BLACKROCK IMPACT

SCREENS ESG IMPACT

Investing in a sustainable future

A framework for translating intention into implementation

BLACKROCK®

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Key points

- **Sustainable investing can be a rewarding investment approach.** We believe it provides an additional lens for investors to improve investment outcomes – both financial and sustainable.

- **Pursuing sustainability may not mean sacrificing financial performance.** We see growing consensus that sustainable investing can be compatible with achieving the desired financial outcomes.

- **All types of investors are able to take action.** An increasingly wide range of sustainable investment solutions are available to meet diverse investor objectives.

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“Over the long-term, environmental, social and governance (ESG) issues – ranging from climate change to diversity to board effectiveness – have real and quantifiable financial impacts.”

Larry Fink, CEO & Chairman, BlackRock

There is growing recognition that sustainability issues may have real and quantifiable financial implications. This marks a significant shift in the motivation to incorporate sustainable considerations into investment decisions. What began as a niche segment of investors divesting out of controversial businesses has moved to the mainstream. Today, global investors – ranging from large institutional investors to individual asset owners – are adopting a variety of sustainable strategies to achieve their investment outcomes. Whether targeting specific social and environmental objectives or enhancing long-term financial value, we believe sustainable investing is increasingly seen as a sensible investment approach.

Today, there are more opportunities for investors to align their financial goals and sustainability goals across their total portfolio. Aligning these opportunities across asset classes and investment styles can be challenging. We offer a three-step framework to help investors move from the idea of sustainable investing to effective implementation.

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Sustainability factors may impact financial performance

Step one: Identify risks and opportunities.

It is important to identify and understand the risks and opportunities associated with sustainability factors across your portfolio. It's no longer a 'feel good' exercise to incorporate these factors into your investment process. Issues such as resource degradation, climate change, employee diversity and product safety can have real and quantifiable impact on a company's bottom line and long-term investment performance. More investors are recognizing the materiality of these factors and believe that how a company manages the environmental (E) and social (S) aspects of its business can be signals of operational efficiency and productivity. Corporate governance (G), including board governance and independence, can indicate the strength of a company's leadership and management.

A growing body of research highlights the materiality of these factors. Analysis of more than 160 academic studies, for example, demonstrates that companies with high ESG ratings have a lower cost of capital.[1] Additional studies[2] have found that companies with transparent disclosure of ESG data have lower price volatility.

Changing technological, regulatory and social factors can also lead to investment risks. Consider that, according to a 2014 study by the U.S. Department of Energy, increased use of light-emitting diodes (LEDs) could cut power consumption from lighting by 40% from 2013-2030, or that wind and solar are forecasted to add as much to the global energy supply in 2015-2020 as U.S. shale oil did in the previous five-year period.

Additional analysis from BlackRock and Bloomberg New Energy Finance also underscore the speed of change: renewables have doubled their share of total global energy capacity to 16% since 2007, while accounting for more than half of the new installations. Overlooking these factors can lead to missed opportunities at best or material loss of capital at worst.

Investors must also consider the swelling tide of sustainability-related regulations. The ratification of the Climate Change Conference in Paris agreement (COP21) of 132 parties, Canada's carbon tax and France's new energy transition law will each have widespread implications on portfolio allocations and future investment decisions for both institutional and individual investors.

Indeed, failure to incorporate regulatory risks can have an immediate, and often negative, effect on investment performance. Regulations raise the cost of doing business and increase risk of compliance failures, which can trigger fines, legal bills and sudden changes in asset prices. Energy companies, for instance, that violated regulatory requirements and were involved in oil spills paid a heavy price both financially and reputationally. These regulatory risks also can have cross-border implications, as evidenced by the curbs on nuclear power in Germany following Japan's 2011 tsunami.

1 DB Climate Change Advisors, Deutsche Bank Group, Sustainable Investing: Establishing Long-Term Value and Performance (Jun. 2012), available at https://www.db.com/cr/en/docs/Sustainable_Investing_2012.pdf.
2 Teresa Czerwińska and Piotr Kaźmierkiewicz, ESG Rating in Investment Risk Analysis of Companies Listed on the Public Market in Poland, ECONOMICNOTES, Vol. 44, Issue 2, at 211-248 (Jul. 2015), available at http://dx.doi.org/10.1111/ecno.12031.

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Moving from intention to implementation

Step two: Know what you own.

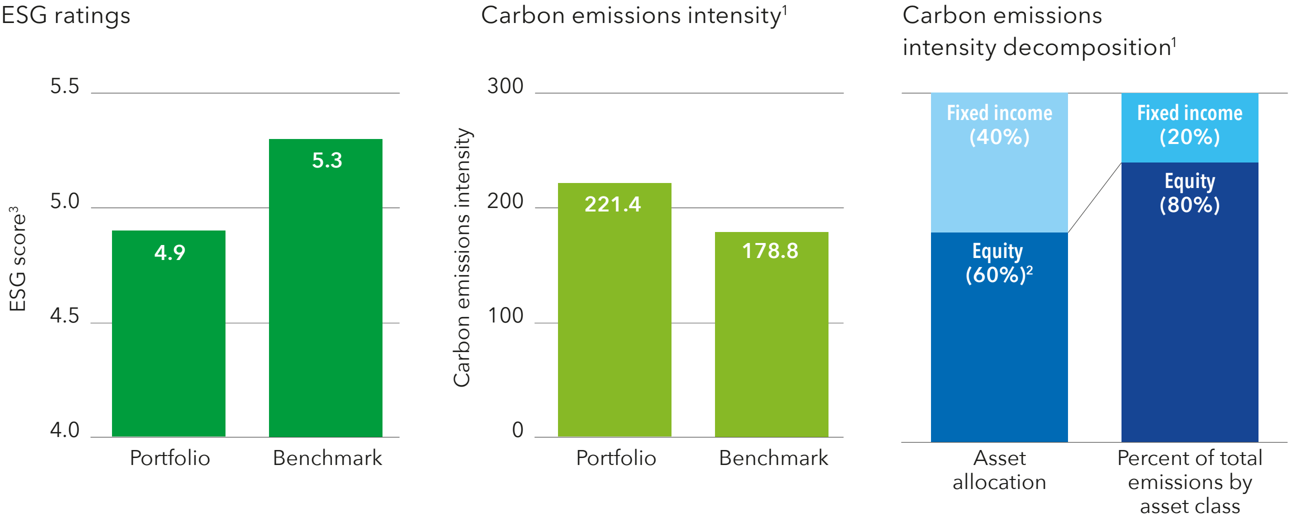
To effectively mitigate the risks and exploit the opportunities associated with sustainability factors, it's important for investors to understand what they own. That is, it is important for investors to understand what their current exposure is to these factors across their portfolio. The increased availability and overall quality of ESG data enables more investors to diagnose potential areas of sustainability risk and opportunity. Two basic sustainability metrics can be used to evaluate these possibilities:

- **ESG ratings:** Use the growing body of ESG data to evaluate company-specific risk exposure and management practices.
- **Carbon intensity:** Evaluate the exposure to carbon-intensive businesses to mitigate climate-related risk and capture new investment opportunities.

It is important to note that while sustainability analytics alone are clearly not sufficient to steer portfolio allocation decisions, they can be meaningful additions to the traditional financial risk analysis. Typically this is done by comparing a current allocation to a standard benchmark with a widely accepted ESG or carbon scoring system. Figure 1 highlights these sustainability metrics, exposing potential areas of risk and opportunity. This sample portfolio, for example, has a lower aggregate ESG score and greater carbon emissions intensity than the benchmark with 80% of the carbon emissions generated within the equities allocation.

With this information, investors can make more informed asset allocation decisions to both reduce risk and maximize investment opportunities.

Figure 1: sample sustainability analytics



Source: BlackRock for illustrative purposes only.
1 Carbon emissions intensity: Metric tons of carbon emissions emitted per million dollars of revenue.
2 Shows while equity exposure makes up 60% of net asset value – it accounts for 80% of total portfolio emissions intensity.
3 Score 0-10, 10 being the best.
Emissions Intensity: Emissions normalized by total sale. With every million dollar revenue x metric tons of emissions are financed.

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Step three: Put into practice.

It is important to recognize there are more opportunities for investors to take action and implement sustainable investment solutions across asset classes in line with their financial goals. Once investors know what they own and understand their sustainable exposures, they can set targets to improve their portfolio's sustainable allocation.

That said, there are a variety of ways to implement sustainable strategies. (See Figure 2.) Suitable approaches will vary depending on specific investor objectives, time horizons and current exposures to traditional risk and sustainability factors. Investors can and do rely on various combinations of the three investment approaches within a portfolio. For example, investors might apply exclusionary screens while investing in companies with relatively high ESG scores within a sustainability theme such as clean energy or education technology.

Figure 2: sustainable investing approaches

Exclusionary screens
Remove industries or companies that fall within a predetermined set of exclusion criteria such as tobacco, firearms and fossil fuels

ESG factors
Overweight companies that have strong environmental, social and governance considerations such as companies with lower carbon footprints and a diverse workforce

Impact targets
Target defined and measurable impact outcomes across social and environmental issue areas including alternative energy, health and empowerment

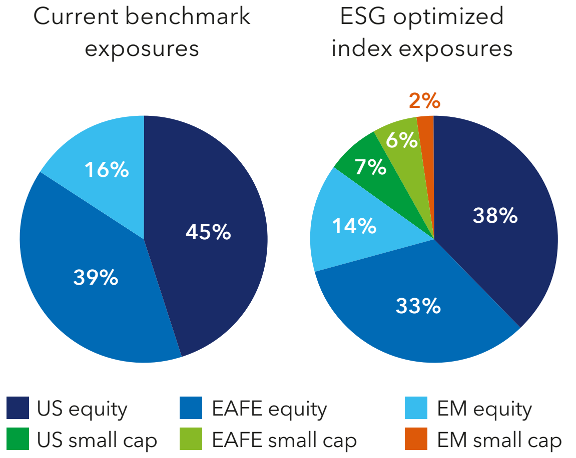
Objective:

Mitigate risk ⟷ Seek opportunity

Putting it to practice: Equity investor adopts sustainable portfolio.

Interested in improving ESG and carbon emissions exposures within their equity allocation, an individual investor adopts a sustainable equity portfolio. The ESG model can replace traditional market-capitalization weighted allocations with ESG optimized index solutions in addition to adding small-cap exposure within specified regions. The resulting portfolio maintains a similar risk-adjusted return profile (measured by the Sharpe ratio) with improved ESG ratings and lower carbon emissions compared to the benchmark. (See Figure 3.)

Figure 3: swapping traditional for sustainable exposures



	Market cap	ESG optimised
Carbon emissions	156.50	120.21
ESG rating	4.9	6.0

The above is based on a simulation that aims to maximize a hypothetical portfolio's ESG rating. This does not represent an actual portfolio, fund managed by BlackRock or investable product, nor is it a recommendation to adopt any particular investment strategy. For illustrative purposes only.

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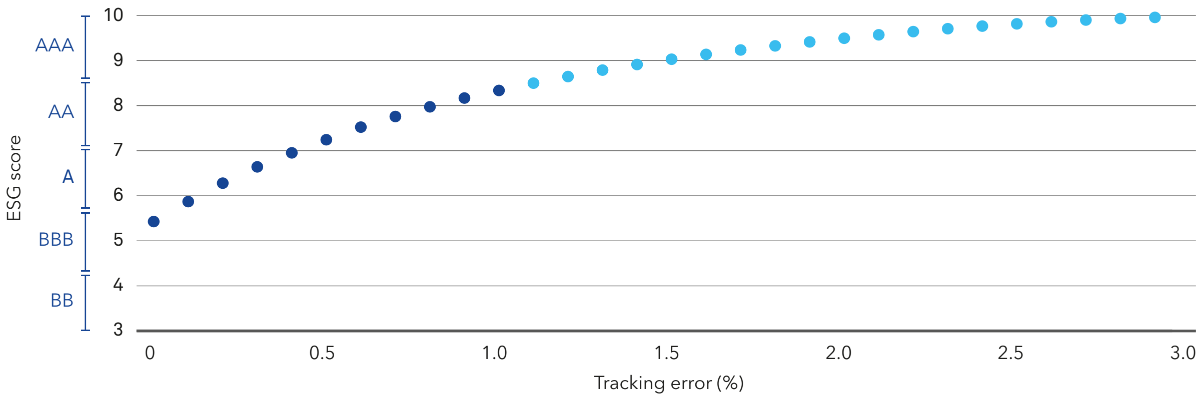
Putting it to practice: Investor seeks to balance ESG and active risk

After running sustainability analytics, a public pension portfolio finds its global equity allocation has a lower ESG rating relative to its benchmark, the MSCI World Index. The portfolio also finds that through recent merger and acquisition activities, it holds a 3% allocation to weapons manufacturers, which can present a potential reputational risk. Seeking to improve its overall ESG performance while maintaining similar risk factor exposures to its policy benchmark – the portfolio turns to a combination of divestments of the weapons manufacturers and ESG solutions. The resulting equity allocation has similar traditional risk factor exposures to its policy benchmark, but with a higher overall ESG rating. Optimization offers the potential for investors to improve their portfolio's ESG score while controlling the tracking error level. (See Figure 4.) For more details on benchmark-aware ESG investing, see our investment insight 'Creating a Sustainable Core'.

Figure 4: trade-off between tracking error and ESG rating



Source: MSCI, BlackRock calculations as of 30 December 2016. Notes: The above is based on a simulation that aims to maximise a hypothetical portfolio's ESG rating. In constructing the hypothetical portfolio, BlackRock takes all companies in the MSCI World Index and the MSCI ESG data and performs a standard mean variance optimisation for each given tracking error. The forward looking tracking error is an estimation that uses the BlackRock Fundamental Risk for Equity model. This does not represent an actual portfolio, fund managed by BlackRock or investable product, nor is it a recommendation to adopt any particular investment strategy.

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Post-investment: Measure your performance.

Once sustainable investments are allocated, investors can measure and report on their sustainability impact over time. These measurements can occur both at the fund and portfolio level. For example, environmentally-focused investors can measure and report on clean energy produced at the fund level, and track overall emissions reductions at the portfolio level. See Figures 5 and 6. Others may look to track investment exposure to ESG performance.

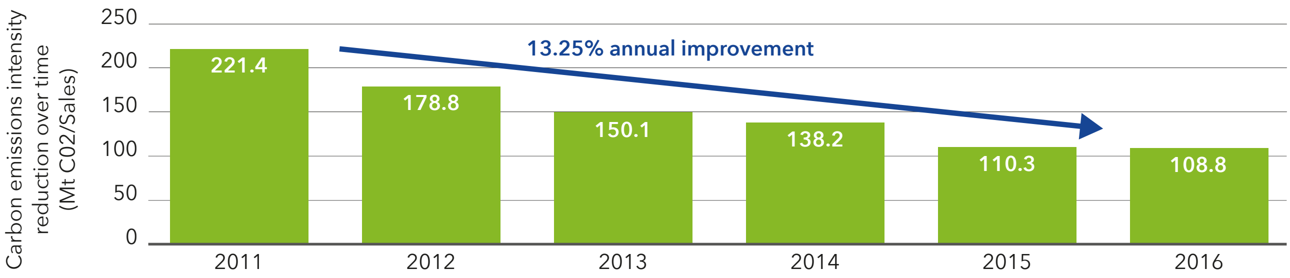
Existing standards such as the World Bank's Green Bond Impact Report, the Global Impact Investing Network's IRIS framework or MSCI Sustainable Index metrics provide useful guides for investors interested in specific outcome metrics. New standards will become available as international communities collaborate. They increasingly allow investors to track and measure the impacts of more sustainable investments alongside traditional financial performance data. This will enable investors to continue to improve their exposures over time, taking advantage of the growing opportunities to have a positive impact.

Figure 5: sample global renewable power fund level impact report

Impact metric	Increase renewable energy produced	Displace GHG emissions	Reduce water usage
Impact outcome	**2,554,875** Cuml. MWhs produced[1]	**1,761,842** Tons of GHG emissions avoided[2]	**2,133,321** Cubic water metres reduction[3]
Impact equivalent	At capacity, that could power over 315,000 homes for a full year[4]	That is equivalent to removing over 370,000 cars off the road for a full year[5]	By comparison, the average American family of four uses 1.5 cubic metres of water per day[6]

For illustrative purposes only.
1 Total production multiplied by fund ownership percentage. 2 EPA Conversion Guideline: 0.6896 metric tons of CO^2 per MWh. 3 World Energy Outlook Conversion Guideline: alternate water use for Combined Cycle Gas Turbine production of 0.835 m^3/ MWh. 4 EPA Conversion and UK Government Guideline: US and UK average household usage of 8.09 MWh/annum. 5 EPA Conversion Guideline: 4.75 metric tons of CO^2 emissions/vehicle/year. 6 EPA and Water Sense Conversion Guideline: 400 gallons of water/day.

Figure 6: sample portfolio's reduction of carbon emissions, 2011-2016[7]



7 Carbon emissions intensity: Metric tons of carbon emissions emitted per million dollars of revenue.
Emissions Intensity: Emissions normalized by total sale. With every million dollar revenue x metric tons of emissions are financed.
Annual improvement: Annualized reduction in carbon emissions intensity from 2011-2016.

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A roadmap for investing in a sustainable future

Whether to target specific environmental, social and governance objectives or safeguard long-term financial performance by mitigating the risk potential associated with poor ESG standards, it is increasingly important that investors consider the role of sustainable investing in their portfolios. Fortunately there are a growing number of sustainable investment strategies available to meet a variety of investor goals.

To identify suitable sustainable investment solutions, investors should first know what they own by leveraging sustainability analytics and form a baseline of sustainability exposures. From there, investors can take action through a combination of exclusionary screens, ESG-factor optimization or impact investing. Finally, to track progress, investors can monitor and report on the relevant sustainability impacts over time.

Although investors may have varied portfolios and objectives, these three basic steps can be taken by all investors to help inform an appropriate sustainable investment strategy.

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