creates is really gaining momentum among companies championed by business school academics like Porter and Kramer out of Harvard.⁷³ It is a whole new way of looking at your business that many companies are actually undertaking.”

73. Kramer, M. R., & Porter, M. (2011). Creating shared value. Harvard Business Review, 89(1/2), 62-77.

“We are only at the starting phase and we are also seeing pushback. In the US, many argue that a company’s main purpose is to generate shareholder profits. But I think ‘shared-value creation’ should be part of a company’s mission and so measuring impact is going to stay with us.”

There may be industry leaders doing it right, but are SDG scores reliable and rigorous enough to make a credible assessment of real-world impact for the average company?

“In terms of its effectiveness at measuring real-world impact, it is too soon to say. It has to prove itself in practice and that needs time, data gathering and additional research.”

“Robeco’s approach to measuring that real-world impact across companies and sectors is transparent and credible. You think of a particular area of focus that’s relevant to the company and its industry. You apply a credible metric that can help measure performance, whether good or bad in that area. In terms of company data, it’s always difficult to distinguish between the language, the metrics and the goals of

74. See Chapter 4, The Robeco Approach for more information on Robeco's SI Open Access initiative.

different suppliers, but I think the common framework and language provided by the SDGs is definitely helping take impact to a higher level."

"It's a serious topic of interest among academic researchers and Robeco is off to a great start with its SI Open Access initiative that gives scholars access to its SDG data, scores, and assessment methods.⁷⁴ In less than a year since the initiative's launch, there are already around 70 scholars using that data to inform their research."

"Still, a few years of data is too little to say anything conclusive. But you need to start somewhere, and I think that Robeco has the right approach. Open up your methodologies and results to researchers, let them test and compare it, especially with competing SDG measurement platforms. We shouldn't be averse to competing approaches. More research from different perspectives will help inform investments and move things forward."

How is SDG measurement different from ESG integration? What does one measure that the other doesn't?

"I like the SDGs because they are standardized, forward-looking and focused concretely on specific societal challenges. ESG, on the other hand, tends to be non-standard, backward-looking and much too fuzzy and qualitative. To be honest, as an academic, I would say the jury is still out. The advantage of the SDGs is that there are standardized and a globally accepted framework. The financial world has accepted and adopted them much like the real world. Part of that acceptance comes from its use of simple metrics laid out in straightforward language that resonates with businesses."

Can the SDGs be used to generate alpha? Is this an appropriate expectation of investors?

"Like any innovation, there is the possibility to generate alpha, for sure. But that shouldn't be the product's prime selling point. Managers shouldn't forget what they are up against – a highly efficient and adaptive investor market. Any price effects from SDG information could be mitigated very quickly as most investors are moving in the same direction. I think it's much more important to focus on value alignment and the impact goals. The finance industry has for too long neglected the societal and environmental effects of companies; the SDGs are a tool to help us get back on track."

Isn't there room for companies to misuse the SDGs, to pick and choose only what they want to disclose?

"Some will certainly do that, but that shouldn't stop us from continuing to measure and advocate for company disclosure. We need to take a long-term perspective and realize that this is an enormous challenge for companies that has come to the fore only in the past three to five years. Prior to that, while researchers were interested in studying impact, there was no real push for companies to measure, monitor and disclose anything."

"It's now out there, and companies have grasped the importance of the SDGs for their customers, suppliers, investors and regulators. With so many onlookers, companies realize the need to be clear and transparent. That's why I like Robeco's SI Open Access initiative; it gets company results out in the open. With time, I am optimistic that companies will get better at measuring and reporting their outcomes."

“ Robeco has built a reputation for evidence-based investing and the SDG framework is just one more illustrative example of that.

Tell me more about your collaboration with Robeco; what’s the purpose and the expected outcomes?

“The SDG Advisory Board is strictly composed of academics, so we are not steering investments in any way. We are commenting on the chosen metrics, questioning assumptions and choices made, as well as providing counsel on the construction of Robeco’s SDG Framework. We are also assessing how Robeco is applying the framework to its SDG-aligned investment products.”

“Moreover, we are seeing a real boom in student interest in climate change, biodiversity and other SDG/related topics. The collaboration with Robeco also allows student-researchers from Utrecht University with access to company SDG data so they can further study the links between company behavior, sustainable impacts and future performance.”

Have you been able to use the research from the SDG framework and scoring so far?

“Currently, sample sizes are too small and the timeframe too short for conducting formal academic studies. But applied research and investor innovations such as the SDG framework are helping to move things forward. For example, students are using Robeco’s biodiversity framework and data to construct surveys to question companies on how and why they make particular choices for SDG metrics. It’s these types of things that help us better understand the constraints, challenges, and objectives companies face that influence their strategic decisions.”

Are there places where you think we could do better?

“Robeco has built a reputation for evidence-based investing and the SDG framework is just one more illustrative example of that. You’ve built a process for measuring SDG impact that is clear, credible and transparent. You have outlined the choices you are making to assess companies; you have opened up and shared the knowledge and the process for others to judge; and you are reflecting on feedback. That kind of process is the only way to learn. I am convinced it will lead to robust outcomes and further advance the tools needed for impact investing.” ●

10. Sustainability regulation

In 2015, both the Paris Agreement as well as the UN Sustainable Development Goals (SDGs) were ratified by nations globally. Since then, interest and inflows into sustainable assets and sustainable development have surged. Meanwhile, the launch of Nationally Determined Contributions (NDC) aimed at reducing domestic carbon emissions and a spate of legislation to address workforce inequities, human rights abuses and plastic waste show that governments are also concerned about sustainability risks in internal markets.



To achieve national goals, regulators must re-engineer the financial sector so that capital can be re-oriented towards sustainable companies and industries. Moreover, even as they strive to build and enhance the structural integrity of a greening financial system, regulators must also protect investors from greenwashing – a relatively new phenomenon where providers of ESG data, investment products and services make unsubstantiated claims regarding the sustainability of their product offerings. Worldwide regulators are busy scripting new rules and demanding more stringent disclosure from both companies and financial market participants designed to increase investment transparency, sustainable risk management for portfolios as well as channel capital towards verified sustainable solutions.

In this chapter we explain the regulatory measures under development globally, giving extensive focus to the EU's Sustainable Finance Disclosure Regulations (SFDR) – viewed by most as the mother of all rules and the one to watch globally.

The EU: A regulatory deep dive

First introduced in 2021, the SFDR is a set of disclosure rules which aim to prevent greenwashing and make the sustainability profile of investment products clear and comparable to end-investors. Though the SFDR is stand-alone legislation focused on transparency, it sits under the umbrella of the EU Sustainable Finance Action Plan, a wider package of reforms to promote sustainable investment and development across the 27-nation bloc.

In fact, the opening paragraphs of the original SFDR text explicitly refer to the UN Sustainable Development Goals (SDGs) and the Paris Agreement. While its roll-out has been plagued by delay and misunderstanding, one thing is clear: investors wishing to classify their products under the new regulation are expected to play a role in the development of a more sustainable society.

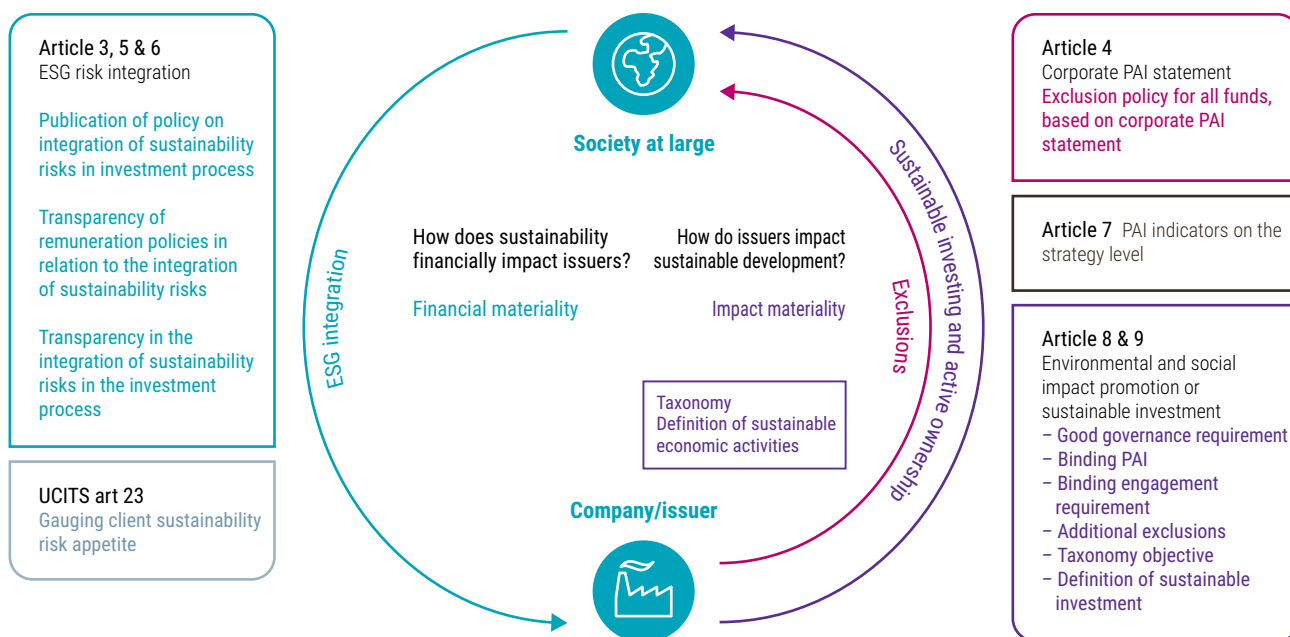
DOUBLE MATERIALITY

The EU Sustainable Finance Action Plan is based on the concept of double materiality in which a company considers its operations from two interconnected perspectives:

1. Financial materiality: How society and/or the environment create risks or opportunities for a company.
2. Impact materiality: How a company makes positive or negative impacts on the environment and/or society.

Impact materiality is present in Articles 4, 7, 8 and 9 of the plan. It focuses on 'adverse impact' and 'doing no significant harm', as well as defining what is a sustainable investment and a sustainable economic activity (EU Taxonomy). See Figure 10.1 for a comprehensive overview of how the plan's articles impact asset management activities.

Figure 10.1: Double materiality is embedded in the EU Sustainable Finance Action Plan



Source: Robeco, 2023

The three pillars of the EU Sustainable Finance Action Plan

The overall action plan is built around three interlinked pillars, where each one forms the basis for new regulation.

Pillar 1: The reorientation of capital flows towards sustainable investments

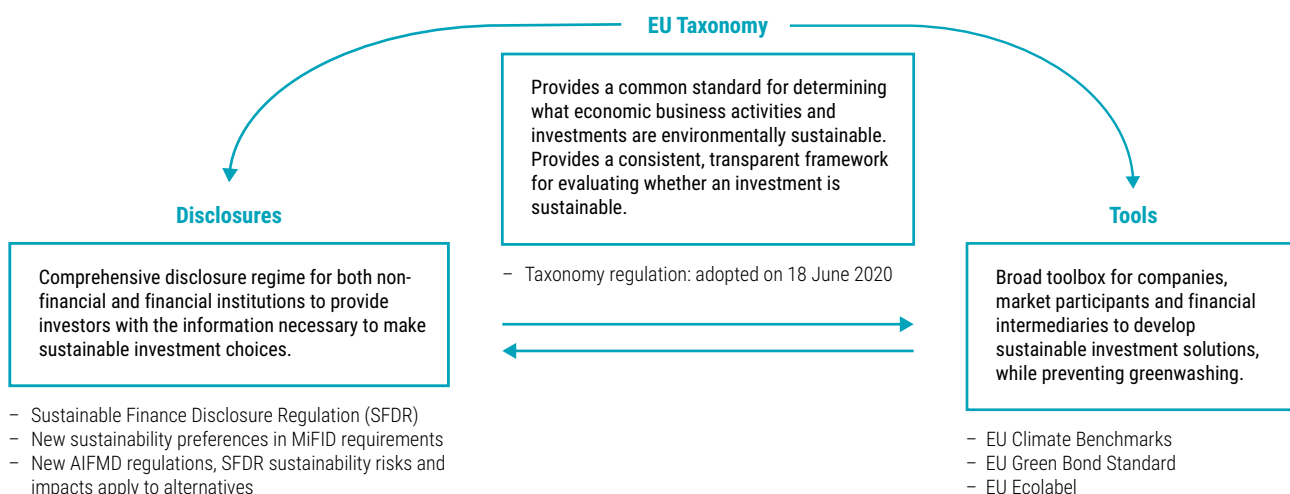
An important goal of the action plan is to bridge the funding gaps needed to fulfil the EU's climate ambitions (i.e., Paris Agreement commitments) and to contribute to the UN SDGs. It underscores the bloc's commitment to making sustainability a core value of finance and development, as it is not often that the European Commission (EC) tries to interfere so directly into the investment portfolios of the financial industry.

Pillar 2: Mainstreaming sustainability into risk management

The EC believes that sustainability risks are insufficiently captured by the financial industry and that integrating these risks will make it more resilient and robust.

Pillar 3: Fostering long-termism and transparency in financial and economic activity

Figure 10.2: Regulatory tools to support Pillar 3



Source: Robeco, 2023

This pillar contains a number of important initiatives that impact asset managers.

- **EU Taxonomy** – Provides a common standard for determining what economic business activities and investments are environmentally sustainable. Provides a consistent, transparent framework for evaluating whether an investment is sustainable.
- **EU Climate Benchmarks** – Provide clear and measurable standards for benchmarks measuring emissions in line with the Paris Agreement's temperature scenarios. Defining climate benchmarks

gives investors more transparency on what actually constitutes a Paris-aligned benchmark.

- **European green bond's standard (EU GBS)** – Provides investors transparency on what constitutes sustainability in bond instruments designed to finance green projects. These also align with the EU Taxonomy criteria for sustainable investment activities.
- **EU ecolabel** – A voluntary label that promotes sustainable production among producers and consumption among users. Labels also help investors assess the

environmental risks associated with the products of companies and their respective sectors.

- **SFDR** – Requires asset managers to be more transparent on the sustainability elements of investment funds.
- **New MiFID requirements** – Obligate asset managers to discuss sustainability preferences with their clients.
- **AIFMD regulations** – Applies the SFDR's sustainability risks and impact disclosure requirements to alternative investment managers and their products.

Still room for misuse

The last pillar has generated considerable noise from financial markets, as investors have struggled to implement legislation that was still largely unclear. At its core, the SFDR requires asset managers to classify their funds under one of three articles.

- **Article 6:** Investment products that have no sustainability focus but must be transparent in how they integrate sustainability risk
- **Article 8:** Investment products that do not have an explicit sustainable investment objective, but do promote environmental or social characteristics, provided investee companies follow good governance practices
- **Article 9:** Investment products that pursue a clear, sustainable investment objective

These classifications may appear simple at first glance, but they are already proving to be tricky to implement due to the absence of specific standards. Investment managers that pass the respective Article's transparency test may be tempted to use the classification as a marketing label which infers rigor, standardization and comparability among products.

Indeed, it is important to note that SFDR does not constitute a label, but rather a transparency measure so that investors understand what features make the product sustainable. But those features won't necessarily be the same or uniformly applied across products within the same Article; considerable variation in the sustainability profile of products will still exist.

With this in mind, we highlight the main requirements for each article classification and debunk some common misconceptions surrounding their application.

Article 6 – Not a 'get out of jail free' card

One common misunderstanding is that Article 6 investment products are exempt from sustainability integration and disclosure. That's untrue; in fact, one of the regulation's main pillars is to mainstream sustainability into risk management. To start with, Article 3 of the SFDR states that all financial market participants should be transparent about sustainability risk policies.⁷⁵

That means making it clear even when there are no policies in place and providing explanations for why that is appropriate. Therefore, even Article 6 products must include some, albeit basic, disclosures on how sustainability is integrated into the investment product from a risk perspective. It is therefore not a get out of jail free card for managers who want to avoid disclosing under the framework of Article 8 and 9 classifications.

In addition to descriptions of sustainability risk policies, those offering products classified as Article 6 should assess and disclose the likely impacts of sustainability risks on the returns of their financial products. Finally, they should disclose if Principal Adverse Impacts are considered, and if not, why.

How to assess sustainability risk

Under the regulation, sustainability risk is defined as 'an environmental, social or governance event or condition that if realized could cause an actual or potential material negative impact on the value of the investment.'

75. Financial market participants shall publish on their websites information about their policies on the integration of sustainability risks in their investment decision-making process.

The definition has two core elements: (1) an event/condition from the broad ESG spectrum that (2) could (potentially) cause a material negative impact on the value of the portfolio. This means investors are expected to identify relevant ESG risks and subsequently determine which of them are material in the short, medium and long term with regard to their investment strategies.

An example of an environmental risk is the increased likelihood of flooding due to climate change and the associated rise in sea levels. Flooding could affect a variety of issuers such as real estate companies and property insurers and could negatively impact the value of investments in those companies.

An example of a social risk is a mining company that does not properly manage community relations which could lead to denied permits for future development. Common practices to integrate sustainability risks are:

- Integrating climate scenario analysis in forward-looking asset returns to determine the strategic asset allocation
- Integrating climate scenarios into portfolio risk analysis to understand risks to underlying securities and the overall portfolio
- Screening securities on sustainability controversies to spot issuers with substantial ESG risks
- Using ESG scores to analyze ESG risks of underlying securities and the aggregate portfolio
- Integrating ESG risks into securities analyses and investment decision-making

Status quo: Data, rigor and transparency are lacking

The absence of standards, the incompleteness of company data, and the complexity of disentangling interconnected risks and impacts makes the quantification of sustainability risks at an asset and portfolio level difficult for managers. Moreover, according to a report from the Netherlands' financial regulator, the AFM, the assessment process lacks rigor and transparency. Managers usually end up posting on their websites highly generalized, descriptive policy statements on how sustainability risks are integrated into their investment decision-making process. In some cases, managers merely assert the integration of sustainability risks but provide little to no explanation or evidence.

Most managers have included in their remuneration policies, information which shows a consideration for integrating sustainability risks (in compliance with SFDR Article 5). But here again, information is oftentimes very generic, with minimal detail or insight into how remuneration and sustainability risks are linked.

Articles 8 and 9 requirements

Even managers wanting to avoid the additional transparency requirements of Article 8 and 9 products, must still make basic disclosures under Article 6. Some managers have decided to go further by classifying their products as either Article 8 or 9, in line with the increasing market demand for such strategies. So, what is actually required under these more ambitious classifications?

For starters, Article 8 and 9 products must disclose additional information, including, but 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).

Reducing a diverse range of investment products into three broad groups is considered by many investors to be too simplistic. They complain that categorizations fail to capture the uniqueness and diversity of sustainability features inherent in many investment products.

Despite the critics, the underlying characteristics of the invested assets will now be judged according to the following elements:

Table 10.1: Key product-level disclosure elements under SFDR

Good governance: SFDR requires that products classified as Article 8 or Article 9 do not invest in companies which do not follow good governance practices, in particular with respect to sound management structures, employee relations, remuneration of staff and tax compliance.	Taxonomy alignment: The EU Taxonomy is designed to create a harmonized understanding of what actually constitutes sustainable activities across the EU. It attempts to define 'green activities' for the first time, using minimum criteria that economic activities should comply with in order to be considered environmentally sustainable.
Sustainable investments: This means an investment in an economic activity that contributes to an environmental or social objective, provided that such investments do not significantly harm any of those objectives and that the investee companies follow good governance practices.	Principal Adverse Impact indicators: This is a set of impact indicators that are defined by the EU as "negative, material, or likely to be material effects on sustainability factors that are caused, compounded by, or directly linked to investment decisions and advice performed by the legal entity."

Source: SFDR, Robeco, 2023

Key differences between Articles 8 and 9

The impact of the disclosure elements is largest for Article 9 portfolios, which must be fully composed of sustainable investments.

Article 9 product rules:

- 1. The product and all its underlying assets should contribute to an environmental or social objective.
- 2. They must not do significant harm to any other environmental or social objective.
- 3. The investee companies must follow good governance practices.

The requirements for Article 8 products on the other hand are somewhat lower and largely dependent on the level of each manager's sustainability ambition. Managers must identify and disclose material, binding components (e.g., a lower carbon footprint, exclusions of companies with detrimental practices, positive screening, etc.). However, which of these components are selected is up to the investment manager.

Principal Adverse Impacts

Another key difference between Article 8 and 9 is in the treatment of Principal Adverse Impacts (PAIs). The EU has identified 64 adverse impact indicators that must be assessed and reported, of which 18 are mandatory and 46 voluntary.⁷⁶

The compulsory indicators are spread across ESG dimensions. Carbon emissions, fossil fuel exposure and waste disposed are examples of environmental factors that can be reported, while social factors include things such as gender diversity and human rights due diligence. A company's record on corruption, bribery or other scandals are types of governance indicators.

76. Of the 18, 14 are for corporate assets, two for sovereigns and two for real estate assets.

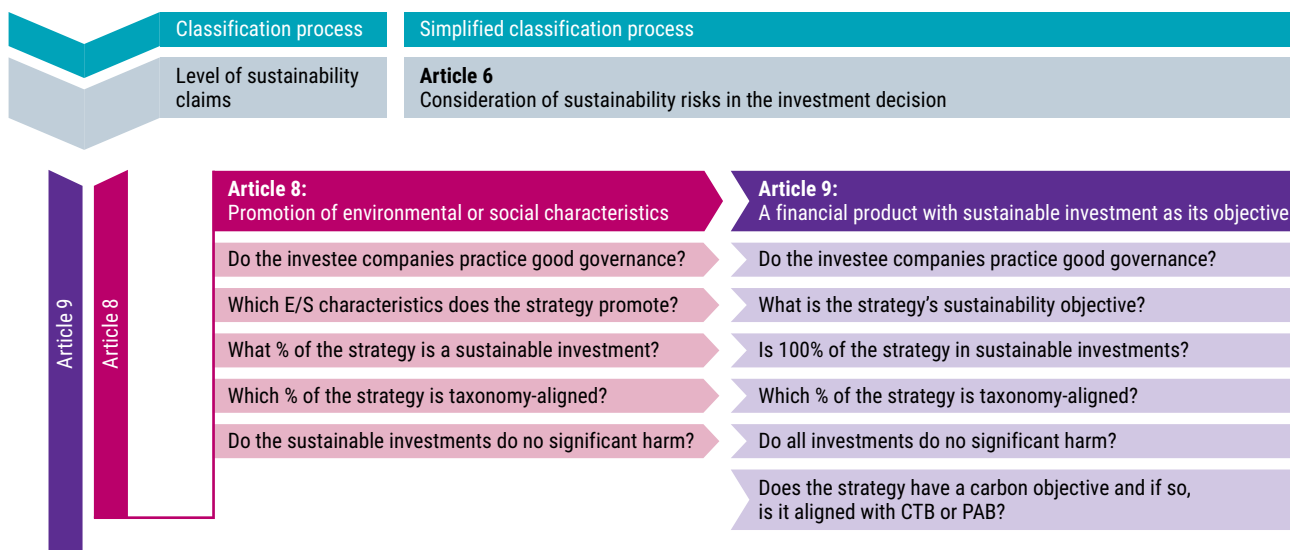
As of 2023, Article 9 products are required to consider and disclose performance on all mandatory PAIs in the investment process while Article 8 products allow managers to explain which PAIs are considered and why. Moreover, although there is no requirement to be fully invested, both articles must also disclose the percentage of the product that is aligned with the EU Taxonomy.

Share of sustainable investments

Furthermore, while Article 9 strategies must be 100% invested in sustainable investments, Article 8 strategies must explicitly state the percentage of sustainable investments they intend to target. There is a catch though. Whereas the frameworks for the Taxonomy and PAI are strictly defined, the definition of what are sustainable investments is open to interpretation. This may result in a variety of opinions about which holdings are deemed to be sustainable, and whether this should be considered from a universal or a contextual perspective.

From a universal perspective, an investment is either considered to be sustainable or it is not. From a contextual perspective, following the PAI definitions provided, one could argue that an investment can be considered sustainable for one strategy but non-sustainable for another. For example, a thematic product focused exclusively on clean energy could easily invest in wind-farm projects. However, another more generalized sustainable investment product may exclude such an investment if the wind company scored low on other ESG factors such as worker safety, workforce diversity or community relations. See Figure 10.3 for a simplified overview of key questions for determining SFDR article categories.

Figure 10.3: SFDR product classification process



Source: Robeco, April 2023

50 shades of green

Given the differences, one of the often-cited challenges is that the 'bucket' of Article 9 classifications is rather small – roughly 3% of the European fund market – as it is fully tailored to funds that are entirely sustainable. In contrast, the Article 8 classification encompasses a large range of products accounting for roughly 52% of the European fund market.

Some Article 8 products may promote environmental or social characteristics that relate to exclusions only. Others are actively financing companies that are required to transition towards achieving the objectives of the Paris Agreement or those of the 2030 Agenda for Sustainable Development. The disparity is therefore quite wide, and many different shades of green exist.

Investing in the transition

A potential paradox is that certain managers will seek to actively engage with companies that are transition candidates or invest in companies whose current activities are not entirely sustainable but which are allocating significant capex to the transition. According to the classification regulations, these are classed as Article 8 products, yet they may in fact be considered more impactful than other products in the Article 8 bucket.

However, so long as significant capital is allocated to transition strategies, and the SFDR works as intended, more holdings should eventually become eligible to classify as sustainable investments, and with that, the number of products available for Article 9 classification.

It's not a label, despite claims

The SFDR is thus not a labelling regime – rather it formalizes the principle that financial products which promote sustainable characteristics, or claim to have sustainable investment objectives, must comply with enhanced transparency rules. As a result, it appears that the impact of the classification process on investment portfolios and investment processes of existing strategies has been small. In most cases, the classification and the public documents made available thus far are only describing current processes already in place.

However, the impact of the SFDR regulation on portfolios is likely to increase over time. In the future, new product designs will incorporate SFDR requirements, Article 8 classifications may become stricter, and clients could demand Article 8 strategies with greater concentrations for sustainable investments and less adverse impacts.

From increased transparency to matchmaking

Amendments to the MiFID II regulatory directive mean more assessments and disclosures. They also mean more consultations with clients to ensure their preferences related to the SFDR's sustainable investment, taxonomy-alignment and Principal Adverse Impact elements are considered when determining product risk and suitability tests for portfolio management services or investment advice.

SFDR Level II and MiFID II regulatory directives should move the focus from abstract classifications to practical implementation of sustainability assessments. They should help end-investors better understand and articulate their sustainability goals and allow more nuance and diversity in the type of products offered. This will be particularly true for the diverse product range classified under Article 8.

For example, an investment product that aims to finance the transition to a low-carbon world could invest in companies with mediocre performance on diversity and inclusion, if those same companies had verified decarbonization pathways in place. In contrast, products with declared objectives of investing in companies with leading diversity and inclusion practices would be unlikely to invest in those same companies. In this way, managers are granted some flexibility for product offerings.

As long as investments are justified by the sustainability objective, do not significantly harm any other sustainability objectives and follow good governance practices, they should be compliant.

Outlook: EU plans, a forward-looking proxy

Key aspects of the EU Sustainable Finance Action Plan are now in place and more are still to come. We believe that the EU Taxonomy once finalized, will work as a proxy for what is considered environmentally and socially sustainable. It should increase the comparability and credibility of sustainable investment products on the market, one of the intended goals of the Sustainable Finance Framework.

With transparency criteria now in effect, investors have access to considerably more standardized information on a product's sustainability profile. The key to fulfilling the aims of the Action Plan will therefore be in whether, and how, this is taken into account in asset allocation decisions. However, until harmonization and standardization are complete, and data challenges addressed, investors will need to remain vigilant and critical of an investment product's sustainability features and required disclosures.

Regulatory activity – not just an EU pastime

There are also regulations on the horizon outside of the EU. The Financial Conduct Authority (FCA) has already outlined its vision for promoting and regulating the development of sustainable finance in the UK market with its highly anticipated Sustainability Disclosure Requirements (SDR). The SDR will include the creation of investment labels for British investment products, increased disclosure from investment managers and may offer an even clearer sustainability regime than that prescribed under the SFDR.

In addition to asset managers, the FCA is also mulling new disclosure laws for ESG data and ratings providers and has already formed a group to construct an interim Code of Conduct to provide soft guidance now in advance of harder strictures later on. Meanwhile, the Prudential Regulation Authority (PRA), the FCA's partner regulator for banks and insurers, is pushing for more disclosure and management of climate-related risks in lending and underwriting policies.⁷⁷

US SEC – climate risks deemed material, but action stalled

As in the EU and UK, the US Securities and Exchange Commission (SEC) has proposed plans to require publicly listed companies to collect, audit and disclose material climate-related risks, in the same way as they report material financial information to regulators and shareholders. Although many listed companies voluntarily report emission statistics, consistency in reporting metrics is lacking. New rules would require standardized, TCFD-aligned reporting, as well as details on climate plans, emission targets, timeframes and calculation methods.⁷⁸

Although plans are well advanced, they have recently stalled under fierce opposition from politicians, special interests and many in 'Corporate America' who claim they are too prescriptive and costly.

Asian markets – focus fixed on Europe

Sustainable investing has been a late bloomer in the Asia-Pacific region, governments there are nevertheless keen to nurture its development and maintain its integrity. The most significant efforts are underway in Singapore and Hong Kong, two major financial hubs hoping to expand their expertise and financing capacity in sustainable investing.

77. Baker and McKenzie. Legal Briefings. ESG developments. March 2023.

78. Tighter regulatory oversight of ESG is Coming and it's a good thing, Kenan Institute of Private Enterprises. UNC Chapel Hill. Kenan Flagler School of Business.

Both are busy unveiling green financing plans, collaborations and initiatives aimed at encouraging more disclosure, particularly of TCFD- and ISSB-aligned environmental risks by companies and financial institutions.

In Hong Kong, mandatory regulations covering climate and ESG risk disclosures as well as ESG-labeled products are in effect for banks, investment managers of collective investment schemes as well as publicly listed firms on the Hong Kong Stock Exchange.⁷⁹ Likewise, Singapore's stock exchange and monetary authority have imposed mandatory climate reporting for listing entities and financial issuers.⁸⁰ Meanwhile, China is mandating all high-polluting companies to report on a long list of standardized environmental metrics. And while ESG disclosure for other companies is currently voluntary, plans to make it mandatory by its Securities Regulatory Commission (CSRC) appear imminent.⁸¹

Finally, regulators in Japan have been busy ever since the government announced its ambitions to be carbon neutral by 2050. Already in 2020, the Japanese Financial Services Agency (JFSA) updated the Stewardship Code for institutional investors, requiring them to consider sustainable growth, ESG factors and engagement within investment management.^{82,83} In 2023, the JFSA upped the ante for publicly listed corporations, mandating their disclosure of ESG-related factors. And anti-greenwashing rules that require verification of specific ESG items in publicly offered investment products are also under consideration.

The cost of ESG due diligence and disclosure as well as the lack of harmonized standards have so far tempered more aggressive regulatory mandates out of Asia. However, once SFDR is in full swing, we expect these markets to rapidly conform to stricter, legally binding EU-compatible rules.

79. "Hong Kong's ESG regulatory framework and emerging enforcement and disputes risk." King and Wood Mallesons. June 2022. Lexology.com

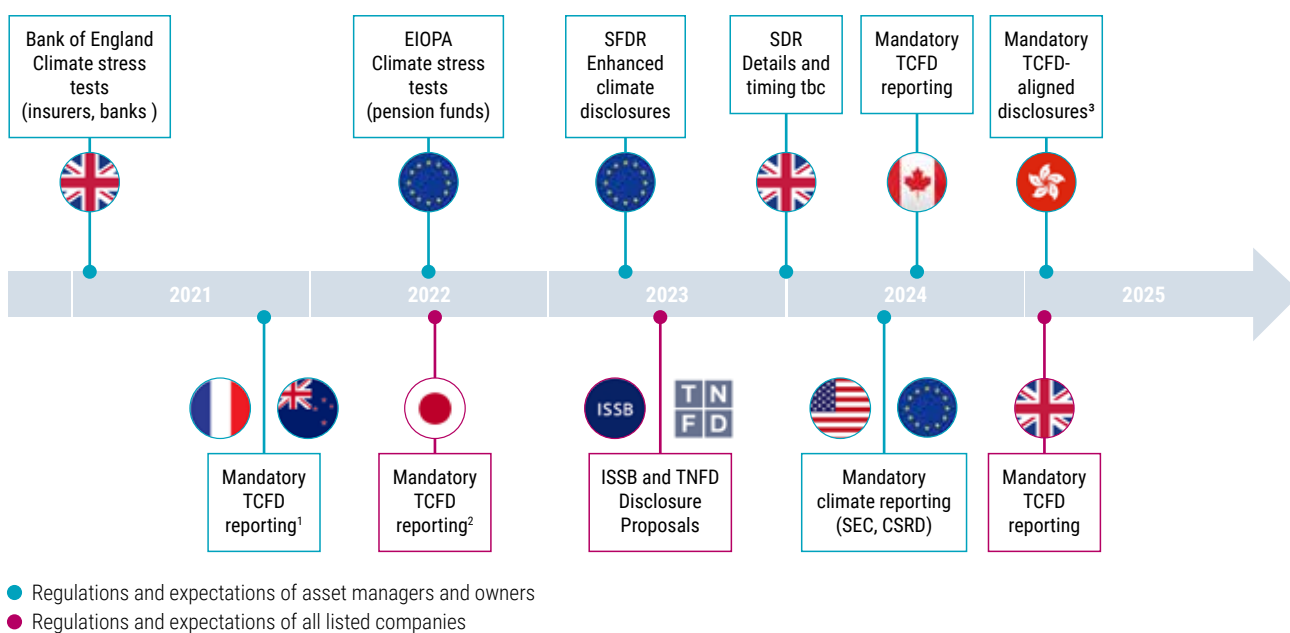
80. "Bite-size Briefings: The Latest Environmental, Social and Governance (ESG) Developments." Baker McKenzie. Legal Briefings No. 11. March 2023.; "ESG Regulation in Asia." Invesco. May 2022.

81. "China waits on ISSB for mandatory ESG disclosure." ESG Clarity. April 2023.

82. "At a glance: ESG and investing in Japan." August 2022. Anderson, Mori-and Tomotsune Legal Brief. Lexology.com

83. "Bite-size Briefings: The Latest Environmental, Social and Governance (ESG) Developments." Baker McKenzie. Legal Briefings No. 11. March 2023.

Figure 10.4: Regulatory developments across global markets



The above provides a non-exhaustive list of requirements on asset managers and listed companies. Timelines are approximate. SFDR: Sustainable Finance Disclosures Regulation. SDR: Sustainability Disclosure Requirements. TCFD: Task Force on Climate-Related Financial Disclosures. US SEC: Securities and Exchange Commission. CSRD: Corporate Sustainability Reporting Directive. ¹France and New Zealand. ²Japan. ³Hong Kong. Source: Robeco, as of March 2023

Conclusion

In 2015, both the Paris Agreement as well as the UN Sustainable Development Goals (SDGs) were ratified by nations globally. To achieve these goals policy makers have devised the SFDR, so that investor capital can be efficiently re-oriented towards sustainable industries, companies, and products. Moreover, to eliminate greenwashing and ensure investors actually get what they paid for, regulators are asking for increased transparency on key sustainability characteristics of investment products. Finally, the SFDR pushes financial institutions to systematically analyze, mitigate and disclose sources of sustainability risks within investment products.

With time, external pressure from stakeholders combined with technological advances in data capture and processing will push companies and the investment industry to enhance their knowledge, management and disclosure of sustainable risks and sustainability impact and their integration in financial products. The focus of many managers is carefully trained on the SFDR, as getting it right in Europe is seen as a litmus test for getting it right globally.

Meanwhile, regulations in key markets such as Asia are also intensifying as governments attempt to keep domestic companies and financial institutions competitive as recipients and conduits of sustainable capital flows.

While it is labor-intensive at present, the exercise will raise the bar for sustainable investment products, increasing their transparency, comparability and attractiveness to end investors. It will also help the industry better manage sustainability risks and accelerate capital to companies that are working hardest to develop clean and green products as well as just and inclusive business models.

Ultimately, the regulatory exertion should leave financial markets more fit to finance the net-zero transition and global sustainable development through 2050 and beyond. ●

11. Terminology

Active ownership
Article 6, 8 and 9 investment products
Best in class
Biodiversity
Carbon footprints
Circular economy
Climate change
Corporate governance
Decarbonization
Deforestation
Diversity and inclusion
Divesting
Double materiality
Engagement
ESG integration
EU Taxonomy
European Green Deal
Exclusion
Global warming
Green bonds
Greenwashing
Impact investing
Negative and positive screening
Net-zero emissions, initiative and pledge
Paris Agreement
Principal Adverse Impact Indicators
Scope 1, 2 and 3 emissions
Sustainable Finance Action Plan
Sustainable Finance Disclosure Regulation
Stranded assets
Sustainable supply chains
Sustainable Development Goals
Voting

Active ownership

Using your rights as a shareholder to make investments more sustainable. The two main ways to do this are voting at shareholder meetings and engaging – having an active dialogue – with investee companies.

Active shareholders discuss environmental, social or corporate governance (ESG) concerns with the company in which they invest, in order to preserve long-term shareholder value and enhance long-term returns. They can be very effective in influencing companies' behavior, especially when they collaborate with other shareholders.

Voting has gone beyond traditional 'rubber-stamping' of company resolutions at their annual general meetings to become an effective tool in raising concerns about ESG issues. Investors can also put forward resolutions on issues such as 'Say on Climate' and 'Say on Pay' to further sustainability in the contentious issues of emissions reduction and executive remuneration.

Article 6, 8 and 9 investment products

Three classifications that are applied to all investment products sold within the EU under the Sustainable Finance Disclosure Regulation, in effect since 2022. They compel asset managers to reveal the differing levels of sustainability integration that an investment strategy contains. The regulation aims to create a more transparent playing field, partly to prevent greenwashing – where some financial firms claim that their products are sustainable when they are not.

Investment strategies will be classified as Article 6, 8 or 9 of the SFDR based on the following criteria:

- Article 6 covers investment strategies that do not integrate any kind of sustainability into the investment process and could include stocks currently excluded by mainstream ESG strategies such as tobacco companies or thermal coal producers. Such products do not claim to apply sustainability.

- Article 8, also known as 'environmental and socially promoting', applies "... where a financial product promotes, 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 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."

Best in class

The best-in-class approach when applied to sustainable investing means finding the companies that are leaders in their sector in terms of meeting environmental, social and governance (ESG) criteria.

It is commonly used in positive screening as a means of finding those companies with superior pre-defined ESG characteristics, regardless of their industry. Both positive and negative screening are always done in peer comparison; best-in-class is by definition the leaders of a peer group according to the desired ESG metrics.

An investor who follows the best-in-class principle does not necessarily exclude more controversial sectors or industries such as thermal coal or alcohol. Instead, they invest in the companies that make the most effort to meet the ESG criteria that are relevant for their respective industries. The most sustainable companies in a sector – also referred to as best practice – are often used as a benchmark to be equaled or surpassed.

Biodiversity

The sum of life on Earth in all its forms, from simple genetic structures, plants and trees, to animals, sea creatures and humans. The interactions between these different biological elements have ensured that the planet has been habitable for hundreds of millions of years.

However, biodiversity is now declining faster than it has at any other time in human history: the current rate of extinction is tens to hundreds of times higher than the average over the past 10 million years. For this reason, scientists warn that we are in the middle of the 'sixth mass extinction', following the fifth one which wiped out the dinosaurs 65 million years ago.

The importance of protecting diversity can be seen in research which shows that five of the nine planetary boundaries which ultimately allow life on Earth have been breached. These include the boundaries for biosphere integrity measured by the extinction rate (extinctions per million species/years) and the boundary for biogeochemical flows, which dictates the ability of living things to reproduce. Left unchecked, life on Earth would theoretically die out.

To try to counteract this threat, asset owners and asset managers signed the Finance for Biodiversity Pledge during the Nature for Life Hub at the 75th UN General Assembly. This commits investors to collaborate and share knowledge, engage with companies, assess impact, set targets and report publicly on progress. Engagement is also used for contentious issues such as deforestation.

Carbon footprint

The amount of greenhouse gas emissions generated by an individual, company or country over a set time period. Although the term implies primarily the emission of carbon dioxide (CO₂), it is now taken to include all gases which cause global warming through the greenhouse effect. This includes the more common industrially emitted gases such as sulfur dioxide and nitrous oxide and methane which is produced by farm animals. As such, the term can also be referred to as a 'greenhouse gas footprint'.

All human activity creates a carbon footprint, from breathing out to generating electricity, farming, or making a product. Greenhouse gas emissions over many centuries have been proven to warm the planet as they absorb and radiate heat backed towards Earth.

The central issue in the battle to combat global warming is whether these footprints can be reduced enough to stop global warming from getting out of control. For this, carbon neutrality or 'net zero' is required. Several nations and blocs, such as the EU, have already committed to net zero by the most commonly used Paris Agreement target of 2050.

Circular economy

An economic model that places a greater reliance on reusing existing materials in a series of loops. It aims to replace the highly wasteful linear economy, which is based on the take-make-dispose system of extracting natural resources, turning them into manufactured products and then throwing them away at the end of their useful life.

Much of the concept of the circular economy involves words beginning with 're-' such as recycling, redesigning, reusing, refining, refurbishing and repairing. This has two main objectives. Firstly, it would make more efficient use of the Earth's resources, as research shows that the linear model consumes finite resources at 1.75 times the planet's annual regenerative capacity.

Secondly, it aims to eliminate the billions of tons of waste that are produced every year, much of which ends up in landfill, or is dumped in the ocean. Plastic packaging is a particular problem, since 80% of it is never recycled. Electronic devices are also commonly discarded, when it would be possible to retain up to 90% of the product's value by using a more modular and recyclable design.

Climate change

The changes seen in weather patterns due to the heating of the Earth's atmosphere. The burning of fossil fuels that began in the Industrial Revolution of the 18th century has led to the gradual accumulation of greenhouse gases in the atmosphere. Research suggests that the Earth has already heated up by around 1.2 degrees Celsius since the 1780s and continues to do so.

New forms of more extreme weather pose a growing threat. A warmer atmosphere creates more moisture, leading to heavier and more unpredictable rainfall, floods and increasingly destructive storms. It has also led to more extreme summer temperatures, causing droughts and forest fires, and the growing 'desertification' of formerly fertile areas. Most of the world's hottest years in recorded history have occurred since 2005, while the amount of CO₂ in the atmosphere is now at its highest level in three million years.

Climate change also threatens agricultural production, as milder winters and earlier springs interrupt crop-growing patterns. Higher temperatures have a double whammy effect on insects. In warmer areas, they threaten to wipe out the 'friendly' insect population on which plants rely for pollination. In colder areas, warming threatens to expose countries to the 'unfriendly' disease-bearing insects that they currently avoid.

Corporate governance

The set of rules, practices and processes by which a company is managed (governed) and its management is supervised.

Corporate governance relates to good governing practices and covers the basic principles, rights, responsibilities, and expectations of an organization's board of directors. A well-structured corporate governance system aligns the various interests of all the stakeholders in a company, such as shareholders, management, clients, suppliers, financiers, government and the surrounding community.

The principles of the International Corporate Governance Network (ICGN) are used as the internationally recognized code for good corporate governance. The organization aims to improve corporate governance, risk management, remuneration policy, shareholders' rights and transparency through its global network of members.

Decarbonization

The reduction in the carbon emissions of global industries to achieve net zero by 2050 in line with the Paris Agreement. It means restructuring key industries led by energy production on a global scale, reducing reliance on fossil fuels and increasing use of renewable energy. It also means decarbonizing carbon-intensive industries and sectors such as building, mining, food production and real estate. Due to its scale, many believe it is the biggest challenge of the 21st century.

Some industries are easier to decarbonize than others. For oil and gas companies, moving into renewables such as wind and solar power is relatively straightforward if the infrastructure is built. However, it is much more difficult for industries such as plastics and textiles to substitute oil-based ingredients for something that is carbon neutral that works just as well.

While the auto industry can switch to electric vehicles, current technology means battery power does not work for commercial aircraft. It is also sometimes necessary to create more emissions, such as in the construction of more energy-efficient buildings, in order to reduce them in the longer term.

In line with the decarbonization trend, investors are adjusting their portfolios as part of the Net Zero Pledge. This does not mean simply divesting high-emitters, since this does not solve the underlying problem. An effective alternative is to engage with carbon-intensive companies to try to cut emissions at their source.

Deforestation

The deliberate removal of forest or tree cover, usually for land clearance or commercial use of the timber. It is a major contributor to climate change given trees act as a carbon sink that absorb carbon dioxide from the atmosphere and replace it with oxygen. More than 20% of the world's oxygen is generated in the rapidly diminishing Amazon, which acts as the world's lungs.

About six billion trees are lost globally every year, mostly due to the imbalance between

those cut down and those replanted. More than 300,000 square kilometers of forest or woodland is lost every year – an area the size of Germany or Vietnam – and one-quarter of the Amazon rainforest has already been destroyed. Bush fires are another source of deforestation.

The loss of so many trees each year accounts for 17% of global warming, according to the World Economic Forum. Deforestation is now the most prevalent form of environmental destruction, particularly when forest is burnt instead of being cut down for logging. In addition to the tree loss, the burning has significantly added to atmospheric pollution.

Diversity and inclusion

The now widely accepted practice of employing people regardless of their age, gender, ethnicity, religion, disability, sexual orientation, education or national origin. Inclusion relates to making sure they are empowered to be able to fully participate in the business process. If diversity is about being invited to the party, inclusion is about being asked to dance.

Many employers also present job candidates to interview boards without disclosing their names to avoid bias from names associated with particular social groups. Some also insist on including a quota of women in interview shortlists to maintain balance. However, some professions do continue to attract disproportionate levels of men and women; for example, the majority of airline pilots are men while the majority of airline cabin crews are women.

Gender diversity and the pursuit of gender equality has been shown to produce results after research showed that companies which employ more women, particularly in the more senior positions, are more profitable. Companies with high levels of diversity at all levels are also targeted by investment strategies which follow the Sustainable Development Goals, particularly SDG 5 (Gender equality); SDG 9 (Decent work and economic growth); and SDG 10 (Reduced inequalities).

Divesting

The practice of selling shares or bonds in a company due to a fundamental disagreement with its business practices that cannot be resolved by negotiation or engagement. Such divestments have typically involved a view being taken on the unacceptability of the company's product(s) due to sustainability factors. While divestment removes the company's capital from an asset manager's strategies, it is not the same as exclusion, which wholly bars the company from investment.

Divestment is often practiced as a means of exiting holdings in fossil fuel companies to meet net-zero emissions targets that are increasingly becoming part of asset managers' strategies. The problem here is that divestment does not resolve the core problem – it simply transfers ownership of the fossil fuel assets from one investor to another. Investors, including Robeco, therefore prefer engagement as a means of decarbonizing energy companies rather than divesting or excluding.

Double materiality

The impact that a company has on the world alongside the impact that the world has on the company. The phrase was coined in 2019 by the European Commission which said: "EU sustainability reporting standards need to cover not just the risks to companies but also the impacts of companies on society and the environment (the so-called 'double materiality' principle)."

It has been given a much higher priority as investors and society at large become more concerned about the impact that companies have on the wider world, and the environment in particular. Measuring such impacts is key to implementing EU initiatives such as the Green Deal, which targets a 55% reduction in greenhouse gas emissions compared to 1990's levels by 2030.

A core focus has therefore been on emissions; how much carbon does a company generate while making or supplying its product or service? An energy company may well be an attractive investment, but its

operations will add to global warming. This needs to be factored into the investment decision-making process, particularly as investors pursue net-zero targets.

Plastic pollution is a similar issue. A company could make a lot of money from producing or using single-use plastic, but it comes at a clear cost to the environment. A regulatory backlash and changing consumer tastes are forcing companies to rethink the effect they have on the world.

Engagement

A long-term active dialogue between investors and companies on ESG factors. This offers investors the opportunity to discuss sustainability risks and opportunities with companies and provides them with insights into investors' expectations of corporate behavior. This way, investors encourage companies to adopt more sustainable practices.

It has been shown to be effective, since companies with sustainable business practices can create a competitive advantage and are more likely to be successful over the long run, ultimately improving the risk/return profile of their securities. Effective engagement can therefore benefit companies, investors and society at large.

Engagement typically runs over a three-year period, during which Active Ownership specialists have regular contact with company representatives and track progress against engagement objectives. Often they combine their efforts in collaborative engagement initiatives with other institutional investors. The outcome of the engagement efforts is communicated to analysts, portfolio managers and clients, enabling them to incorporate this information into their investment decisions.

ESG integration

The structural integration of information on environmental, social and governance factors into the investment decision-making process. Sustainable investors believe that sustainability can have a material impact on

companies' performance. Factoring in financially relevant sustainability information thus leads to better investment decisions.

As a wide variety of sustainability information is available, investors first determine which ESG information is financially relevant. The second step is to analyze the impact of these material factors on the individual company and any competitive advantages or disadvantages that arise. The third step is to translate this impact into adjustments to the valuation models used for their stocks and bonds.

Years of experience in integrating ESG has found that it is particularly useful in finding upside to a company that is not present in its share price, and in finding potential downside in a bond value that is not necessarily reflected in its credit rating. As such, its use is now fairly mainstream.

EU Taxonomy

A strategy to create a harmonized understanding of what actually constitutes sustainable activities across the European Union. It attempts to define 'green activities' for the first time, using minimum criteria that economic activities should comply with in order to be considered environmentally sustainable.

As such, it forms a key component of the EU's Sustainable Finance Action Plan, which aims to promote sustainable investment across the 27-nation bloc, and the EU's Sustainable Finance Disclosure Regulation, which aims to make the sustainability profile of strategies more comparable and better understood by end-investors.

The Taxonomy states that only activities which substantially contribute to one or more of six environmental objectives should be defined as being green. These are climate change mitigation; climate change adaptation; protecting marine and water resources; transitioning to a circular economy; preventing pollution; and protecting and restoring biodiversity and ecosystems.

Large listed companies incorporated in the EU must now disclose whether their activities are in line with the Taxonomy's

screening criteria for all six environmental objectives. Further disclosure requirements are being phased in.

European Green Deal

A commitment by the European Union to meet the goals of the Paris Agreement, principally by making the bloc carbon neutral by 2050. As such it contains a wide range of policy initiatives with the main aim of decarbonizing the 27 member states.

Its first target is to achieve a 55% reduction in greenhouse gas emissions compared to 1990's levels by 2030. Because of its extraordinary level of ambition, the European Commission President, Ursula von der Leyen described it as Europe's "man on the moon moment." If targets are met by 2050, Europe would become the world's first carbon-neutral continent at current projections.

Achieving these goals means reviewing current laws and creating new ones regarding issues such as compulsory decarbonization for high-carbon companies, and new regulatory frameworks led by the Sustainable Finance Action Plan and the Sustainable Finance Disclosure Regulation.

Overall, the Green Deal will be funded through the InvestEU program which envisages EUR 1 trillion being spent by member states over the next decade. One estimate suggests that achieving carbon neutrality by 2050 will require at least EUR 230 billion in annual investments into lower-carbon business models by 2030.

Exclusion

The act of barring a company's securities from being purchased for a portfolio due to business activities that are deemed unethical, harmful to society, or in breach of laws or regulations. ESG criteria are used to determine whether desired standards are being met. If not, the company can be removed from consideration in the investment process, denying it access to capital.

Exclusions typically involve the makers of controversial weapons such as cluster

bombs or nuclear warheads, and those making indisputably harmful products such as tobacco or firearms, along with companies engaged in human rights abuses such as child labor. Companies engaged in serious corporate governance breaches such as bribery or corruption and that show no willingness to resolve these issues are also typically excluded.

The matter of what to exclude largely remains an act of conscience for investors. This is why most use the principles contained within the UN Global Compact as a benchmark for what is considered to be unacceptable business practices. For some products, exclusion is required by law: Dutch legislation, for example, forbids the ownership of companies making cluster bombs or other contentious munitions.

Global warming

The gradual and increasingly irreversible rise in average world temperatures at sea level, caused mostly by human activities since the Industrial Revolution of the 18th century. The principal causes are the widespread burning of fossil fuels led by coal, oil and gas for electricity, heating, cooling and transportation, leading to the emission of carbon dioxide and other greenhouse gases.

Unable to escape into space, these gases become trapped in the atmosphere, causing the planet to gradually warm over many decades. This then has an effect on climatic patterns, leading to long-term climate change that brings more storms, floods, droughts, forest fires and more extreme temperatures. Melting ice caps bring rising sea levels that threaten coastal cities, while greenhouse gases that are absorbed by oceans make them more acidic, threatening coral and marine life.

The Paris Agreement seeks to limit global warming to below 2 degrees Celsius above pre-industrial levels by the end of this century and to pursue efforts to limit it to 1.5 degrees. The International Panel on Climate Change (IPCC) has warned that the Earth has already warmed by up to 1.2 degrees since 1750 and will reach 1.5 degrees in the 2030s if action is not taken.

Evidence of rising temperatures can be seen in that most of the warmest years in recorded history have occurred since 2005, according to the US-based National Oceanic and Atmospheric Administration. The hottest was in 2016, when the Earth's atmosphere was on average 0.94 degrees warmer than the global mean since 1880.

Green bonds

Debt securities that are exclusively used for climate and environmental sustainability purposes. For a bond to qualify as 'green', its proceeds should be used for projects with clear environmental benefits that can be described and quantified or assessed, such as renewable energy or waste management.

In 2014, the Green Bond Principles (GBP) were established with the aim of establishing integrity in the green bond market through guidelines that recommend transparency, disclosure and reporting. More specifically, issuers should establish impact objectives and engage in environmental reviews of benefitting projects. The proceeds should be moved to a sub-portfolio which is ring-fenced, and an auditor should be appointed to track the flow of funds. Reporting on the use of proceeds along with the qualitative or quantitative indicators of the environmental impact should be done at least annually.

The green bond market took off in 2007 with the issue of the Climate Awareness Bond by the European Investment Bank. The total market reached USD 500 billion in 2022, according to Statistica. Issuers of green bonds now include corporates, supranationals, governments and municipalities.

Greenwashing

Trying to make people believe that a company or investment strategy is doing more to adopt sustainability than it really is, often for public relations reasons. Some claim to be more sustainable when they are in fact only making token gestures towards it. For a company, this could be doing something like claiming to have cut their

carbon footprint by installing sensors that turn lights off to save energy, when the underlying business is highly polluting.

For an asset manager, greenwashing could be making a small gesture such as excluding an obvious candidate like a tobacco producer while not applying ESG factors to the rest of the portfolio. If an asset manager claims to be sustainable when it only has a very small proportion of its total assets under management engaged in sustainability, then this is also greenwashing.

To avert accusations of greenwashing, investors need to show that they not only integrate ESG factors into the decision-making process, including double materiality and going way beyond exclusions, but also practice active ownership through voting and engagement.

Impact investing

The process of intentionally making investments with the aim of creating a measurable beneficial impact on the environment or society, as well as earning a positive financial return. One of the most popular forms of it is targeting companies that can contribute to the UN's Sustainable Development Goals (SDGs).

Impact investing has three key components:

- Intentionality: an investor sets out to exert a positive impact
- Return: it should generate a positive return on the investment
- Measurability: the benefits should be measurable and transparent

Impact investing should also incorporate the concept of 'additionality', which involves only allocating to businesses in which they would not have otherwise chosen to invest if they were not seeking to achieve a positive social impact.

Once considered a niche form of investing, the increasing awareness of the SDGs has made it increasingly mainstream. It has also branched out to focus on specific SDGs or other themes, such as gender diversity and creating a circular economy.

Negative and positive screening

The process of finding companies that score either poorly (negative screening) or highly (positive screening) on ESG factors relative to their peers. The results are then used for constructing portfolios by either avoiding the worst scorers, or including the best ones.

Both negative and positive screening are always done in peer comparison. Companies are judged against others in their peer group according to their ESG characteristics. Negative screening usually means avoiding the bottom 20% of stocks ranked on the ESG score. It therefore aims to separate the wheat from the chaff when choosing stocks for a portfolio.

Conversely, positive screening means identifying the highest performing ESG scorers, usually the top 20%-50% of stocks ranked. Positive screening is also commonly used for building best-in-class strategies that target the companies in sectors with superior ESG scores.

Net-zero emissions, initiative and pledge

Carbon neutrality occurs when an entity has reduced greenhouse gas emissions to the maximum possible level so that the residual emissions can be neutralized by carbon removal – either naturally or through technology – to achieve net zero. The concept was framed by the Intergovernmental Panel on Climate Change in 2018 as the principal means of meeting the Paris Agreement.

To limit global warming to 2 degrees Celsius, the world needs to achieve net zero by 2050. This requires massive decarbonization and a fundamental shift away from the use of fossil fuels in power generation towards renewables, along with restructuring across all industries. Since some industries are very difficult to decarbonize, removal methods led by reforestation and carbon capture are attracting significant investment.

To play their part, investors, including Robeco, have created the Net Zero Asset Managers Initiative and signed the Net Zero Carbon Pledge, a promise to make all their assets under management carbon neutral

by 2050. Under the initiative, asset managers also agree to partner with their clients to set interim targets on the proportion of assets to be managed in line with net zero. Such targets will be reviewed every five years until 100% of assets under management is reached.

Paris Agreement

An international accord that aims to limit the rise in global average temperatures to below 2 degrees Celsius above pre-industrial levels by the end of this century, and to pursue efforts to limit it to 1.5 degrees. It was formulated at the 21st Conference of the Parties (COP 21) of the United Nations Framework Convention on Climate Change (UNFCCC) and signed on 12 December 2015. The agreement was ratified by 196 nations on 22 April 2016, which the UN designated as Earth Day.

In order to cut the emissions responsible for global warming, all signatories are required to decarbonize through nationally determined contributions (NDCs), and to strengthen their emission-reduction efforts in the years ahead. This includes a requirement to report regularly on national emissions and on decarbonization efforts.

The International Panel on Climate Change said in 2019 that in order to achieve the lower 1.5-degree Celsius target, emissions need to be cut by 40%-60% from 2010 levels by 2030, reaching net zero around 2050. To reach the higher 2-degree target, emissions need to be cut by 25%. However, at current levels of (in) activity, global warming of 3 degrees by the end of the century is expected, causing sea levels to rise by 1.1 meters.

Principal Adverse Impact Indicators

A means of measuring the impacts that companies have on the environment and wider society that forms part of the EU's Sustainable Finance Disclosure Regulation. These impacts are defined by the EU as "negative, material, or likely to be material effects on sustainability factors that are caused, compounded by, or directly linked to investment decisions and advice performed by the legal entity."

The EU identified 64 adverse impact indicators (PAIs) that must be calculated, of which 18 are mandatory to report, and 46 are voluntary. The compulsory factors range from carbon emissions, fossil fuel exposure and waste levels (E) to gender diversity and due diligence over human rights (S) and a company's record on exposure to corruption, bribery or other scandals (G).

Having already introduced PAI reporting at the company level in 2021, Robeco began reporting performance at the investment product level from January 2023. PAIs for Article 9 strategies address all the mandatory PAIs; Article 8 products report on actions taken to mitigate adverse impacts on an annual basis through regular disclosures.

Scope 1, 2 and 3 emissions

The three means of measuring greenhouse gas emissions according to how they were created:

- Scope 1 emissions are those that are directly generated by the company, such as an airline fleet's emitted exhaust fumes.
- Scope 2 emissions are those that are created by the generation of the electricity or heat needed by the company to sell its main products or provide its main services.
- Scope 3 emissions are those caused by all other sources throughout a company's value chain. These include emissions created by upstream suppliers as well as downstream end-users of a product over its life cycle, making them much more difficult to measure.

The use of scopes is important, as it allows investors to identify the true causes of emissions and address how to reduce them. They affect different industries in different ways and produce anomalies.

An electric utility, for example, has relatively low Scope 1 emissions caused by its infrastructure or grid but high Scope 2 emissions if its power came from fossil fuels rather than renewables. A carmaker has relatively low Scope 1 and 2 emissions for making the car, but the user of the vehicle would burn petrol to run the car over many years, causing very high Scope 3 emissions.

While Scope 1 and 2 data are relatively easy to acquire, it can be very difficult to measure Scope 3 data; in the example of the car user, one could not know how many kilometers it would be driven. More forward-looking metrics are necessary to truly measure carbon footprints, both in terms of companies' products and services, and their entire value chains.

Sustainable Finance Action Plan

A major policy objective introduced in 2021 by the European Union to promote sustainable investment across the bloc. It was a 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 Sustainable Development Goals. It is also aligned with the goals of the European Green Deal, which aims to see the EU carbon neutral by 2050.

The plan is part of a wider Sustainable Finance Framework which is backed by a broad set of new and enhanced regulations. These include a new Sustainable Finance Disclosure Regulation, which aims to better classify the sustainability credentials of investment funds, and a new EU Taxonomy, which aims to define what economic activities are 'green' for the first time.

The EU also plans to enhance the sustainability requirements of existing rules such as the Markets in Financial Instruments Directive (MiFID) for financial disclosures and the Undertakings for Collective Investment in Transferable Securities (UCITs) for registrations of investment products.

Sustainable Finance Disclosure Regulation

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

The regulation goes hand-in-hand with the EU's Sustainable Finance Action Plan which aims to promote sustainable investment across the EU; the EU Taxonomy to create a level playing field across the whole EU; and the European Green Deal, which aims to see the EU carbon neutral by 2050.

One of the most visible and impactful elements has been the classification of investment products in three categories under Articles 6, 8 and 9 of the SFDR according to the levels of sustainability integrated into it. Another was identifying the Principal Adverse Impacts which investee companies have on the environment and wider society using a system of 64 indicators, and reporting on these as part of routine disclosure.

Stranded assets

Assets recorded on a corporate balance sheet whose investment value cannot be recouped and must be written off. Their loss of value can be due to regulatory rulings that mean they cannot be exploited, changing trends in the market that render them redundant, or obsolescence caused by superior technology.

The term is commonly applied to the fossil fuel reserves of listed energy companies that would not be usable if decarbonization targets are met. The Paris Agreement has led to nationally directed measures to phase out the use of fossil fuels and replace internal combustion engines in vehicles. In this arena, stranded assets are set to become a problem for any energy or utility company that has invested in fossil fuel reserves that cannot be burnt.

Such assets would need to be written off, incurring a charge to the profit and loss account and adversely affecting the share price of listed companies. However, it only becomes a problem if money was directly invested in exploration, production or storage of the asset. Coal reserves that are held mostly by governments are not an issue for investors.

Sustainable supply chains

Integrating environmentally and socially viable practices into the entire supply chain of a company. It focuses on the production of the ingredients or components that go into the product, rather than the end-product itself and the labor standards involved.

In many industries, it exposes issues with unsustainable practices at various stages of the supply chain, from extraction and initial manufacturing, to the transportation, distribution and storage of the products. Common problems include labor force abuses, unsustainable mining, over-extraction of organic resources and processing methods that are polluting.

A number of industries face significant ESG problems at the beginning of the supply chain, including factory farming in meat production, unsafe working conditions in textiles, deforestation in palm oil and environmentally hazardous mining practices. Companies caught with serious ESG breaches such as the use – willingly or not – of forced labor or deliberate pollution face severe reputational damage and exclusion.

Sustainable Development Goals

A framework of 17 objectives for improving human society, ecological sustainability and the quality of life published by the United Nations in 2015. They cover a broad spectrum of topics from eliminating hunger and combating climate change to promoting responsible consumption and making cities more sustainable.

All UN members – no matter how rich or poor – have agreed to work towards achieving the 17 SDGs by 2030, thereby establishing a 15-year timeframe for progress. The goals are part of 'Transforming our World: the 2030 Agenda for Sustainable Development' and are branded by the UN as "a blueprint to achieve a better and more sustainable future for all."

The 17 goals have 169 underlying targets and 232 indicators which are used to track progress towards achieving them. For example, SDG 3 (Good health and well-being) has targets that aim to end premature mortality, halt the spread of communicable diseases like malaria and HIV/AIDS, and promote the attainment of affordable universal health coverage. The indicators measure factors such as a country's child mortality rate, the numbers of new malarial or HIV infections, and the number of people covered by health insurance.

Voting

Voting at Annual General Meetings of shareholders (AGMs), aiming to influence a company's governance or operations.

Voting is a way for active owners to influence companies. If there are important issues and a company is not willing to listen to shareholders or other stakeholders, voting at its AGM can be a powerful tool. The results of decisions made at AGMs are made public. When shareholders vote against a proposal, a company has to address the issue.

It is practical and effective for asset managers to draw up a voting policy, for example on the basis of the principles of the International Corporate Governance Network. This is an internationally recognized set of best practices for good corporate governance. The principles aim to improve corporate governance, risk management, remuneration policy, shareholders' rights and transparency. ●

Important information

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Additional information for US investors

Robeco is considered "participating affiliate" and some of their employees are "associated persons" of Robeco Institutional Asset Management US Inc. ("RIAM US") as per relevant SEC no-action guidance. Employees identified as associated persons of RIAM US perform activities directly or indirectly related to the investment advisory services provided by RIAM US. In those situations these individuals are deemed to be acting on behalf of RIAM US, a US SEC registered investment adviser. SEC regulations are applicable only to clients, prospects and investors of RIAM US. RIAM US is a wholly owned subsidiary of ORIX Corporation Europe N.V. and offers investment advisory services to institutional clients in the US.

Additional information for US Offshore investors – Reg S

The Robeco Capital Growth Funds have not been registered under the United States Investment Company Act of 1940, as amended, nor the United States Securities Act of 1933, as amended. None of the shares may be offered or sold, directly or indirectly in the United States or to any US Person. A US Person is defined as (a) any individual who is a citizen or resident of the United States for federal income tax purposes; (b) a corporation, partnership or other entity created or organized under the laws of or existing in the United States; (c) an estate or trust the income of which is subject to United States federal income tax regardless of whether such income is effectively connected with a United States trade or business. In the United States, this material may be distributed only to a person who is a “distributor”, or who is not a “US person”, as defined by Regulation S under the U.S. Securities Act of 1933 (as amended).

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This information is solely intended for professional investors or eligible counterparties in the meaning of the Austrian Securities Oversight Act.

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The Fund may not be offered or sold to the public in Brazil. Accordingly, the Fund has not been nor will be registered with the Brazilian Securities Commission (CVM), nor has it been submitted to the foregoing agency for approval. Documents relating to the Fund, as well as the information contained therein, may not be supplied to the public in Brazil, as the offering of the Fund is not a public offering of securities in Brazil, nor may they be used in connection with any offer for subscription or sale of securities to the public in Brazil.

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No securities commission or similar authority in Canada has reviewed or in any way passed upon this document or the merits of the securities described herein, and any representation to the contrary is an offence. Robeco Institutional Asset Management B.V. relies on the international dealer and international adviser exemption in Quebec and has appointed McCarthy Tétrault LLP as its agent for service in Quebec.

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This document does not constitute a public offer in the Republic of Colombia. The offer of the fund is addressed to less than one hundred specifically identified investors. The fund may not be promoted or marketed in Colombia or to Colombian residents, unless such promotion and marketing is made in compliance with Decree 2555 of 2010 and other applicable rules and regulations related to the promotion of foreign funds in

IMPORTANT INFORMATION

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contents of this document have not been reviewed by the MAS. Any decision to participate in the Fund should be made only after reviewing the sections regarding investment considerations, conflicts of interest, risk factors and the relevant Singapore selling restrictions (as described in the section entitled "Important information for Singapore Investors") contained in the prospectus. Investors should consult their professional adviser if you are in doubt about the stringent restrictions applicable to the use of this document, regulatory status of the Fund, applicable regulatory protection, associated risks and suitability of the Fund to your objectives. Investors should note that only the Sub-Funds listed in the appendix to the section entitled "Important information for Singapore Investors" of the prospectus ("Sub-Funds") are available to Singapore investors. The Sub-Funds are notified as restricted foreign schemes under the Securities and Futures Act, Chapter 289 of Singapore ("SFA") and invoke the exemptions from compliance with prospectus registration requirements pursuant to the exemptions under Section 304 and Section 305 of the SFA. The Sub-Funds are not authorized or recognized by the MAS and shares in the Sub-Funds are not allowed to be offered to the retail public in Singapore. The prospectus of the Fund is not a prospectus as defined in the SFA. Accordingly, statutory liability under the SFA in relation to the content of prospectuses does not apply. The Sub-Funds may only be promoted exclusively to persons who are sufficiently experienced and sophisticated to understand the risks involved in investing in such schemes, and who satisfy certain other criteria provided under Section 304, Section 305 or any other applicable provision of the SFA and the subsidiary legislation enacted thereunder. You should consider carefully whether the investment is suitable for you. Robeco Singapore Private Limited holds a capital markets services license for fund management issued by the MAS and is subject to certain clientele restrictions under such license.

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Credits

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