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June 9

The Honorable Gary Gensler
Chairman
Securities and Exchange Commission
100 F St. NE
Washington, DC, 20549

Re: Public Input Welcomed on Climate Change Disclosures

Dear Chairman Gensler:

Morningstar, Inc. welcomes the opportunity to comment on the questions you posed regarding climate change disclosures for registrants. In our response, we draw from our experience evaluating environmental, social, and governance (ESG) risks associated with equity issuers and pooled funds. To provide more background information on the questions you posed, we are attaching five Morningstar research papers to this response letter:

1) Sustainable Funds U.S. Landscape Report: More Funds, More Flows, and Impressive Returns in 2020;
2) Measuring Transition Risk in Fund Portfolios: The Morningstar® Portfolio Carbon Risk Score;
3) Investing in Times of Climate Change: An Expanding Array of Choices for Climate-Aware Investors;
4) Pitchbook Sustainable Investing Survey 2020; and
5) Corporate Sustainability Disclosures: An Improving Picture, But Regulation Would Induce a More-Complete and Comparable Baseline of Material Information for Investors.

As we address the questions, we will refer to these papers to provide more detail on the methodologies and findings that support our conclusions. The first paper presents data on the flows into various sustainable fund strategies, the second describes our approach to measuring a portfolio's carbon risks, the third discusses the various approaches asset managers take to incorporating climate and carbon risk into their strategies, the fourth provides research on the degree to which private equity investors consider sustainability issues, and the fifth provides detail on the sustainability disclosures we are able to collect today from issuers in the U.S. and around the world.

Fundamentally, as the effects of climate change—and governments' responses to it around the world—accelerate, climate and carbon risk has increasingly become material for a host of sectors and many publicly traded companies. Therefore, the SEC must move toward mandatory, consistent, actionable disclosures on climate change because such disclosures are financially material. As the SEC takes on this important work, it should focus on the disclosures that investors need.

1) Investors need standard quantitative metrics such as scope 1, 2, and 3 (when material) emissions information from issuers, but these snapshots of carbon emissions are insufficient on their own for investors to evaluate the material financial risks a company faces due to climate change or a shift to a low-carbon economy.

2) Investors also need much more consistent disclosures discussing companies' strategies and governance structures to address carbon and climate risks.
3) Furthermore, investors need disclosures of companies' own metrics and targets as well as progress and performance against these metrics and targets.
4) Companies should also provide scenario analysis so that investors can evaluate the extent to which companies' strategies will perform given likely shifts to a low-carbon economy.
5) As we show with data in question 5, TCFD-aligned disclosures are increasingly robust, particularly for certain industries, but there are still gaps in the disclosures available to investors.
6) A standard-setter is likely to use the Task Force on Climate-related Financial Disclosures framework to guide their disclosure requirements. We are not endorsing a particular standard-setter, but should the SEC empower one to provide standards, it will need to have strong governance and be able to adapt as the disclosures mature by providing ongoing guidance and revisions.

We address selected questions in more detail below.

1. *How can the Commission best regulate, monitor, review, and guide climate change disclosures in order to provide more consistent, comparable, and reliable information for investors while also providing greater clarity to registrants as to what is expected of them? Where and how should such disclosures be provided? Should any such disclosures be included in annual reports, other periodic filings, or otherwise be furnished?*

As the SEC begins the necessary work of enhancing corporate climate disclosures, Morningstar believes the following principles should guide the Commission's activity.

First, any new climate disclosures should appear in the 10-k disclosures or at least be released at the same time. Such annual temporal alignment of financial and material nonfinancial information in the form of climate change disclosures is the best way to help investors integrate nonfinancial climate change metrics into their decision-making.

Second, as we will detail throughout our response, the SEC should promulgate a clear expectation on the framework for disclosure and align it with those that other jurisdictions have already adopted. This approach will minimize the burden on issuers and investors alike.

Third, as we discuss further in questions 2 through 6 as well as 8, the SEC should balance requiring standard quantitative metrics with more company-specific information, leveraging the work done by the TCFD and others on best practices for disclosures on strategy, governance, scenario analysis, and metrics and targets. These disclosures should account for industry-by-industry materiality, while also ensuring that key measures can be compared across companies, industries, and sectors. Such comparability is increasingly critical as investors examine their carbon risk and exposure to climate change at a portfolio level.

Turning to registered funds, as sustainable strategies proliferate, the SEC should ensure that fund disclosures help investors understand what their sustainable fund does to manage carbon and climate risk. We believe that improving issuer-level disclosures will help asset

managers improve their disclosures to individual investors; but our data shows important differences in how funds approach carbon and climate risk, which the commission should consider as it contemplates new disclosures. For example, while investors likely expect a fund that markets itself as "sustainable" to have low exposure to carbon risk, we find that slightly less than half of the sustainable funds to which we assign a Carbon Risk Score do not receive our Low Carbon Designation. This data point—based on the asset-weighted Sustainalytics carbon-risk rating of companies held in a fund's portfolio—reveals a possible disconnect between investor expectations and the realities of the portfolios in which they might invest. (For more information on this data, please see the first attached white paper, "Sustainable Funds U.S. Landscape Report: More Funds, More Flows, and Impressive Returns in 2020." For details about how we calculate and assign the Low Carbon Designation, please see the second attachment, "Measuring Transition Risk in Fund Portfolios: The Morningstar® Portfolio Carbon Risk Score™.")

We also believe the SEC should focus on disclosures that will help investors identify which kind of carbon-aware strategy they are investing in, so investors can choose funds that match their goals. In a recent analysis, Morningstar identified six kinds of funds that focus on carbon risk or promoting transitions to a low-carbon economy: Low Carbon, Ex-Fossil Fuel, Climate Conscious, Climate Solutions, Green Bond, and Clean Energy/Tech. (For more information on the specific categories please see the third attachment, "Investing in Times of Climate Change: An Expanding Array of Choices for Climate-Aware Investors.")

2. *What information related to climate risks can be quantified and measured? How are markets currently using quantified information? Are there specific metrics on which all registrants should report (such as, for example, scopes 1, 2, and 3 greenhouse gas emissions, and greenhouse gas reduction goals)? What quantified and measured information or metrics should be disclosed because it may be material to an investment or voting decision? Should disclosures be tiered or scaled based on the size and/or type of registrant)? If so, how? Should disclosures be phased in over time? If so, how? How are markets evaluating and pricing externalities of contributions to climate change? Do climate-change-related impacts affect the cost of capital, and if so, how and in what ways? How have registrants or investors analyzed risks and costs associated with climate change? What are registrants doing internally to evaluate or project climate scenarios, and what information from or about such internal evaluations should be disclosed to investors to inform investment and voting decisions? How does the absence or presence of robust carbon markets impact firms' analysis of the risks and costs associated with climate change?*

Most institutional investors consider financially material carbon and climate risks using data on issuer emissions, emissions trends, and issuer exposure to regulatory changes on emissions; technological innovation that would weaken their position; market trends and peer comparisons for managing carbon risks; and reputational impacts. These analyses rely on quantitative metrics as well as qualitative analysis. Quantitative metrics include the carbon-intensity trends and scope 1, 2, and 3 emissions discussed above, as well as company metrics and targets, while qualitative information include an issuer's greenhouse gas risk management plan, physical climate risk management plan, carbon emissions reduction programs, and renewable energy plans.

Climate risk disclosures must include standardized, comparable data on carbon emissions, which can be quantified, measured, and used by investors in a variety of ways. For example, some investors already look at the total carbon footprint of their portfolio, or the carbon footprints of otherwise similar companies. Investors also sometimes generate their own carbon-intensity metrics by dividing carbon emissions by a company's revenue, profits, or material produced. At a minimum, the SEC could require each issuer to disclose scope 1 and 2 emissions, as well as material emissions under scope 3.

Most major new disclosure regimes require some phase-in, but we think that basing it more on sector and industry preparedness rather than solely on issuer size will be helpful. As shown in Exhibit 1, disclosures in the U.S. on climate issues are incomplete, but it is not far behind other markets with more regulation. As shown in Exhibit 2, there is variation in the U.S. across sectors as to the typical level of disclosure. This exhibit shows the rates of scope 1, 2, and 3 emissions (where material) by industry. That said, these disclosures still vary in their standardization, and their quality. Indeed, we find that many of the disclosures, particularly around scope 3, are of extremely low quality, reinforcing the need for consistent regulation on these disclosures.

Exhibit 1: Disclosure Rates (Percentage) of Quantitative Greenhouse Gas Emissions

Disclosure Types	**Global**	**Asia**	**Europe**	**U.S & Canada**	**Africa**	**LatAm & Caribbean**
Material Scopes of Greenhouse Gas Reporting	64.9%	46.6	79.6	69.4	57.8	67.6

Source: Sustainalytics data.

Note: For further information on these and similar disclosure data, see the attached paper "Corporate Sustainability Disclosures."

Exhibit 2: Disclosure Rates of Material Scopes of Greenhouse Gas Emissions by Industry in the U.S.

Disclosure Type	**Companies Covered**	**Disclosure Rates**
Paper and Forestry	6	100%
Precious Metals	4	100
Automobiles	151	94.0
Diversified Metals	9	88.9
Construction and Engineering	8	87.5
Containers and Packaging	29	86.2
Industrial Conglomerates	19	84.2
Energy Services	11	81.8
Transportation	56	71.4
Utilities	108	70.4
Household Products	13	69.2
Food Products	62	62.9
Construction Materials	8	62.5
Chemicals	47	61.7
Building Products	10	60.0
United States	1,100	59.5
Semiconductors	22	59.1
Auto Components	7	57.1
Telecommunication Services	41	53.7
Technology Hardware	65	52.3
Consumer Services	51	47.1
Oil and Gas Producers	46	45.7
Traders and Distributors	22	45.5
Food Retailers	17	41.2
Refiners and Pipelines	34	41.2
Machinery	61	39.3
Consumer Durables	13	38.5
Electrical Equipment	13	38.5
Aerospace and Defense	38	36.8
Healthcare	49	36.7
Retailing	23	34.8
Commercial Services	16	31.3
Software and Services	27	14.8
Homebuilders	8	12.5
Steel	6	0.0

Source: Sustainalytics data.

Even during a phase-in, we would urge the commission to set minimum standards even for companies that do not yet need to comply with broader disclosure requirements. Doing so helps ensure comparability across companies and will help investors and asset managers in evaluating their portfolios or describing the carbon risks associated with a pooled investment.

Finally, with regard to the sub-question about the cost of capital, we do believe that ESG risks increase the uncertainty of a business, and therefore reduce the price at which an investor should buy a company's equity, all else being equal. However, as a technical matter, our assumed discount rates (which are the weighted average cost of capital) are intended to capture systematic risks that are not diversifiable. For example, we typically increase our discount rate for firms and industries with higher cyclicality relative to those with lower cyclicality. We regard ESG risks as idiosyncratic, and, therefore, diversifiable. As a result, we view our uncertainty rating, which is intended to capture idiosyncratic risks, as the best place to capture ESG risks, not the cost of capital. This has real-world implications when investors think about a company's ability to generate returns on capital at or above its cost of capital (an important factor in measuring a company's competitive advantage, in our opinion), make comparisons across industries when determining appropriate cost of capital assumptions, or determining whether a company has optimally structured its capital and balance sheet.

3. *What are the advantages and disadvantages of permitting investors, registrants, and other industry participants to develop disclosure standards mutually agreed by them? Should those standards satisfy minimum disclosure requirements established by the Commission? How should such a system work? What minimum disclosure requirements should the Commission establish if it were to allow industry-led disclosure standards? What level of granularity should be used to define industries (e.g., two-digit SIC, four-digit SIC, etc.)?*

In general, we find that while some climate change issues are specifically material mostly to companies in certain industries, industry-specific frameworks have impeded comparisons across issuers and accurate, clear, and useful portfolio-level metrics. When industries develop their own standards they often choose disclosures that lead to "greenwashing" as the industries have a strong incentive to disclose information that will generally paint a positive picture. We have also seen industry-led groups change the rules of the game to make their disclosures look better. With regard to mutual funds, we believe the industry should begin to migrate toward a common taxonomy of sustainable strategies (including those that address climate change) so that investors can understand what to expect of their fund (and what they should not expect). Morningstar is working on a new taxonomy for funds so that investors can understand whether their fund manager: 1) simply considers ESG in making investment decisions as a pecuniary factor; 2) commits to investing in companies with strong sustainability profiles, and if so, which kinds; 3) avoids issuers with certain kinds of controversies; or 4) focuses on a specific kind of impact.

4. *What are the advantages and disadvantages of establishing different climate change reporting standards for different industries, such as the financial sector, oil and gas, transportation, etc.? How should any such industry-focused standards be developed and implemented?*

While we support the inclusion of industry-specific metrics to the extent they are material and add additional decision-useful information for investors, climate change disclosures must also allow for inter-industry comparability to be useful for investors, particularly those that wish to benchmark their portfolios against target levels of emission. Greenhouse gas reporting and reduction programs should be a core requirement across all firms. Industry-specific guidance could include discussions on typically material scope 3 emissions for

companies in various industries, and additional disclosures on risk management and strategy for select industries such as asset managers, energy producers, materials manufacturers and builders, and others.

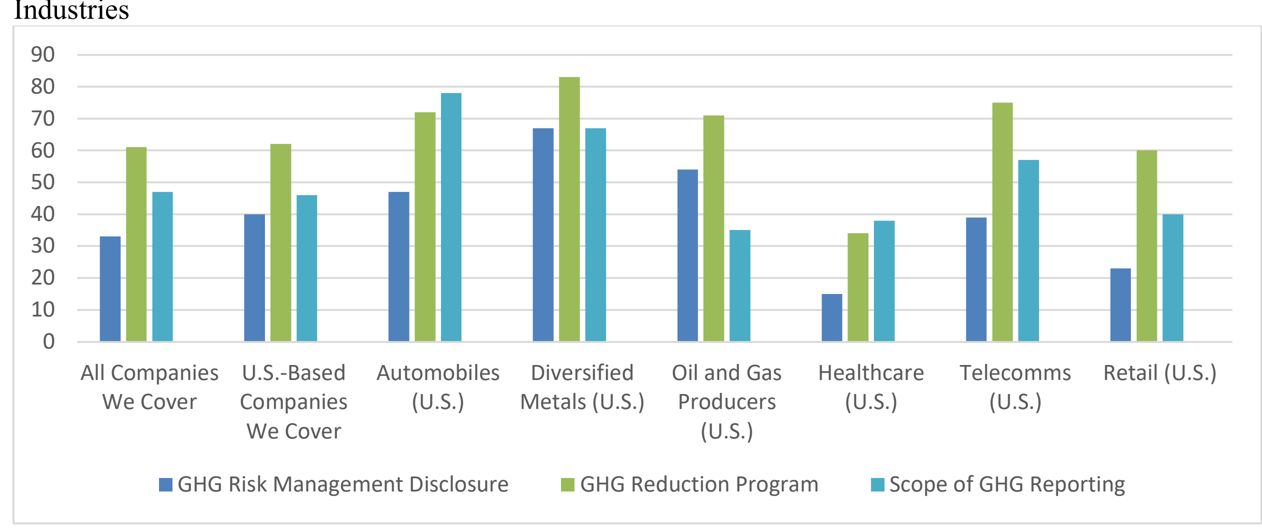
5. *What are the advantages and disadvantages of rules that incorporate or draw on existing frameworks, such as, for example, those developed by the TCFD, the Sustainability Accounting Standards Board (SASB), and the Climate Disclosure Standards Board (CDSB)?*[7] *Are there any specific frameworks that the Commission should consider? If so, which frameworks and why?*

These standards are already highly interlinked. The CDSB is responsible for enabling reporting that meets the TCFD framework, and SASB's disclosures incorporate TCFD recommendations. More-detailed disclosure frameworks, such as those maintained by the Carbon Disclosure Project, also have significant overlap with the TCFD.

We believe the SEC should embrace the TCFD framework for disclosures because 1) its disclosure requirements align well with the needs of outside sustainability ratings organizations as well as asset managers and other institutional investors; 2) it is already in widespread use, which will reduce the burden on issuers who need to comply; and 3) regulators around the world have embraced the TCFD, and U.S. adoption of the framework will likely enhance comparability. For example, the European Union referenced the TCFD in voluntary standards for nonfinancial disclosure regulations, and they have now begun to examine how to make these standards mandatory. We think they will continue to draw from the TCFD framework for this project.

Exhibit 3 quantifies the extent to which TCFD-aligned disclosures are already available in many corporate disclosures. It shows the average strength of disclosures on three TCFD-aligned indicators. The strength of the disclosure is based on the average number of criteria disclosed for each indicator; however, while it reveals the quantity of information, we caution that not all issuers disclose data of the same quality.

Exhibit 3: TCFD-Aligned Disclosure Strength Abroad, in the U.S. and in Select U.S. Industries



Source Sustainalytics Data.

Note: These disclosures are based on a Sustainalytics universe of issuers that face material ESG risk.

Regardless of the standard-setter the SEC picks, we believe corporate climate disclosures must include, at least for certain industries where such information is material, climate strategy information, metrics and targets, and scenario analysis so that investors can validate the extent to which a strategy is likely to help mitigate financially material climate risk.

Companies increasingly publish their climate metrics and targets, and they should also disclose their progress against these goals. It is critically important for regulators to compel issuers to do the hard work of establishing clear metrics and targets for managing climate risks and opportunities. Further, to provide useful, financially material disclosures, issuers must be compelled to disclose progress against these metrics. Without such disclosures, investors will find it harder to judge a company's progress or effort in executing its strategies. Further, without such disclosures, it can be difficult to tell if a company is making necessary capital investments to execute the strategy they have outlined.

Similarly, no matter which standard-setter the SEC chooses for climate risk disclosures, the SEC should also ensure that issuers include scenario analysis, in which they try to project an their revenue under various policy interventions, technological changes, or environmental changes. Such analysis can help investors assess the value at risk in an organization if, for example, regulators introduced a carbon tax, new technology allowed other firms to produce similar products with fewer emissions, or a warming world increased the price of natural resources. Simply put, these analyses show investors under what circumstances value is at risk, and how a company's strategy will move them forward toward long-term profitability and sustainability despite carbon risks. Investors can then evaluate whether, despite a company's current emissions, they have a credible plan for a low-carbon future. Some of this credibility comes from trust in management's governance approach, which we discuss in question 8.

6. *How should any disclosure requirements be updated, improved, augmented, or otherwise changed over time? Should the Commission itself carry out these tasks, or should it adopt or identify criteria for identifying other organization(s) to do so? If the latter, what organization(s) should be responsible for doing so, and what role should the Commission play in governance or funding? Should the Commission designate a climate or ESG disclosure standard-setter? If so, what should the characteristics of such a standard-setter be? Is there an existing climate disclosure standard-setter that the Commission should consider?*

The SEC should designate a standard-setter, but the standard-setter for climate risks need not be the same standard-setter for other ESG disclosures.

Outside of a set of core, comparable scope 1 and scope 2 disclosures, standards, and general principles which we believe the SEC should require for issuers, an outside standard-setter is likely to be able to provide more-current guidance than would the SEC. Even guidance around which scope 3 emissions—much less appropriate scenario analysis—is likely to change over time faster than the Commission can address these changes through notice and comment, necessitating a standard-setter. Guidance on disclosures of scenario analysis, governance, strategy and targets, and metrics disclosures will need to evolve rapidly as companies begin to report them.

The level of international coordination is escalating. The IFRS is conducting exploratory work into a Sustainability Standards Board, endorsed by IOSCO. Five existing standards-setting bodies have announced more formal collaboration. We encourage the SEC to continue to lend its support and expertise to these types of collaborative efforts ahead of developing independent rules.

The Commission should look to align with existing frameworks that already provide guidance in multiple jurisdictions to enhance consistency and reduce reporting burdens. As we noted before, for climate change, the TCFD framework has gained traction as the major, basic framework for climate disclosures. We also expect that this framework will support the work of the IFRS in constructing its disclosure recommendations.

7. *What is the best approach for requiring climate-related disclosures? For example, should any such disclosures be incorporated into existing rules such as Regulation S-K or Regulation S-X, or should a new regulation devoted entirely to climate risks, opportunities, and impacts be promulgated? Should any such disclosures be filed with or furnished to the Commission?*

If the rules were incorporated into regulation S-K (and S-X, should the commission endorse an outside standard-setting organization), then investors would benefit from receiving nonfinancial climate disclosures that were temporally aligned with financial disclosures. We would also encourage the commission to continue to build on the increasingly successful efforts to tag such filings in in-line XBRL, to make the information more digestible and faster to access and compare.

As a practical matter, we believe that scenario analysis to explain how a company anticipates addressing climate risks is critical, and such analysis could fit into the risks discussion on the S-K.

With regard to mutual funds, the commission could consider adding some level of clear and concise sustainability disclosure into the proposed simplified annual reports that show investors' returns, fees, risks, and portfolio holdings. As the industry moves toward a common taxonomy for funds, such a disclosure may help investors easily compare funds by ESG or sustainability strategy, as the commission intends for them to do for other common points of comparison.

8. *How, if at all, should registrants disclose their internal governance and oversight of climate-related issues? For example, what are the advantages and disadvantages of requiring disclosure concerning the connection between executive or employee compensation and climate change risks and impacts?*

Governance and oversight disclosures are critical for investors to properly assess the degree to which an issuer aligns its resources with addressing climate risk. The credibility of disclosures of strategies, scenario analysis, or even the relevance of targets and metrics depends on corporate governance. In particular, we look for details of overarching governance relating to climate-related risks. Issuers with mature sustainability reporting practices will be familiar with such approaches.

As a minimum, companies should disclose to what degree there is board-level oversight and responsibility for mitigating climate risk, as well as other climate risk management activity. Investors also need to understand the degree to which a corporate board has expertise on climate risks, how a company integrates climate risks into their investment planning and strategy, and if the company incentivizes performance by linking compensation to hitting climate-related targets. Regarding compensation relating to climate risk management or carbon performance, we currently see relatively low uptake of this practice. However, to the extent the companies do, or plan to, tie compensation to meeting climate goals, this information would be useful.

9. *What are the advantages and disadvantages of developing a single set of global standards applicable to companies around the world, including registrants under the Commission's rules, versus multiple standard-setters and standards? If there were to be a single standard-setter and set of standards, which one should it be? What are the advantages and disadvantages of establishing a minimum global set of standards as a baseline that individual jurisdictions could build on versus a comprehensive set of standards? If there are multiple standard-setters, how can standards be aligned to enhance comparability and reliability? What should be the interaction between any global standard and Commission requirements? If the Commission were to endorse or incorporate a global standard, what are the advantages and disadvantages of having mandatory compliance?*

Standard disclosures for all would help investors who consider climate risk as part of their process. Setting universal minimum disclosure requirements would help investors across the globe more easily understand issuer risk management practices for most publicly traded companies. Further, such a standard would empower investors to make comparisons across issuers in different jurisdictions and allow for consistent benchmarking, which would in turn lead to a wider understanding of industry and sector performance managing climate risk and

carbon emissions. For issuers, disclosures, a universal reporting requirement would reduce reporting burdens.

10. *How should disclosures under any such standards be enforced or assessed? For example, what are the advantages and disadvantages of making disclosures subject to audit or another form of assurance? If there is an audit or assurance process or requirement, what organization(s) should perform such tasks? What relationship should the Commission or other existing bodies have to such tasks? What assurance framework should the Commission consider requiring or permitting?*

There is already an ecosystem of consultants and traditional accounting firms with the capability to audit and ensure these disclosures. If these standards are not audited, or if there is weak enforcement of ensuring they are accurate, they will not be useful. As we noted, even in cases where we have climate or carbon disclosure, it is often not high-quality. That said, we do not believe that Commission should restrict these functions solely to accounting firms.

11. *Should the Commission consider other measures to ensure the reliability of climate-related disclosures? Should the Commission, for example, consider whether management's annual report on internal control over financial reporting and related requirements should be updated to ensure sufficient analysis of controls around climate reporting? Should the Commission consider requiring a certification by the CEO, CFO, or other corporate officer relating to climate disclosures?*

We believe that it is a best practice for companies to disclose who has responsibility for oversight of carbon and climate disclosures and what role they have at an issuer, but we are not aware of any evidence that requiring CEO attestations or certifications necessarily enhances the quality of disclosures.

12. *What are the advantages and disadvantages of a "comply or explain" framework for climate change that would permit registrants to either comply with, or if they do not comply, explain why they have not complied with the disclosure rules? How should this work? Should "comply or explain" apply to all climate change disclosures or just select ones, and why?*

The "comply or explain" approach has been an important and positive development in ESG disclosure regulations elsewhere. Early regulatory text allowed for disclosure of ESG factors only if relevant, making it difficult for regulators to police disclosure and, more important, for investors to be fully aware of an investment product's credentials and understand more about the extent, if any, of a product's internal and external approaches to sustainable investing.

13. *How should the Commission craft rules that elicit meaningful discussion of the registrant's views on its climate-related risks and opportunities? What are the advantages and disadvantages of requiring disclosed metrics to be accompanied with a sustainability disclosure and analysis section similar to the current Management's Discussion and Analysis of Financial Condition and Results of Operations?*

Please see our answers to questions 2 through 6 as well as 8. To reiterate, we believe the such a discussion accompanied by scenario analysis that is guided by a common framework, such as the TCFD, is enormously helpful alongside key metrics.

14. *What climate-related information is available with respect to private companies, and how should the Commission's rules address private companies' climate disclosures, such as through exempt offerings, or its oversight of certain investment advisers and funds?*

In our 2020 survey of private equity general and limited partners, we found that while private equity is increasingly looking at ESG risks as part of the investment process, the biggest challenge continues to be a lack of clear metrics and a lack of clear data on ESG for private companies, which is not surprising. For the complete survey results, please see the fourth attachment, "Pitchbook Sustainable Investing Survey 2020."

15. *In addition to climate-related disclosure, the staff is evaluating a range of disclosure issues under the heading of environmental, social, and governance, or ESG, matters. Should climate-related requirements be one component of a broader ESG disclosure framework? How should the Commission craft climate-related disclosure requirements that would complement a broader ESG disclosure standard? How do climate-related disclosure issues relate to the broader spectrum of ESG disclosure issues?*

Climate-related requirements should be one component of a broader set of ESG disclosures. Sustainalytics looks at more than 100 other disclosures and metrics to address issues across various material ESG issues outside of climate. For more details on our views on the value of additional regulations, please see the attached paper, "Corporate Sustainability Disclosures: An Improving Picture, but Regulation Would Induce a More-Complete and Comparable Baseline of Material Information for Investors."

Environmental, social, and governance factors are increasingly a core investment theme for a growing number of mutual funds, and now play a role in the investment process of many other funds. Through societal issues, investors' awareness of, and desire to consider ESG issues in their investments, is likewise growing. A broader level of ESG disclosures will become increasingly important to minimize the risks of greenwashing and to put measures around the stated ESG ambitions of mutual funds.

To conclude, we are pleased the SEC is rexamining climate, carbon and other sustainability disclosures, and we thank you for the opportunity to comment.

Very truly yours,

Aron Szapiro
Head of Policy Research

Morningstar, Inc.

CC:

Honorable Hester M. Peirce, Commissioner
Honorable Elad L. Roisman, Commissioner
Honorable Allison Herren Lee, Commissioner
Honorable Caroline A. Crenshaw, Commissioner

Sustainable Funds U.S. Landscape Report

More funds, more flows, and impressive returns in 2020.

Morningstar Manager Research
10 February 2021

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Introduction

The turbulent events of 2020—the global coronavirus pandemic, continued weather extremes, the movement for racial justice in the United States, and the U.S. presidential election—underscored the salience of sustainability concerns to investment managers and strengthened the rationale for end investors to invest in a sustainable way. Indeed, investors are embracing sustainable investments more than ever. A study released in November estimated that 1 in 3 dollars of overall assets under management in the U.S. is now subject to some type of sustainable investment strategy.[1]

What does that mean, exactly? Sustainable investing generally refers to the full consideration of environmental, social, and corporate governance, or ESG, concerns within an investment strategy, both to enhance investment performance and contribute to better societal outcomes. The basic consideration of ESG issues to enhance investment performance has also become widespread even among traditional investment managers, who are beginning to recognize the materiality of ESG risks and opportunities in security selection.

Sustainable investing has become increasingly relevant because of the climate crisis and the growing criticism of the shareholder-primacy view of the corporation. Global warming clearly poses significant investment and societal risks. Corporate short-termism and its focus on shareholder value have made it difficult to address these risks in a timely manner. The COVID-19 pandemic has underscored the need for corporations to focus on other stakeholders, especially workers. Sustainable investment supports the transition to a net-zero economy and to a stakeholder model that can create more value for shareholders, people, and the planet over the long run.

Mutual funds represent the most direct way for investors to invest sustainably. In the past five years, a considerable number of funds focused on sustainable investing have launched and many have built impressive track records. This report is intended to help asset managers, advisors and intermediaries, and end investors navigate this increasingly important investment area.

1 Report on US Sustainable and Impact Investing Trends, US SIF Foundation, 2020. https://www.ussif.org/trends

Key Takeaways

- The number of sustainable open-end and exchange-traded funds available to U.S. investors increased to 392 in 2020, up 30% from 2019. The group has experienced a nearly fourfold increase over the past 10 years, with significant growth beginning in 2015.
- In 2020, 71 sustainable funds were launched, easily topping the previous high-water mark of 44 set in 2017. At least 30 funds have been launched each year from 2016 to 2020.
- Twenty-five existing funds were repurposed as sustainable funds in 2020. Sixty-nine funds have been repurposed since 2013. The 67 still alive represent about 17% of the overall group.
- Sustainable funds attracted a record $51.1 billion in net flows in 2020, more than twice the previous record set in 2019. Sustainable fund flows accounted for nearly one fourth of overall flows into funds in the U.S.
- Passive funds, ETFs, and iShares dominated sustainable fund flows in 2020.
- Sustainable funds, on average, outperformed conventional funds and indexes in 2020.
- Sustainable funds tend to have lower ESG risk and lower carbon risk in their portfolios than conventional funds. They also vote in favor of key ESG shareholder resolutions more often, but sustainable fund support of such measures varies widely.

The Sustainable Funds Universe

Nearly 400 open-end and exchange-traded sustainable funds were available to U.S. investors as of the end of 2020. Not so long ago, identifying such a group was a much easier task — not all that many such funds existed, new launches were few and therefore easy to monitor, and one could be fairly certain that traditional funds did not include ESG considerations in their investment process. None of those are true any longer. Every year since 2015, dozens of new sustainable funds have been launched, many existing funds have been repurposed as sustainable funds, and hundreds more funds now consider ESG to some degree in their investment process.

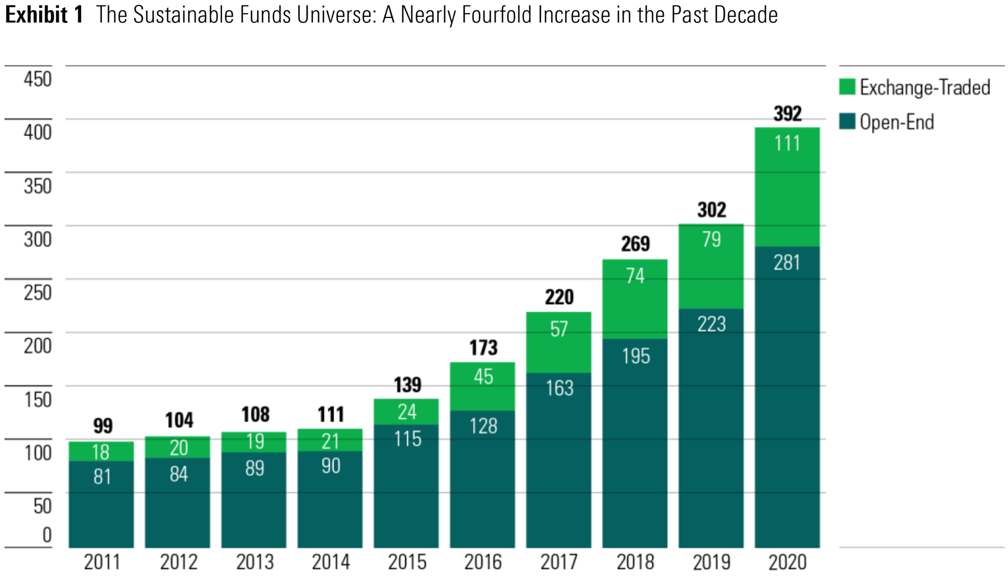
For a fund to be included in the sustainable funds universe, it must hold itself out to be a sustainable investment. In other words, ESG concerns must be central to its investment process and the fund's intent should be apparent from a simple reading of its prospectus. In particular, the Principal Investment Strategies section of the fund's prospectus should contain enough detail to leave no doubt that ESG concerns figure prominently in the fund's investment process. While many funds now mention ESG briefly somewhere in their prospectus, often in a less-prominent "Additional Information" section, those included in the sustainable funds universe make their commitment clear and prominent. For the occasional borderline cases, we further consulted fund reports, websites, pitchbooks, or spoke directly with portfolio managers to confirm a fund's commitment to being a sustainable investment.[2]

At the end of 2020, the group of sustainable open-end funds and ETFs available to U.S. investors numbered 392, up 30% from 2019.[3] The group has experienced a nearly fourfold increase over the past 10 years, with significant growth beginning in 2015.

2 To identify sustainable funds, we searched Morningstar Direct, as follows: 1. Open-End Funds and ETFs universe 2. Domicile = U.S. 3. Sustainable Investment Overall = Yes. 4. Oldest share class = Yes. From this list, we eliminated funds that are used in variable insurance/annuity accounts, and those that did not pass our prospectus review.

3 Last year's report included 303 funds. 14 have since been liquidated and 2 others dropped. 76 funds have been added that launched in 2020 or too late in 2019 to be included in last year's report. 29 funds have been added that repurposed in 2020 or too late in 2019 to be included in last year's report.

Exhibit 1 The Sustainable Funds Universe: A Nearly Fourfold Increase in the Past Decade



Source: Morningstar Direct. Data as of 12/31/2020. Note: Includes funds that have been liquidated during this period.

The list of sustainable funds does not include the many funds that now say they consider ESG but have not made it a central feature of their investment strategy. Just two years ago, it was uncommon to find any reference to ESG in the offering documents of traditional funds. Not anymore. Many funds now indicate in their prospectuses that they may consider ESG factors at some point in their investment process.[4] This trend will likely continue, given the ESG commitments most asset managers are making. In 2020, Morningstar's manager research team initiated discussions with asset managers about the ESG commitment level of funds under Morningstar analyst coverage. In their first wave of ESG commitment level assessments, Morningstar analysts found that virtually all asset managers have incorporated ESG to some degree, or have plans to do so, across their investment strategies. In many cases, however, those firm-level commitments have yet to make a significant impact at the fund level.[5] While these commitments are not intended to result in traditional funds becoming intentional offerings that would qualify for our universe of sustainable funds, they are significant as a reflection of the degree to which asset managers are incorporating ESG. We expect that virtually all funds will soon be routinely explaining in their prospectuses the role ESG plays in their investment process, regardless of how central it is.

Sustainable funds are not all alike. Most are diversified funds that invest in the asset classes and sub-asset classes to which most investors typically have exposures and, therefore, can be used in lieu of standard strategies in investor portfolios. Diversified sustainable funds broadly integrate ESG concerns throughout their security-selection and portfolio-construction process. From there, the specifics vary. For example, some strategies may focus on avoiding the worst ESG performers, some on emphasizing ESG

4 In last year's report, we identified 564 funds that made references to ESG consideration in their prospectus. See Sustainable Funds U.S. Landscape Report, Morningstar Research; Feb. 14, 2020, p. 6.

5 The Morningstar ESG Commitment Level, Morningstar Research, Nov. 17, 2020. https://www.morningstar.com/content/dam/marketing/shared/pdfs/Research/ESG_Commitment_Level_White_Paper_2020.pdf

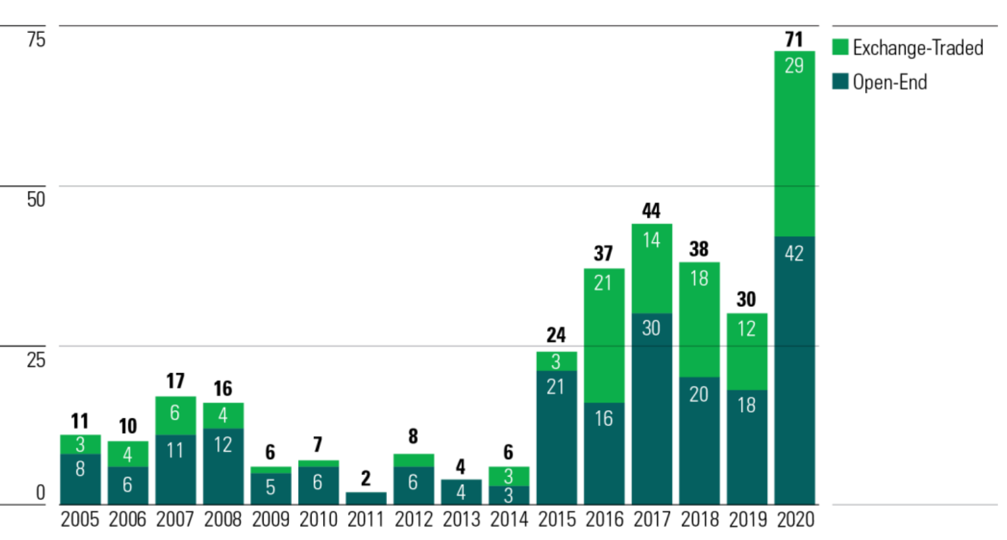
leaders, with others falling somewhere between. Some funds take a more-thematic approach, seeking investments that will benefit from adopting more-sustainable business models and from the transition to a just, low-carbon economy. Some funds employ outright exclusions on, for example, coal, all fossil fuel, tobacco, or weapons. Increasingly, sustainable funds are applying an impact lens to their portfolios, evaluating the impact of the companies whose stock they hold, the use of proceeds of the bonds they hold, and their own stewardship activities. Any given sustainable fund may employ several of these approaches.

Sustainable sector funds, by contrast, are those with portfolios focused on "green economy" industries like renewable energy, energy efficiency, environmental services, water, infrastructure, and green real estate. Green economy companies can be found across a variety of conventionally defined sectors, and, according to one estimate, they constitute 5% of global market cap.[6] Sector funds compose 44 of the 392 funds in our universe.

New Funds in 2020

Sustainable fund launches continued a multiyear growth trend that began in 2015 when 24 new funds were launched, a record at the time. At least 30 funds have been launched each year since. In 2020, the 71 new funds that were launched easily topped the previous high-water mark of 44 set in 2017.

Exhibit 2 Sustainable Fund Launches: A Multiyear Growth Trend



Source: Morningstar Direct. Data as of 12/31/2020. Note: 40 open-end funds in the report were launched between 1971 and 2004. The earliest ETF launch was in 2005. Includes 20 funds that subsequently have liquidated. Does not include original launches of funds that have subsequently repurposed.

6 Investing in the Green Economy: Sizing the Opportunity, Index Insights FTSE Russell, December 2020. https://content.ftserussell.com/sites/default/files/investing_in_the_green_economy___sizing_the_opportunity_final_0.pdf?_ga=2.164368063.1805070898.1612718017-1135872474.1610479360

Of the 71 newly launched funds, 42 are open-end funds and 29 are ETFs. The open-end total is somewhat inflated because it includes the 11 funds in the BlackRock LifePath ESG Index target-date series; these funds also employ ETFs as their underlying holdings.

We also consider target-date funds to be actively managed because asset-allocation and glide path decisions are made by portfolio managers even when their underlying holdings are index funds, as is also the case with the new BlackRock target-date series. Including those 11 target-date funds, 50 of the newly launched sustainable funds are actively managed, including eight ETFs.

Nearly half of new launches are U.S. or international equity funds. The ranks of sustainable sector and fixed-income funds increased by nine and 10, respectively. The 71 new funds were placed in 38 different Morningstar Categories.

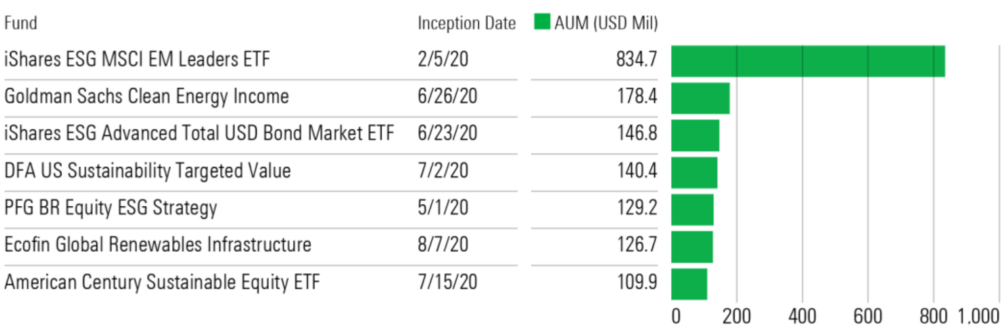
Exhibit 3 Sustainable Fund Launches in 2020 by Category Group

Category Group	Total	Open-End	ETF	Active	Passive
US Large-Cap	**14**	3	11	7	7
US S/Mid-Cap	**4**	1	3	2	2
World Stock	**4**	4	0	4	0
International Equity	**6**	5	1	5	1
Emerging-Mkts Equity	**6**	3	3	3	3
Sustainable Sector	**9**	6	3	8	1
Taxable Bond	**9**	6	3	6	3
Muni Bond	**1**	1	0	1	0
Allocation	**18**	13	5	14	4
Total	**71**	**42**	**29**	**50**	**21**

Source: Morningstar Direct. Data as of 12/31/2020.

Seven of 2020's new sustainable funds already had assets of more than $100 million at year-end. Leading the way is iShares ESG MSCI Emerging Markets Leaders ETF LDEM. Launched in February, the fund had $835 million in assets at year-end, far more than any other fund in the class of 2020. Two sustainable sector funds are on the list, Goldman Sachs Clean Energy Income GCEDX and Ecofin Global Renewables Infrastructure ECOIX, helped by the strong performance of renewable energy stocks during the year.

Exhibit 4 Sustainable Funds Launched in 2020 with Assets Greater than $100 Million



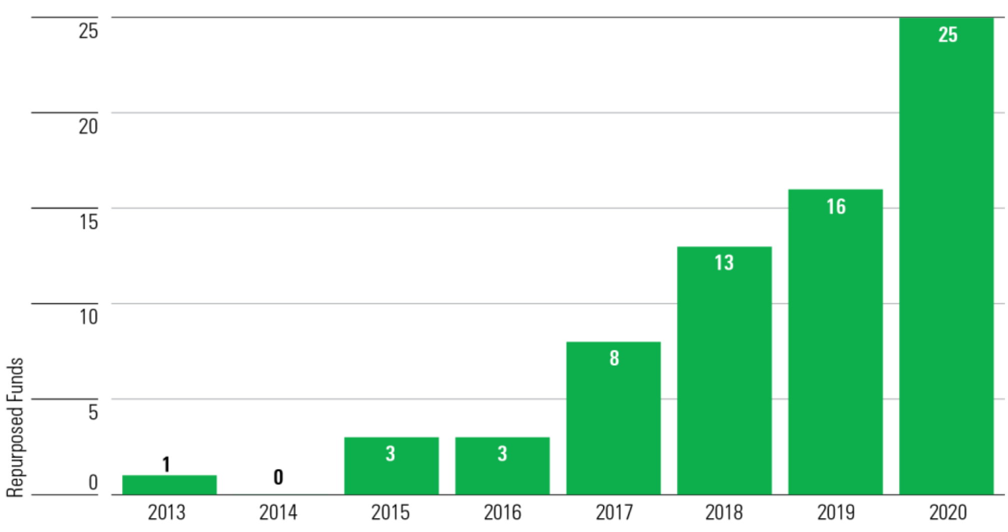
Fund	Inception Date	AUM (USD Mil)
iShares ESG MSCI EM Leaders ETF	2/5/20	834.7
Goldman Sachs Clean Energy Income	6/26/20	178.4
iShares ESG Advanced Total USD Bond Market ETF	6/23/20	146.8
DFA US Sustainability Targeted Value	7/2/20	140.4
PFG BR Equity ESG Strategy	5/1/20	129.2
Ecofin Global Renewables Infrastructure	8/7/20	126.7
American Century Sustainable Equity ETF	7/15/20	109.9

Source: Morningstar Direct. Data as of 12/31/2020.

Repurposed Funds in 2020

Repurposed funds continued to add to the growth of the sustainable funds universe. Last year, 25 existing funds changed their investment strategies to become sustainable funds. In most cases, these funds also changed their names to reflect their repurposing. That brings the total of repurposed funds in the current sustainable funds universe to 64, representing about 16% of the overall group. Repurposing funds is a way for asset managers to build their sustainable assets under management without having to start new funds from scratch and wait for them to reach scale. Many fund lineups include actively managed funds that are at scale but experiencing chronic outflows. As assets naturally roll off over time, it is hard for these funds to make up for the outflows with new assets now that investors largely favor passive funds. But because of growing investor interest in sustainable funds, retooling an active fund into an active sustainable fund is an attractive option for some asset managers.

Exhibit 5 More Existing Funds Are Repurposing as Sustainable



Source: Morningstar Direct. Data as of 12/31/2020.

Exhibit 6 Five Largest Funds Repurposed as Sustainable in 2020

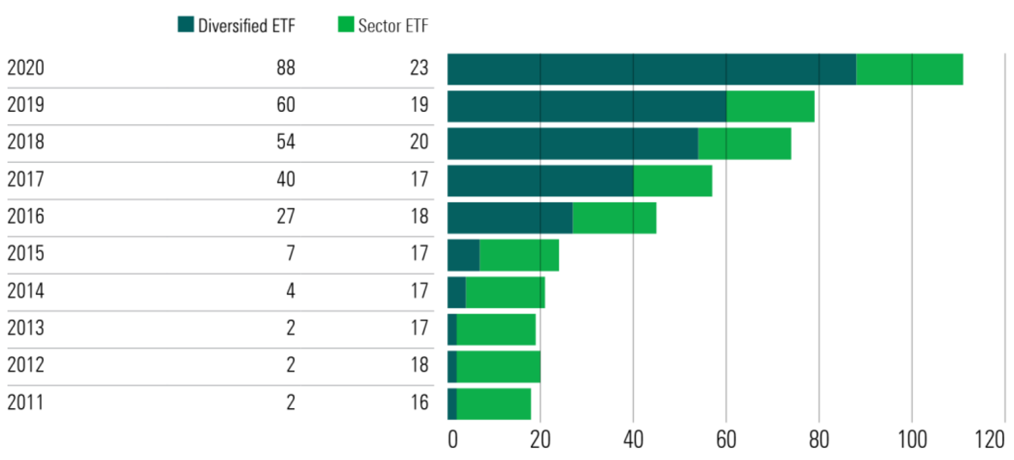
Name	Date of ESG Adoption	Original Name	Inception Date	Assets (USD Mil)
Invesco Floating Rate ESG	8/4/20	Invesco Floating Rate	5/1/97	1,578
USAA Sustainable World	10/1/20	USAA World Growth	10/1/92	1,438
Nuveen Winslow Large-Cap Growth ESG	2/3/20	Winslow Large-Cap Growth	5/15/09	762
Boston Trust Asset Management	5/1/20	Same	12/1/95	597
Transamerica Sustainable Equity Income	12/1/20	Transamerica Dividend Income	1/4/13	550

Source: Source: Morningstar Direct. Data as of 12/31/20. Note: The date of ESG adoption for all repurposed funds can be found in the Appendix.

ETF/Open-End

The number of sustainable ETFs has grown considerably over the past five years and now stands at 111. At the end of 2015, only 24 ETFs existed and 17 of them were sustainable-sector funds. The subsequent growth in the number of ETFs has been dominated by diversified funds. At the end of 2020, 88 ETFs were diversified funds and 23 were sector funds.

Exhibit 7 The Rise of Diversified ETFs



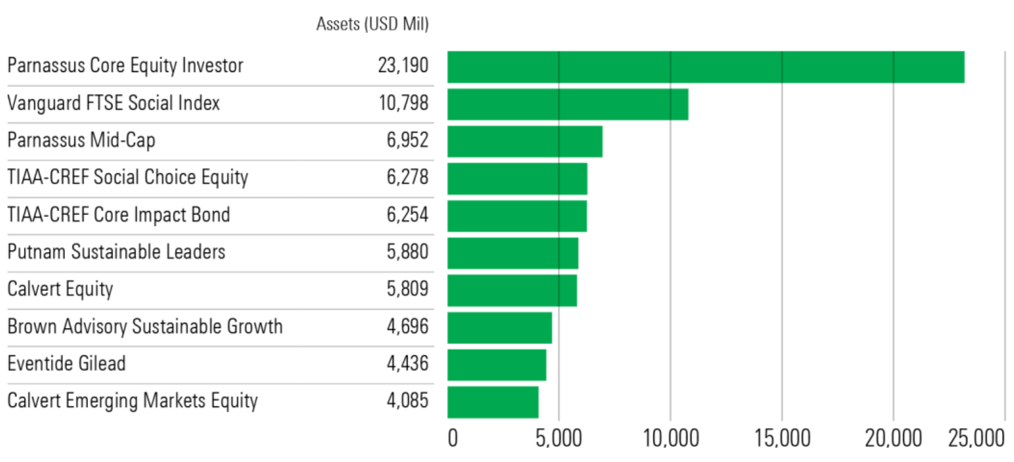
Source: Morningstar Direct. Data as of 12/31/2020.

The number of open-end sustainable funds has also continued to increase, albeit at a lower rate than ETFs. The open-end group has grown to 281 funds from 115 at the end of 2015 (see Exhibit 1). Open-end funds command 71% of sustainable-fund assets.

The largest open-end funds tend to be older and actively managed. Among the 10 largest, Vanguard FTSE Social Index VFTNX is the only passive fund. Because these funds have good longer-term performance records, they continue to attract assets in today's more-competitive environment. Putnam Sustainable Leaders PNOPX is an exception. Formerly Putnam Multi-Cap Growth, the fund built its large

asset base prior to its March 2018 repurposing. It was already experiencing outflows at that time and they have continued so far.

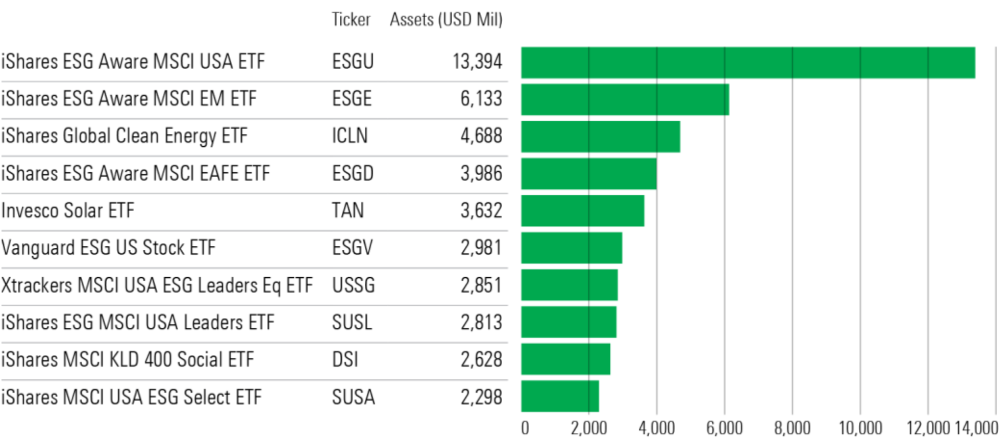
Exhibit 8 10 Largest Sustainable Open-End Funds



Source: Morningstar Direct. Data as of 12/31/2020.

The largest sustainable ETFs tend to be younger and all are passively managed. The list also reflects iShares' recent dominance of sustainable ETF flows. Seven of the 10 largest ETFs are iShares funds.

Exhibit 9 10 Largest Sustainable ETFs

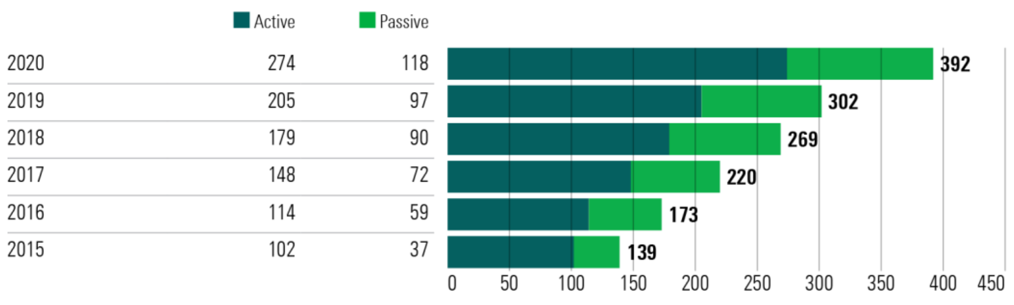


Source: Morningstar Direct. Data as of 12/31/2020.

Active/Passive

Correlated with the growth in ETFs, the number of passive funds has also been growing over the past five years. Nearly all that growth is in diversified passive funds, as opposed to sector-focused funds. Between 2015 and 2020, the number of diversified passive funds increased to 91 from 20. Actively managed funds hold 62% of sustainable-fund assets.

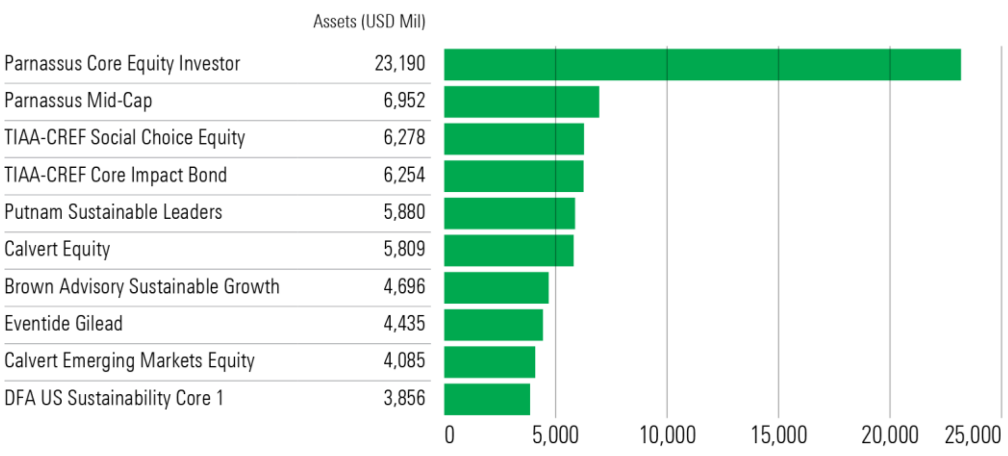
Exhibit 10 Growth of Active and Passive Funds Since 2015



Source: Morningstar Direct. Data as of 12/31/2020.

Considerable overlap exists between the 10 largest open-end funds and the 10 largest active funds, and between the 10 largest ETFs and the 10 largest passive funds.

Exhibit 11 10 Largest Actively Managed Sustainable Funds



Source: Morningstar Direct. Data as of 12/31/2020.

Exhibit 12 10 Largest Passive Sustainable Funds

Fund	Assets (USD Mil)
iShares ESG Aware MSCI USA ETF	13,394
Vanguard FTSE Social Index	10,798
iShares ESG Aware MSCI EM ETF	6,133
iShares Global Clean Energy ETF	4,688
iShares ESG Aware MSCI EAFE ETF	3,986
Invesco Solar ETF	3,632
Calvert US Large Cap Core Responsible Index	3,591
Vanguard ESG US Stock ETF	2,981
Xtrackers MSCI USA ESG Leaders Eq ETF	2,851
iShares ESG MSCI USA Leaders ETF	2,813

0 5,000 10,000 15,000

Source: Morningstar Direct. Data as of 12/31/2020.

Asset Class and Category Coverage

Of the 392 sustainable funds, 269 are equity funds, 74 are fixed-income funds, and 47 are allocation funds. Investors have the most choices in U.S. equity, with 134 funds. Another 99 funds are either world-stock or international-equity funds. Among fixed-income funds, 26 are intermediate-term funds. Overall, investors can find sustainable funds in 65 Morningstar Categories.

Exhibit 13 Sustainable Funds by Asset Class

	Active	Passive
U.S. Equity	86	48
Non-U.S. Equity*	68	31
Sector Equity	16	20
Taxable Bond	49	15
Municipal Bond	10	0
Allocation	43	4
Alternative	2	0

0 25 50 75 100 125 150

Source: Morningstar Direct. Data as of 12/31/2010. *Includes global funds.

As the sustainable fund universe has grown, particularly in fixed-income, investors now have enough choices to construct comprehensive portfolios. Model portfolios using underlying ESG funds are now widely available.

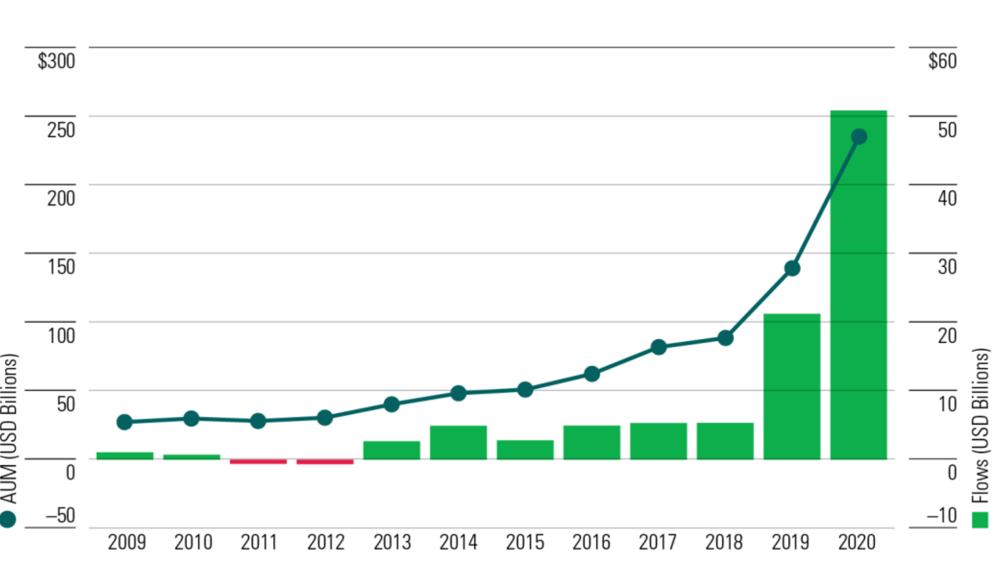
Because the ongoing growth in the number of sustainable funds began only in 2015, however, many funds lack long enough track records or have large enough asset bases to meet the selection criteria

commonly employed by many intermediaries. Among the 392 sustainable funds, 211 (54%) have three-year track records and 133 (34%) have five-year track records. In terms of assets, 240 (61%) have assets of at least $50 million. Of those with less than $50 million in assets, 90% are less than five years old. Track records and assets may be of greater concern when considering actively managed funds. Many of the funds with shorter track records are passive funds that mimic reputable ESG indexes run by established providers like MSCI and FTSE.

Sustainable Fund Flows

Sustainable funds are more attractive than ever for U.S. fund investors. For the fifth calendar year in a row, sustainable funds set an annual record for net flows in 2020. And since the fourth quarter of 2019, assets have reached far higher levels. In 2016, 2017, and 2018, annual flows hovered around $5 billion per year, with modest increases each year. Then in 2019, flows increased fourfold to $21.4 billion, with $7 billion of that coming in the fourth quarter. That record was promptly and easily eclipsed in 2020, as flows reached $51.1 billion, with $20.5 billion of that coming in the fourth quarter.

Exhibit 14 Sustainable Funds Annual Flows and Assets



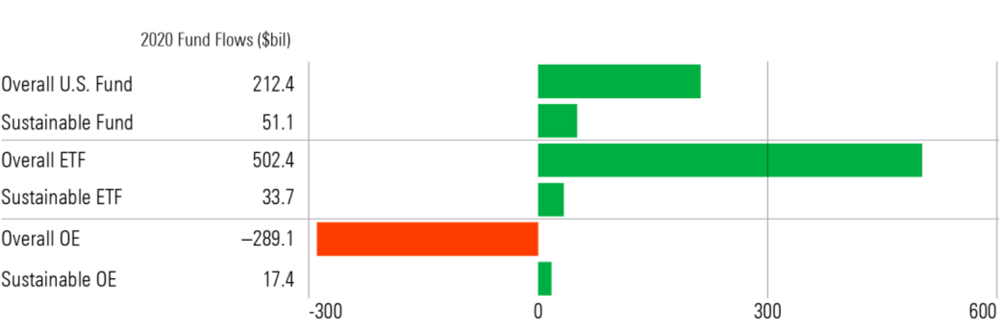
Source: Morningstar. Data as of 12/31/2020. Includes funds that have been liquidated; does not include funds of funds.

Exhibit 15 Sustainable Funds Quarterly Flows

Source: Morningstar. Data as of 12/31/2020. Includes funds that have been liquidated; does not include funds of funds.

Sustainable fund flows constituted nearly one fourth of overall net flows into stock and bond mutual funds in the U.S. in 2020. It was not so long ago that sustainable fund flows failed to register above 1% of overall fund flows. Sustainable ETFs attracted about 7% of overall ETF flows for the year. But while investors pulled $289 billion out of open-end funds, sustainable open-end funds attracted $17.4 billion. Investors overall pulled money out of U.S. equity, sector-equity, international-equity, and allocation funds, but added money to sustainable funds in each of those category groups.

Exhibit 16 Sustainable Fund Flows Relative to Overall Fund Flows



Source: Morningstar Direct. Data as of 12/31/2020.

Exhibit 17 Sustainable Fund Flows by Fund Type, 2020

	2020 (USD Mil)
Total	**51,146.6**
ETF	33,695.7
Open End	17,451.0
Active	14,402.9
Passive	36,743.7
Equity	**44,532.8**
Fixed-Income	6,381.7
Allocation	232.2
U.S. Equity	**23,729.0**
Passive	18,993.6
Active	4,735.4
Institutional Equity	**12,523.4**
Passive	8,330.7
Active	4,192.7
Sector Equity	8,280.4
Taxable Fixed-Income	5,816.6
Muni Bond	565.1

Source: Morningstar Direct. Data as of 12/31/2020.

ETF Flows

ETF flows exceeded open-end flows among sustainable funds for the first time in 2020, attracting about two out of every three dollars invested. The $33.7 billion in ETF flows was almost four times more than in 2019 and 15 times more than in 2018. Prior to 2016, sustainable ETFs were few in number and most were sector funds. Since then, the number of diversified ETFs has expanded dramatically, and flows have followed. In 2020, sector funds focused on renewable energy also attracted strong flows on the back of strong performance from renewables stocks.

Exhibit 18 Sustainable Fund Flows: ETFs Dominated in 2020

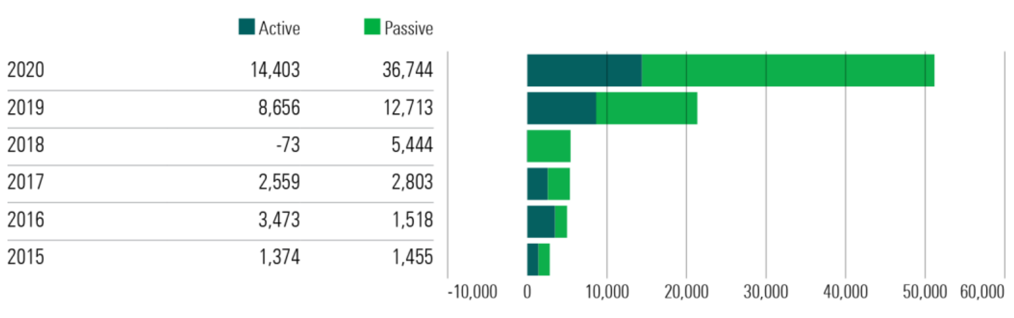
	Open-End	ETF
2020	17,451	33,696
2019	12,847	8,522
2018	3,146	2,225
2017	4,187	1,175
2016	3,896	1,096
2015	2,695	134

Source: Morningstar Direct. Data as of 12/31/2020.

Passive Flows

ETF flows benefited from continued investor preference for passive funds. Among sustainable funds, 2020 marked the fourth consecutive year that passive fund flows outpaced those of actively managed funds. Helped also by several large open-end index funds, passive funds attracted 72% of sustainable fund flows.

Exhibit 19 Sustainable Fund Flows: The Shift to Passive Funds Continued in 2020



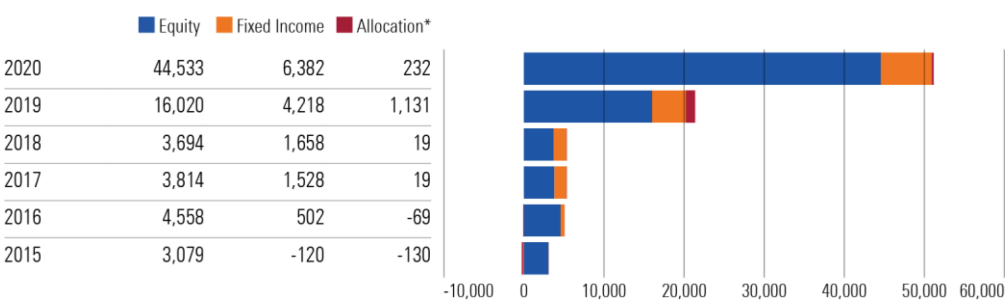
	Active	Passive
2020	14,403	36,744
2019	8,656	12,713
2018	-73	5,444
2017	2,559	2,803
2016	3,473	1,518
2015	1,374	1,455

Source: Morningstar Direct. Data as of 12/31/2020.

Fixed-Income Fund Flows

Equity funds have always commanded the lion's share of flows into sustainable funds and 2020 was no exception. Equity funds attracted 87% of overall flows last year, a higher percentage than in any of the previous three years. While equity flows continue to dominate, flows into sustainable fixed-income funds totaled a record $6.4 billion in 2020, representing about 13% of overall flows. The number of fixed-income sustainable funds has increased substantially since 2015, to 74 from 20. More fixed-income choices help model builders fill their bond allocations, making ESG models more viable and ultimately helping drive more flows.

Exhibit 20 Sustainable Fund Flows: Equity Dominates, but Fixed Income Growing



	Equity	Fixed Income	Allocation*
2020	44,533	6,382	232
2019	16,020	4,218	1,131
2018	3,694	1,658	19
2017	3,814	1,528	19
2016	4,558	502	-69
2015	3,079	-120	-130

Source: Morningstar Direct. Data as of 12/31/2020. *Excludes funds of funds.

Largest Fund Flows

For the year, 11 sustainable funds attracted net flows greater than $1 billion. Three of the top four spots were taken by iShares ESG Aware ETFs, which BlackRock uses in various ESG-aware model portfolios. In the top spot was the fund with the biggest allocation in those portfolios, iShares ESG Aware MSCI USA ETF ESGU, which amassed $9.6 billion during 2020. Four of the funds with $1 billion in flows focus on renewable energy, which was one of the best-performing parts of global equity markets for the year. The others were two passive Vanguard funds and two actively managed funds, one equity and one fixed-income: Brown Advisory Sustainable Growth BIAWX and TIAA-CREF Core Impact Bond TSBHX.

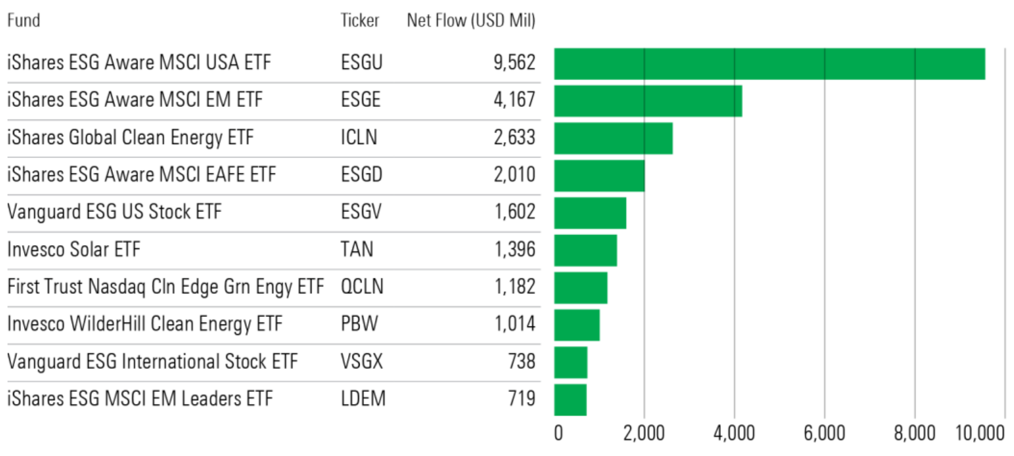
Exhibit 21 Sustainable Funds with at Least $1 Billion in Flows

Fund	Net Flow (USD Mil)
iShares ESG Aware MSCI USA ETF	9,562
iShares ESG Aware MSCI EM ETF	4,167
iShares Global Clean Energy ETF	2,633
iShares ESG Aware MSCI EAFE ETF	2,010
Brown Advisory Sustainable Growth	1,672
Vanguard ESG US Stock ETF	1,602
Vanguard FTSE Social Index	1,416
Invesco Solar ETF	1,396
TIAA-CREF Core Impact Bond	1,272
First Tr. Nasdaq Clean Edge Green Energy ETF	1,182
Invesco WilderHill Clean Energy ETF	1,014

Source: Morningstar Direct. Data as of 12/31/2020.

Among ETFs, five iShares funds ranked in the top 10. Four funds focused on renewable energy also cracked the top 10.

Exhibit 22 Sustainable ETFs with Largest Flows in 2020

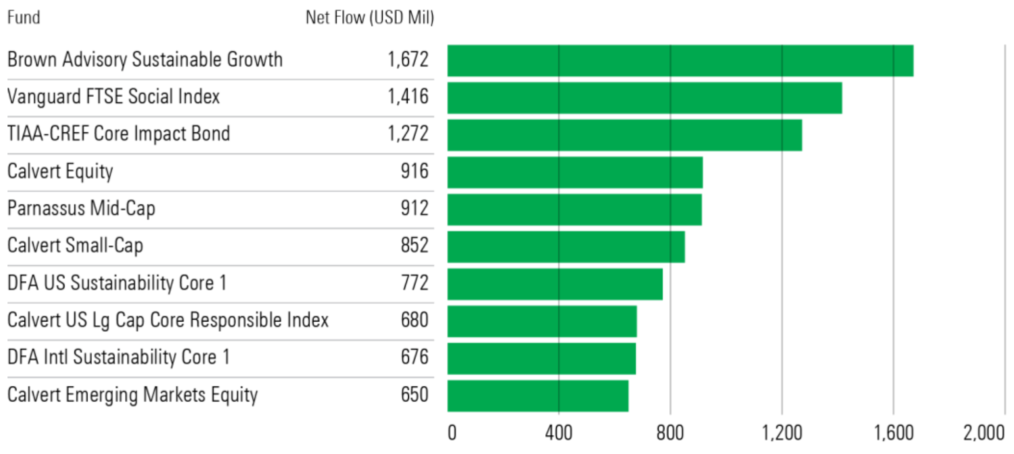


Fund	Ticker	Net Flow (USD Mil)
iShares ESG Aware MSCI USA ETF	ESGU	9,562
iShares ESG Aware MSCI EM ETF	ESGE	4,167
iShares Global Clean Energy ETF	ICLN	2,633
iShares ESG Aware MSCI EAFE ETF	ESGD	2,010
Vanguard ESG US Stock ETF	ESGV	1,602
Invesco Solar ETF	TAN	1,396
First Trust Nasdaq Cln Edge Grn Engy ETF	QCLN	1,182
Invesco WilderHill Clean Energy ETF	PBW	1,014
Vanguard ESG International Stock ETF	VSGX	738
iShares ESG MSCI EM Leaders ETF	LDEM	719

Source: Morningstar Direct. Data as of 12/31/2020.

Among open-end funds with the most flows were two index funds—Vanguard FTSE Social Index and Calvert US Large Cap Core Responsible Index CISIX—and two enhanced index funds from Dimensional. The six actively managed funds included one fixed-income fund, TIAA-CREF Core Impact Bond TSBRX. Notably, the top 10 contained a diverse range of equity funds: U.S. large-cap, mid-cap, and small-cap funds, and international large-cap and emerging-markets funds.

Exhibit 23 Sustainable Open-End Funds with Largest Flows in 2020

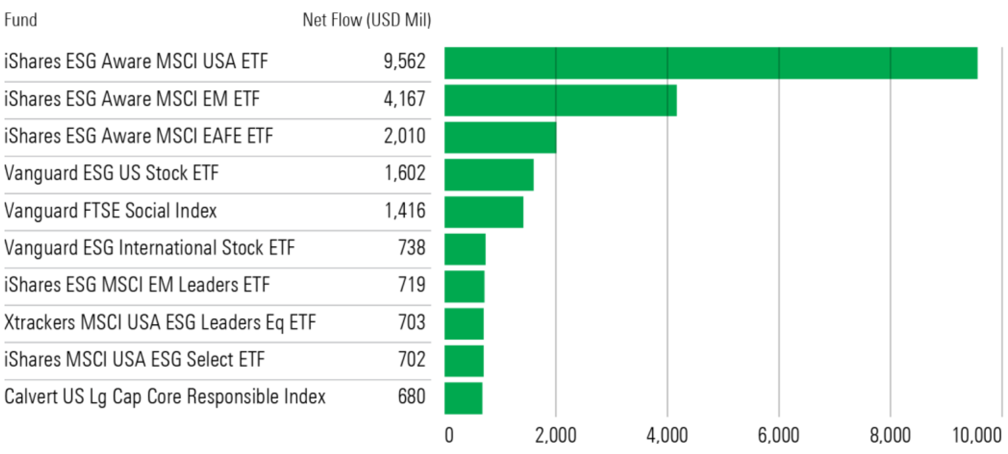


Fund	Net Flow (USD Mil)
Brown Advisory Sustainable Growth	1,672
Vanguard FTSE Social Index	1,416
TIAA-CREF Core Impact Bond	1,272
Calvert Equity	916
Parnassus Mid-Cap	912
Calvert Small-Cap	852
DFA US Sustainability Core 1	772
Calvert US Lg Cap Core Responsible Index	680
DFA Intl Sustainability Core 1	676
Calvert Emerging Markets Equity	650

Source: Morningstar Direct. Data as of 12/31/2020.

Among diversified passive funds, iShares ESG Aware funds took the top three spots, followed by three Vanguard funds (two ETFs, and one open-end fund). Eight of the top 10 are ETFs.

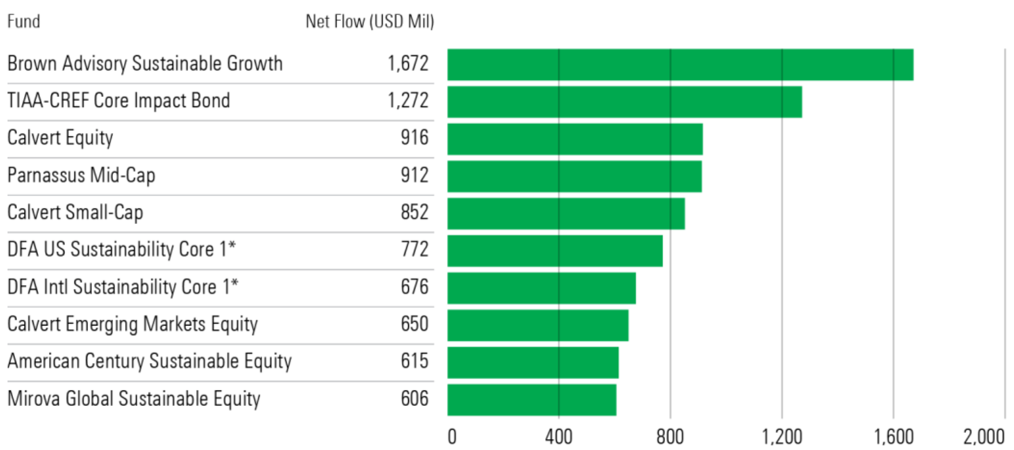
Exhibit 24 Sustainable Diversified Passive Funds with Largest Flows



Source: Morningstar Direct. Data as of 12/31/2020.

Brown Advisory Sustainable Growth set the pace for active fund flows. TIAA-CREF Core Impact Bond is the only bond fund in the top 10.

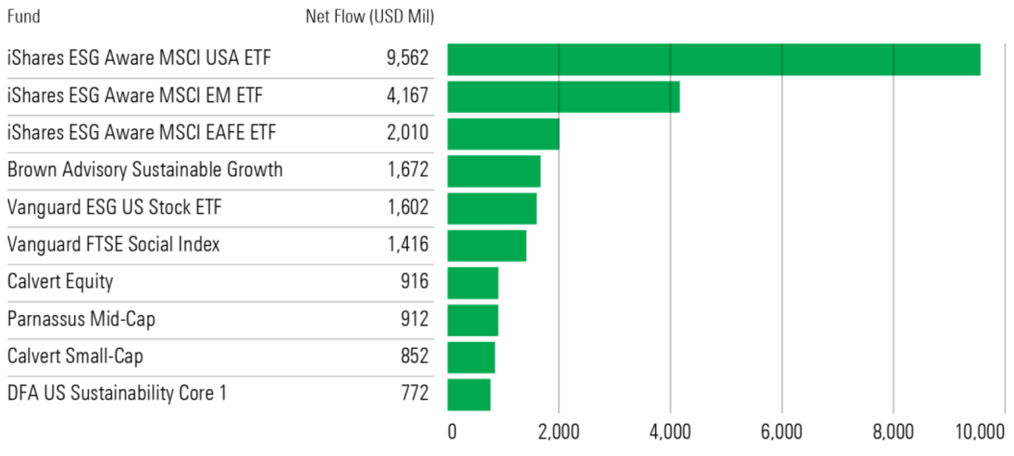
Exhibit 25 Sustainable Actively Managed Funds with Largest Flows



Source: Morningstar Direct. Data as of 12/31/2020. *Enhanced index funds.

The three iShares ESG Aware portfolios topped the list of diversified equity fund flows. Open-end funds grabbed six of the top 10 spots.

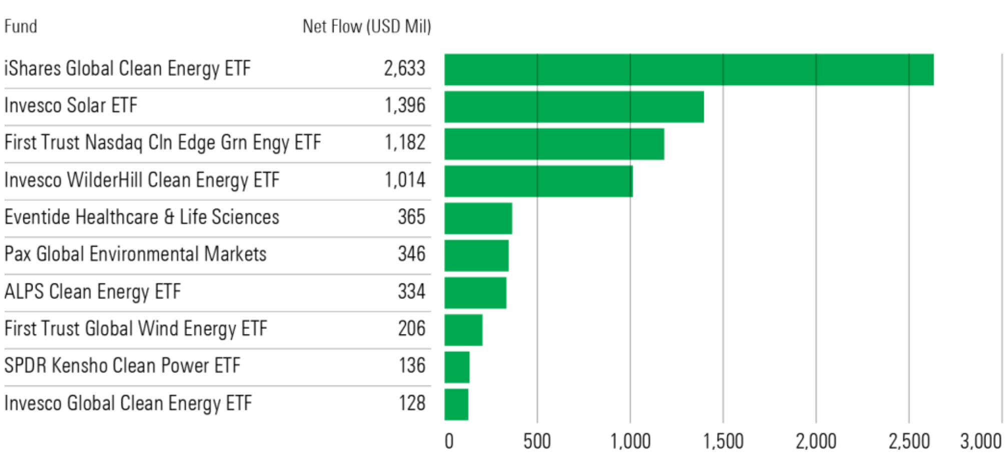
Exhibit 26 Sustainable Diversified Equity Funds with Largest Flows



Source: Morningstar Direct. Data as of 12/31/2020.

It was a big year for flows into sustainable sector funds, particularly funds focused on renewable energy stocks, which posted big returns for the year. The top four funds on the list had returns of at least 141% in 2020. Invesco Solar ETF TAN posted a 233% return.

Exhibit 27 Sustainable Sector Funds with Largest Flows



Source: Morningstar Direct. Data as of 12/31/2020.

The fixed-income fund list is led by TIAA-CREF Core Impact Bond, which attracted twice the flows of any other sustainable bond fund. Three iShares ESG bond funds are also on the list, having started to gain traction with investors this year. In the tenth spot is Calvert Responsible Municipal Income CTTIX, one of 10 muni funds that now have sustainability mandates.

Exhibit 28 Fixed-Income Funds with Largest Flows

Fund	Net Flow (USD Mil)
TIAA-CREF Core Impact Bond	1,272
iShares ESG USD Corporate Bond ETF	612
iShares ESG U.S. Aggregate Bond ETF	573
CRA Qualified Investment	457
Pimco Total Return ESG	395
iShares ESG 1-5 Year USD Corp Bd ETF	339
Calvert Green Bond	310
DFA Global Sustainability Fixed Income	228
Calvert Bond	214
Calvert Responsible Municipal Income	177

Source: Morningstar Direct. Data as of 12/31/2020.

Not all sustainable funds enjoyed inflows in 2020; 88 funds experienced outflows. For the most part, however, outflows were modest: Among the 88 funds with outflows, half of the funds had outflows of less than $10 million. The funds with the largest outflows are all actively managed. Several—Amana Growth AMAGX, Amana Income AMANX, Neuberger Berman Sustainable Equity NBSRX, and Parnassus Endeavor PARWX—have large asset bases built over a decade ago. As they experience natural outflows from seasoned assets, they find it harder in the current more-competitive setting to replace them. Similarly, Nuveen Winslow Large-Cap Growth ESG NVLIX and Putnam Sustainable Leaders are recently repurposed funds that may be seeing older shareholders leaving because they are not interested in the funds' new sustainability focus. Calvert Ultra-Short Duration Income's CULAX outflows are likely a result of investors repositioning along the yield curve. Finally, Parnassus Mid Cap Growth PARNX and Touchstone Global ESG Equity TEQAX have gone through recent manager changes and tweaks to their investment objectives.

Exhibit 29 Sustainable Funds with Largest Outflows in 2020

Fund	Net Flow (USD Mil)
Parnassus Endeavor	-1,201
Nuveen Winslow Large-Cap Growth ESG	-378
Putnam Sustainable Leaders	-375
Neuberger Berman Sustainable Equity	-354
Calvert Ultra-Short Duration Income	-185
Parnassus Mid Cap Growth	-148
Touchstone Global ESG Equity	-134
Amana Growth	-114
Amana Income	-104
Angel Oak Financials Income	-102

Source: Morningstar Direct. Data as of 12/31/2020.

Asset Manager Flows

The dominance of flows into ETFs and passive funds has a lot to do with iShares' growing suite of sustainable ETFs. In 2020, iShares launched 13 new ESG ETFs, including four funds of funds, to add to its 14 existing funds. Together, iShares funds captured nearly half of overall sustainable fund flows for the year, an astonishing $23.1 billion.

Calvert, recently acquired by Morgan Stanley, was a distant second, garnering $4.7 billion for its lineup of 28 active and passive funds. Vanguard started making headway in this space with its five offerings, two open-ends and three ETFs, which added $4 billion. Eight asset managers attracted flows of at least $1.5 billion in 2020.

Exhibit 30 Asset Managers with Largest Flows Into Sustainable Funds

Fund	# of Funds	2020 Net Flows (USD Mil)
iShares	27	23,140
Calvert	28	4,698
Vanguard	5	3,959
TIAA/Nuveen	17	2,886
Invesco	11	2,529
Dimensional	5	2,106
Brown Advisory	3	1,852
First Trust	5	1,515
Eventide	7	991
Xtrackers	8	982

Source: Morningstar Direct. Data as of 12/31/2020.

IShares now commands more assets in sustainable funds than any other asset manager, followed by Parnassus, Calvert, TIAA/Nuveen, and Vanguard. Four of the top 10 asset managers are dedicated ESG shops: Parnassus, Calvert, Eventide, and Pax World.

Exhibit 31 Top 10 Asset Managers by Sustainable Fund Assets

Fund	# of Funds	AUM (USD Mil)
iShares	27	40,749
Parnassus	5	34,880
Calvert	28	27,574
TIAA/Nuveen	17	17,067
Vanguard	5	15,741
Invesco	11	10,540
Dimensional	5	8,075
Eventide	7	7,282
Putnam	2	6,446
Pax World	11	6,273

Source: Morningstar Direct. Data as of 12/31/2019.

Investment Performance

Sustainable funds outperformed their conventional fund peers in 2020. The reasons for the outperformance are varied because, as discussed above, sustainable funds do not all take the same approach. The characteristic they do share is that they put the evaluation of ESG concerns at the center of the investment process in their evaluation of securities, portfolio construction, and societal impact. Also as discussed above, sustainable funds can be found in multiple Morningstar Categories and across asset classes.

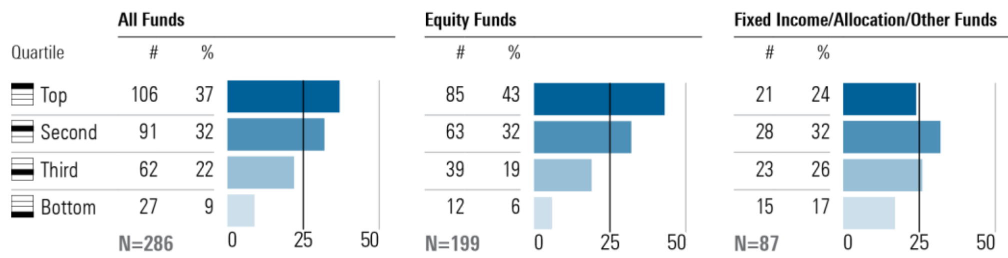
Performance by Category Rank

To evaluate the investment performance of sustainable funds, we can compare how their returns rank relative to their Morningstar Category peers. We use quartile distributions to compare how sustainable funds' returns rank compared with those of all funds, category by category. We combine those to get an overall distribution of sustainable fund returns ranks. By definition, all funds in a category must be evenly apportioned across quartiles. Using this method of comparison, we can determine whether sustainable funds are over- or under-represented in each quartile.[7]

Sustainable funds comfortably outperformed their peers in 2020, especially equity funds. Three of every four sustainable equity funds finished in the top half of their Morningstar Category, and 43% posted top-quartile returns. By contrast, the returns of only 6% landed in their category's bottom quartile. Results for other funds were distributed more evenly across quartiles.

7 For open-end funds, the returns of the oldest share class were used. Repurposed funds are included after they develop a sufficient track record as sustainable funds.

Exhibit 32 Sustainable Funds 2020 Return Rank by Morningstar Category Quartile



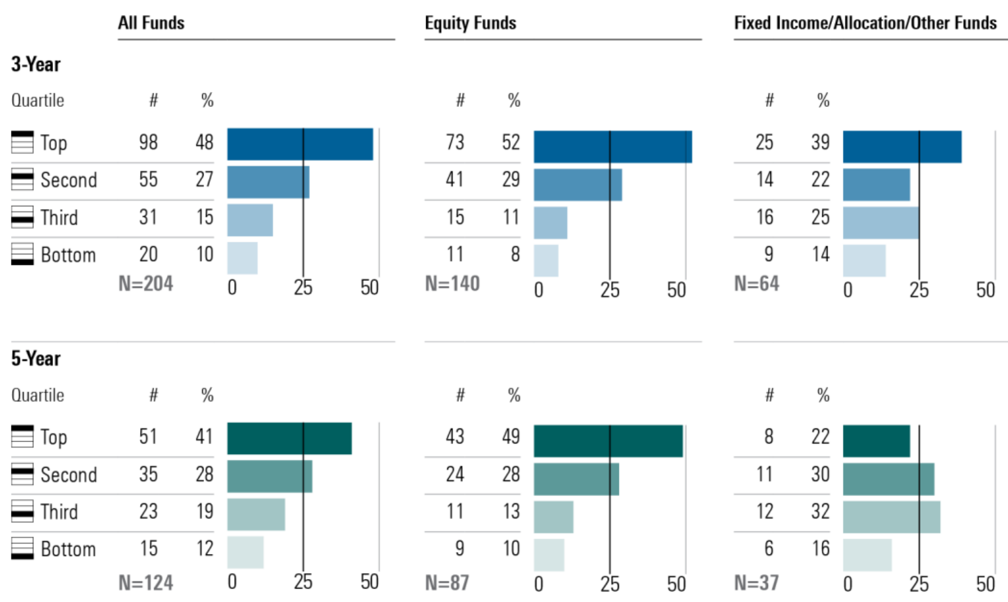
Source: Morningstar Direct. Data as of 12/31/2020. Note: Funds with full-year records only. Funds repurposed during 2020 not included.

Longer-term, the results look even better. Although sustainable funds benefit from their 2020 relative performance in three- and five-year trailing return rankings, they had been overperforming their peers, albeit to a more-modest degree, prior to 2020.

For the trailing three years, 75% of sustainable funds ranked in the top half of their category, including 81% of equity funds. Among equity funds, 52% ranked in the top quartile and only 8% in the bottom quartile.

The trailing five-year story is much the same, with 69% of sustainable funds ranked in the top half of their category, including 77% of equity funds. Among equity funds, 49% ranked in the top quartile and 10% in the bottom quartile.

Exhibit 33 Sustainable Funds Three- and Five-Year Trailing Performance by Morningstar Category Quartile



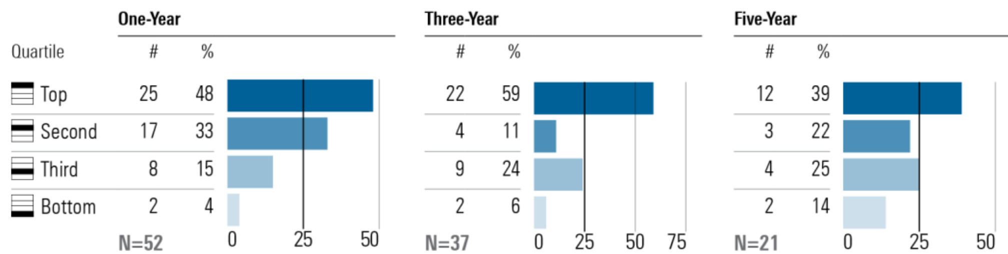
Source: Morningstar Direct. Data as of 12/31/2020. Note: Repurposed funds included after three or five years with sustainable objective.

U.S. Large-Cap

This is a major allocation for most investors and the place where many would first consider adding sustainable funds to their portfolios. Core large-cap funds are directly comparable to the S&P 500, the most-used benchmark for U.S. large-cap stocks, and are found in the large-blend Morningstar Category.

Of the 52 sustainable large-blend funds with full-year records, 25 ranked in the category's top quartile in 2020, and 81% ranked in the top half. Moreover, 44% of sustainable funds (23 of 52) beat the S&P 500 for the year, compared with only 20% of large-blend funds overall.

Exhibit 34 Sustainable U.S. Large-Blend Funds Outperform Category Peers



Source: Morningstar Direct. Data as of 12/31/2020. Note: Repurposed funds included after one, three, or five years with sustainable objective.

Over the longer periods, 59% of the 37 large-blend funds with sufficient records place in the category's top quartile for the trailing three years. The group diminishes to 21 funds with five-year records, but 39% rank in the top quartile.

Global and International Large-Cap

Investors can also select from 50 sustainable funds with track records of at least a year that focus on developed-markets large-cap equities. This group includes 27 funds in the world large-stock Morningstar Category. These are diversified sustainable global funds that include U.S. and non-U.S. exposure. It also includes 23 funds that reside in the foreign large-blend Morningstar Category, focusing on non-U.S. large caps.

Of the 50 funds in these categories with full-year records, 22 ranked in the top quartiles, and 86% ranked in the top halves. None ranked in the bottom quartiles. Among the 23 foreign large-blend funds, 22 beat the MSCI EAFE Index for the year compared with just half of all funds in the category. Among the 27 world large-stock funds, 20 (74%) beat the MSCI World Index compared with only 43% of all funds in the category.

Exhibit 35 Sustainable Global and International Funds Outperform Category Peers

Quartile	One-Year #	One-Year %	Three-Year #	Three-Year %	Five-Year #	Five-Year %
Top	22	44	18	55	10	48
Second	21	42	13	39	8	38
Third	7	14	1	3	3	14
Bottom	0	0	1	3	0	0
	N=50		N=33		N=21	

Source: Morningstar Direct. Data as of 12/31/2020. Note: Repurposed funds included after one, three, or five years with sustainable objective.

ESG Index Performance

Investors have increasingly gravitated to index funds, and as discussed above, sustainable fund investors are no exception. Sustainable index funds are not all structured the same way or track the same indexes, but they provide investors broad, diversified exposure similar to that offered by conventional market-cap-weighted index funds. The difference is that the sustainable index funds use ESG criteria to determine which stocks make it into the index and their weightings.

To compare the performance of sustainable index funds with that of conventional indexes, we selected 23 ESG index funds that provide close comparisons to traditional index funds that invest in the U.S. and in developed markets outside the U.S.[8] For the year overall, 22 of these 23 sustainable index funds outperformed the relevant conventional index. The 15 funds in the group with three-year records are all outperforming over that time frame as well.

Among U.S. funds, 11 of 12 beat the S&P 500 fund we used as a proxy for the index, led by IQ Candriam ESG US Equity ETF IQSU and Calvert US Large-Cap Core Responsible Index, both of which are based on proprietary ESG indexes. The 22.4% average sustainable index fund return easily beat the 18.4% return of the fund we used as a proxy for the S&P 500. The only sustainable fund underperformer was Xtrackers MSCI USA ESG Leaders Equity ETF USSG, which trailed iShares Core S&P 500 ETF IVV by just 0.1%.

8 These ESG index funds were selected at the beginning of the year and used in quarterly performance updates.
Q1: https://www.morningstar.com/articles/976361/sustainable-funds-weather-the-first-quarter-better-than-conventional-funds.
Q2: https://www.morningstar.com/articles/991091/sustainable-stock-funds-held-their-own-in-second-quarter-rally.
Q3: https://www.morningstar.com/articles/1007824/sustainability-matters-sustainable-equity-funds-turn-in-another-strong-quarter.
Q4: https://www.morningstar.com/articles/1017056/sustainable-equity-funds-outperform-traditional-peers-in-2020.

Exhibit 36 U.S. Sustainable Equity Index Funds Outperformed the S&P 500 in 2020

		2020		Three-Year		
U.S. Sustainable Equity Index Funds	Ticker	Total Return	% Rank Category	Annualized Trailing Return	% Rank Category	Morningstar Sustainability Rating
IQ Candriam ESG US Equity ETF	IOSU	28.2	3	—	—	5 globes
Calvert US Large Cap Core Rspnb Idx I	CISIX	26.1	4	17.1	1	4 globes
Vanguard ESG US Stock ETF	ESGV	25.7	4	—	—	4 globes
iShares MSCI USA ESG Select ETF	SUSA	24.6	6	15.9	6	5 globes
Vanguard FTSE Social Index I	VFTNX	22.7	10	16.7	2	4 globes
iShares ESG Aware MSCI USA ETF	ESGU	22.5	11	15.8	6	4 globes
Nuveen ESG Large-Cap ETF	NULC	22.3	12	—	—	5 globes
iShares MSCI KLD 400 Social ETF	DSI	20.8	19	15.1	10	5 globes
Xtrackers S&P 500 ESG ETF	SNPE	19.6	27	—	—	4 globes
iShares ESG MSCI USA Leaders ETF	SUSL	18.8	32	—	—	5 globes
Fidelity U.S. Sustainability Index	FITLX	18.7	33	14.7	14	5 globes
Xtrackers MSCI USA ESG Leaders Eq ETF	USSG	18.3	38	—	—	5 globes
Sustainable Index Fund Average	—	22.4	17	15.9	7	5 globes
iShares Core S&P 500 ETF (Conv'l Bmark)	IVV	18.4	37	14.1	24	3 globes

Source: Morningstar Direct. Data as of 12/31/2020. Note: Oldest share class used for mutual funds.

Among index funds investing in non-U.S. large caps, all 11 beat an MSCI EAFE Index fund. The leader was Calvert International Responsible Index CDHIX. Based on Calvert's proprietary index, the fund posted a 15.3% return for the year, miles ahead of the MSCI EAFE fund's 8.6% return. Next best was Vanguard ESG International Stock ETF VSGX, which tracks the FTSE Global All Cap ex US Choice Index. The fund posted a 13.5% return. Overall, the 11 sustainable funds posted a 12% average return for 2020, well ahead of the MSCI EAFE fund.

Exhibit 37 EAFE ESG Index Funds

		2020		Three-Year		
U.S. Sustainable Equity Index Funds	Ticker	Total Return	% Rank Category	Annualized Trailing Return	% Rank Category	Morningstar Sustainability Rating
Calvert International Responsible Idx I	CDHX	15.3	14	7.4	8	4 globes
Vanguard ESG International Stock ETF	VSGX	13.5	20	—	—	2 globes
Xtrackers MSCI ACWI ex USA ESG LdrsEqETF	ACSG	13.4	21	—	—	3 globes
Praxis International Index I	MPLIX	13.2	22	5.2	28	3 globes
Fidelity Intl Sustainability Idx	FNIDX	13.0	23	5.9	19	3 globes
Green Century MSCI Intl Indx Instl	GCIFX	12.4	26	6.6	14	5 globes
Pax MSCI EAFE ESG Leaders Index Instl	PXNIX	10.8	33	5.9	19	5 globes
Nuveen ESG Intl Dev Mkts Eq ETF	NUDM	10.7	35	5.5	23	4 globes
Xtrackers MSCI EAFE ESG Leaders Eq ETF	EASG	10.5	37	—	—	4 globes
IQ Candriam ESG International Equity ETF	IQSI	10.4	38	—	—	4 globes
iShares ESG Aware MSCI EAFE ETF	ESGD	8.6	49	5.0	32	4 globes
Sustainable Index Fund Average	—	12.0	29	5.9	20	4 globes
iShares Core MSCI EAFE ETF (Conv'l Bmark)	IEFA	8.6	50	4.5	48	3 globes

Source: Morningstar Direct. Data as of 12/31/2020. Note: Oldest share class used for mutual funds.

Sustainability Performance

Having evaluated the investment performance of sustainable funds, we now turn to sustainability performance. While this is an area of evaluation that is not all that well developed, it is highly relevant to an overall evaluation of sustainable funds. At a basic level, we need to assess whether sustainable funds are doing what they claim to be doing.

Using Morningstar data, we can assess a fund's sustainability in three ways. First, we can evaluate ESG risk in fund portfolios. Our expectation is that sustainable funds will have low levels of ESG risk compared with peers. Second, we can look at how sustainable funds are doing in the transition to a low-carbon economy. Our expectation is that sustainable funds will have lower carbon exposure than their peers and lower exposure to fossil fuels. Finally, we can evaluate impact via fund proxy voting on ESG issues. Our expectation is that sustainable funds will be strong supporters of ESG-related shareholder resolutions.

The Morningstar Sustainability Rating

In this section, we examine the extent to which sustainable funds are actually investing in sustainable companies and the extent to which they differ from funds that do not consider ESG factors, or do so in a limited way. The Morningstar Sustainability Rating can help answer these questions.

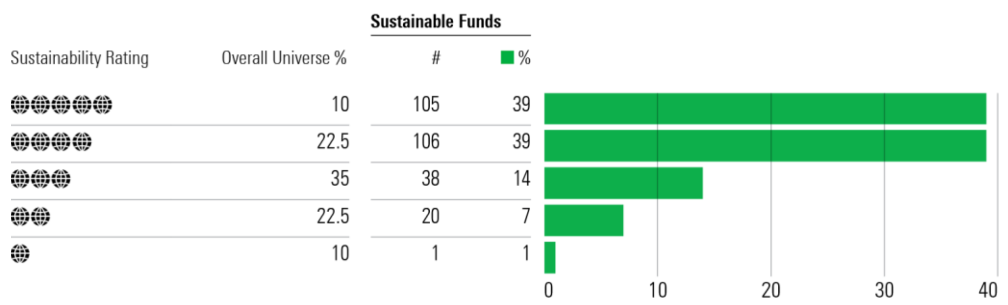
Based on Sustainalytics' company ESG Risk Ratings, the Morningstar Sustainability Rating is an asset-weighted rollup of those ratings based on the trailing 12 months of a fund's portfolios. Fund sustainability scores are ranked, and 1 to 5 globes are assigned. Funds with the best 10% of scores within their peer group receive 5 globes, and those ranking in the next 22.5% receive 4 globes. In other words, funds ranking in the top third of their peer group receive 4 or 5 globes.[9]

Sustainable funds have significantly lower levels of ESG risk embedded in their portfolios.[10] About four in five (78%) of sustainable funds receive the highest ratings, 4 or 5 globes, compared with only one third of funds overall. At the other end of the scale, only 7% of sustainable funds receive the lowest rating, 1 or 2 globes, compared with one third of funds overall.

9 For more details, see https://www.morningstar.com/articles/954595/enhancement-to-sustainability-rating-emphasizes-material-esg-risk.

10 Sustainable Sector funds are not included in this analysis because most are in either diversified equity categories or a catchall Miscellaneous Sector category, making peer-group comparisons like the globe rating less meaningful. Many of these funds do have higher ESG risk levels, owing to their exposure to companies in the energy, utilities, and industrials sectors. Such companies may have higher ESG risk but also higher potential societal impact because of the products and services they are developing.

Exhibit 38 ESG Risk in Diversified Sustainable Funds



Source: Morningstar Direct. Data as of 12/31/2020.

Low Carbon and Fossil-Fuel-Free Sustainable Funds

While more funds appear to be avoiding fossil fuel, investors should not assume that all sustainable funds do so. Morningstar calculates a fund-level Carbon Risk Score that rolls up Sustainalytics' company-level carbon-risk scores, using portfolios from the trailing 12 months. Those that have low carbon risk and low fossil-fuel exposure receive the Morningstar Low Carbon Designation.[11]

Sustainable funds appear to be improving their low-carbon performance. In 2019, slightly less than half of the 184 sustainable funds with a Morningstar Carbon Risk Score received the Low Carbon Designation. At the end of 2020,149 of the 203 such funds received the Low Carbon Designation, or 73%. That is a much higher rate than in the overall universe of U.S. and international stock funds, in which 43% received the designation.

While some sustainable funds are fossil-fuel free by prospectus, most are not. The proportion of sustainable funds with less than 1% average exposure to fossil fuel over the past 12 months is only 20%.

11 For more information, see Measuring Transition Risk in Fund Portfolios: The Morningstar Portfolio Carbon Risk Score, Morningstar Research, April 30, 2018. https://www.morningstar.com/content/dam/marketing/shared/Company/LandingPages/CarbonRisk/Carbon_Risk_Paper.pdf?cid=EMQ_.

Exhibit 39 Sustainable Funds with Morningstar Low Carbon Designation and < 1% of Assets in Fossil Fuels

Fund	Fund
AB Sustainable Global Thematic	Green Century Equity
Alger Responsible Investing	Lateef Focused Sustainable Growth
Aspiration Redwood	Morgan Stanley Inst Global Sustain
Baillie Gifford Global Stewardship Equity	Nuveen ESG Large-Cap Growth ETF
Brown Advisory Sustainable Growth	Nuveen ESG Mid-Cap Growth ETF
Calvert Emerging Markets Equity	Nuveen Winslow Large-Cap Growth ESG
Calvert Equity	Parnassus Core Equity
Change Finance US LgCp FossilFuel Fr ETF	Parnassus Endeavor
ClearBridge Large Cap Growth ESG ETF	Parnassus Mid Cap Growth
Domini Impact Equity	Pax Global Environmental Mrkts
Domini Impact International Equity	Pax Global Opportunities
Etho Climate Leadership US ETF	Pax Large Cap Fund
Goldman Sachs ESG Em Mkts Equity	Riverbridge Eco Leaders
Green Century Balanced	UBS US Sustainable Equity

Source: Morningstar Direct. Data as of 12/31/2020.

Proxy Voting

Another increasingly important dimension of sustainable investing is stewardship: how a fund engages with the companies it owns, votes proxies, and seeks to provide measurable impact beyond financial return. Sometimes called active ownership, this activity is not easy to evaluate overall, but we can assess the extent to which sustainable funds use their proxy votes to support sustainability in companies whose stocks they own.

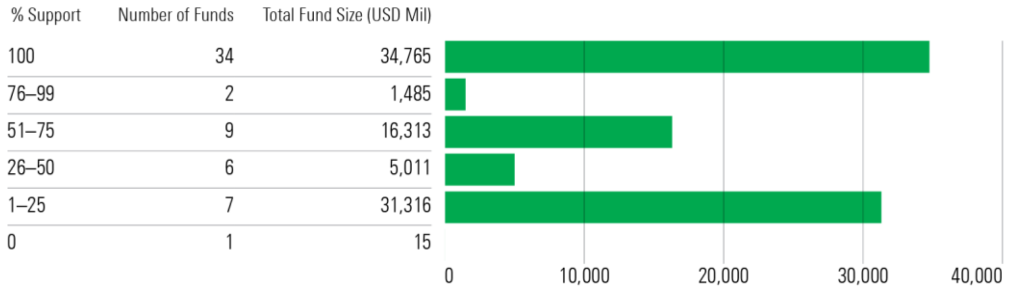
Many of the issues that shareholders place on company proxy ballots directly address sustainability concerns. In 2020, 186 ESG-related shareholder resolutions appeared on proxy ballots. Average support was 28%, with 20 ESG-related resolutions achieving the support of a majority of shares voted, breaking the record of 14 set in 2019. Sixty-seven of the 186 ESG-related resolutions received at least 40% of the overall vote of minority outside shareholders.

We assessed sustainable funds' level of support for those 67 key ESG resolutions and found, not surprisingly, a higher rate of support than among funds overall. Sustainable funds, on average, supported 76% of the key ESG resolutions on which they voted. By contrast, conventional funds offered by the 20 largest U.S. stock fund managers supported the same set of resolutions, on average, 47% of the time.[12]

12 For more on these findings, see Sustainable Fund Proxy Votes Show a Range of Support for ESG Measures, Morningstar Research, December 2020. https://direct.morningstar.com/research/doc/1014808/Sustainable-Fund-Proxy-Votes-Show-a-Range-of-Support-for-ESG-Measures

Among sustainable funds that voted on at least 10 key ESG resolutions, most funds exhibited strong support, but support ranged from 100% all the way down to zero. Among the funds that did not exhibit strong support were several with large asset bases. Because fund votes are cast in proportion to the value of their shares, the influence of the funds that did not exhibit strong support was about the same as those that did exhibit strong support. Thirty-four of the 59 sustainable funds supported 100% of the key ESG resolutions on which they voted in 2020. Together, these funds manage $34.8 billion in assets.

Exhibit 40 Sustainable Fund Support for Key ESG Resolutions in 2020



% Support	Number of Funds	Total Fund Size (USD Mil)
100	34	34,765
76–99	2	1,485
51–75	9	16,313
26–50	6	5,011
1–25	7	31,316
0	1	15

Source: Morningstar Proxy Voting Database, Morningstar Direct. Data as of 11/30/2020. Note: Includes funds voting on at least 10 key ESG resolutions.

On the other hand, 14 sustainable funds, with $36.3 billion in assets, voted in favor of less than half of the key ESG resolutions on which they voted. Eight of those voted in favor of fewer than 25% of key resolutions. Seven of the eight are offered by the two largest asset managers—BlackRock and Vanguard—and six are among the largest sustainable funds with over $1 billion in assets. Several of these funds have been attracting large inflows.

As investors put more money into sustainable funds, the collective influence of these strategies via their proxy voting also grows. Because of their size, larger funds have greater influence on any particular vote than do smaller funds. Overall support for key ESG resolutions among the largest sustainable funds, however, was mixed in 2020. Across the dozen sustainable funds with more than $1 billion in assets, average support for the key resolutions was only 50%. Only three funds exhibited 100% support, and six supported more than half the resolutions voted. The large funds offered by BlackRock, Dimensional, and Vanguard voted in favor of key resolutions only one third of the time or less. Proxy-voting decisions are mostly determined at the asset-manager level, not the fund level. Sustainable funds advised by asset managers with greater commitments to sustainability tend to exhibit higher levels of support for key ESG resolutions.

Exhibit 41 How the Largest Sustainable Funds Voted on Key ESG Resolutions

Fund	Fund Size ($mil)	# Votes	% Support
Parnassus Core Equity	23,190	10	100
Calvert US Large Cap Core Responsible Index	3,591	41	100
Pax Large Cap Fund	1,041	10	100
American Century Sustainable Equity	3,173	20	65
Putnam Sustainable Leaders	5,880	11	64
TIAA-CREF Social Choice Equity	6,278	25	60
DFA US Sustainability Core 1	3,856	44	34
Vanguard ESG US Stock ETF	2,981	53	19
Vanguard FTSE Social Index	10,798	45	18
iShares MSCI KLD 400 Social ETF	2,678	19	16
iShares ESG MSCI USA Leaders ETF	2,813	18	11
iShares ESG Aware MSCI USA ETF	13,394	35	9

Source: Morningstar Proxy Voting Database, Morningstar Direct. Data as of 11/30/2020. Note: Includes funds voting on at least 10 key ESG resolutions.

Conclusion

In 2020, we saw the high levels of interest in sustainable investing materialize into record flows to sustainable funds. Several key factors contributed. First, the growth of the sustainable funds universe since 2015 has given investors a sufficient number and range of options from which to select. Investors can now more easily identify sustainable fund choices and build out their portfolios with sustainable funds. The growing availability of model portfolios is making this even easier.

Second, as more sustainable funds build competitive performance records, lingering doubts about underperformance have diminished. This is an especially important factor for intermediaries and advisors who do not want to steer their clients into underperforming investments. An investment in a diversified sustainable fund should carry the expectation of competitive risk-adjusted return and, like all actively managed and smart-beta strategies, a rationale for long-term outperformance. In general, that rationale for sustainable funds is alignment with large-scale sustainability trends that are reshaping the global economy.

Over the past several years and especially in 2020, sustainable funds outperformed their conventional peers. The better relative performance of sustainable funds is tied to their focus on companies with better ESG profiles and their alignment with the transition to a low-carbon economy. In 2020, sustainable funds demonstrated that investing with an emphasis on how a company manages material ESG risks and how it manages key stakeholders can produce good returns in an uncertain economic environment.

This leads us to the third factor contributing to flows into sustainable funds, which is the precarious state of the world today and more investors wanting to have a positive impact on it. Global warming and wealth inequality will set the context for investing for the next several decades. Sustainable funds are becoming increasingly interested in demonstrating to their investors the broader impact of their investments and their stewardship activities. Stewardship has great potential to affect change, as companies begin to recognize that a growing portion of their investor base is composed of sustainable investors. That helps companies move away from a short-term shareholder-centric approach to a longer-term perspective that focuses on creating value for all stakeholders, with better outcomes for society and the planet. We saw this year that companies that are moving in this direction performed better during the global COVID-19 pandemic for all their stakeholders. M

Appendix

Exhibit 42 Sustainable Funds Included in Report

Fund*	Morningstar Category 2020-12	Inception Date	Repurposed Funds ESG Start Date**	Fund AUM 12/2020 ($Mil)***	Annual Return 2020	Annual Return % Rank Cat	Morningstar Rating Overall	Morningstar Sustainability Rating	Low Carbon Designation™
1919 Socially Responsive Balanced A	Allocation 50% to 70% Equity	11/6/92	—	489	20.57	6	★★★★★	⊕⊕⊕⊕⊕	✓
AB Impact Municipal Income	Muni National Long	9/12/17	—	385	5.88	31	★★★★★	—	—
AB Sustainable Global Thematic A	World Large Stock	3/1/82	11/1/16	1,792	39.37	10	★★★★	⊕⊕⊕⊕	✓
AB Sustainable Intl Thematic A	Foreign Large Growth	6/2/94	1/8/18	606	29.55	22	★★★	⊕⊕⊕⊕⊕	✓
Aberdeen Emerging Mkts SustLdrs InstlSvc	Foreign Large Growth	8/30/00	12/1/20	216	22.99	42	★★★	⊕⊕⊕⊕	✓
Aberdeen Global Equity Impact Instl	World Large Stock	5/4/05	2/28/19	73	30.05	17	★★★	⊕⊕⊕⊕⊕	✓
Aberdeen International Sust Ldrs I	Foreign Large Blend	11/17/99	12/1/20	142	17.37	9	★★★	⊕⊕⊕⊕	No
Aberdeen US Sust Ldrs Smlr Coms Instl	Large Growth	6/29/04	12/1/20	15	27.06	72	—	⊕⊕⊕⊕	No
Aberdeen US Sustainable Leaders Instl	Large Growth	6/29/04	12/1/20	444	25.92	76	★★	⊕⊕⊕⊕	✓
Access Capital Community Investment I	Intermediate Government	6/23/98	—	652	3.87	80	★★★	⊕⊕⊕⊕	—
AGF Global Sustainable Growth Equity I	World Large Stock	11/15/17	—	2	44.55	7	★★★★★	⊕⊕⊕⊕	✓
AIG ESG Dividend W	Mid-Cap Value	12/16/16	—	43	5.39	33	★★★★	⊕⊕⊕⊕⊕	✓
Alger Responsible Investing A	Large Growth	12/4/00	—	82	35.77	42	★★★	⊕⊕⊕⊕⊕	✓
Alpha Architect Freedom 100 Em Mkts ETF	Diversified Emerging Mkts	5/22/19	—	30	17.17	49	—	⊕⊕⊕⊕	No
ALPS Clean Energy ETF	Equity Energy	6/27/18	—	784	140.15	1	—	⊕⊕⊕⊕	—
Amana Developing World Investor	Diversified Emerging Mkts	9/28/09	9/21/17	49	21.26	31	★★★	⊕⊕⊕⊕⊕	—
Amana Growth Investor	Large Growth	2/3/94	9/21/17	2,760	32.86	52	★★★★	⊕⊕⊕⊕⊕	✓
Amana Income Investor	Large Blend	6/23/86	9/21/17	1,423	13.95	65	★★★	⊕	✓
American Century Mid Cap Growth Imp ETF	Mid-Cap Growth	7/15/20	—	8	—	—	—	⊕⊕⊕⊕	—
American Century Sustainable Equity A	Large Blend	11/30/04	6/30/16	3,173	18.98	31	★★★★	⊕⊕⊕⊕⊕	✓
American Century Sustainable Equity ETF	Large Blend	7/15/20	—	110		—	—	⊕⊕⊕⊕⊕	—
AMG GW&K Core Bond ESG I	Intermediate Core Bond	4/30/93	5/1/19	207	7.33	62	★★★	⊕⊕⊕⊕⊕	—
AMG GW&K Enhanced Core Bond ESG Z	Intermediate Core-Plus Bond	1/2/97	5/1/19	55	9.65	19	★★★★	⊕⊕⊕⊕⊕	—
Amplify Lithium & Battery Tech ETF	Natural Resources	6/4/18	—	42	44.32	6	—	⊕	—
Angel Oak Financials Income Ins Class	Short-Term Bond	11/3/14	11/6/19	142	-3.75	100	★★	—	—
Appleseed Investor	World Allocation	12/8/06	—	96	7.50	43	★★★	⊕⊕⊕	—
Ashmore Emerging Markets Equity ESG Ins	Diversified Emerging Mkts	2/26/20	—	15		—	—	⊕⊕⊕⊕⊕	—
Aspiration Redwood	Large Blend	11/16/15	—	119	15.89	54	★★★	⊕⊕⊕⊕⊕	✓
AVDR US LargeCap ESG ETF	Large Blend	12/29/20	—	1	—	—	—	—	—
AXS Sustainable Income I	High Yield Bond	2/1/13	10/19/20	52	2.98	81	★	—	—
Baillie Gifford Global Stwdsp Eqs K	World Large Stock	12/14/17	4/29/20	6	75.39	3	★★★★★	⊕⊕	✓
Baillie Gifford Positive Chg Eqs K	World Large Stock	12/14/17	—	96	88.43	2	★★★★★	⊕⊕	✓
Baywood Socially Responsible Instl	Large Value	1/3/05	—	5	4.23	37	★★	⊕⊕⊕⊕	No
BlackRock Advantage ESG Em Mkts Eq Ins	Diversified Emerging Mkts	8/18/20	—	12	—	—	—	—	—
BlackRock Advantage ESG Intl Eq Ins	Foreign Large Blend	8/18/20	—	11	—	—	—	—	—
BlackRock Advantage ESG US Eq Instl Shrs	Large Blend	10/5/15	—	179	22.41	11	★★★★★	⊕⊕⊕⊕	✓
BlackRock Global Impact Institutional	World Large Stock	5/27/20	—	23	—	—	—	⊕⊕	—
BlackRock International Impact Instl	Foreign Large Blend	6/30/20	—	8	—	—	—	⊕⊕	—

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Exhibit 42 Sustainable Funds Included in Report (Continued)

Fund*	Morningstar Category 2020-12	Inception Date	Repurposed Funds ESG Start Date**	Fund AUM 12/2020 ($Mil)***	Annual Return 2020	% Rank Cat	Morningstar Rating Overall	Morningstar Sustainability Rating	Low Carbon Designation™
BlackRock LifePath ESG Index 2025 Instl	Target-Date 2025	8/18/20	—	2	—	—	—	—	—
BlackRock LifePath ESG Index 2030 Instl	Target-Date 2030	8/18/20	—	3	—	—	—	—	—
BlackRock LifePath ESG Index 2035 Instl	Target-Date 2035	8/18/20	—	2	—	—	—	—	—
BlackRock LifePath ESG Index 2040 Instl	Target-Date 2040	8/18/20	—	2	—	—	—	—	—
BlackRock LifePath ESG Index 2045 Instl	Target-Date 2045	8/18/20	—	2	—	—	—	—	—
BlackRock LifePath ESG Index 2050 Instl	Target-Date 2050	8/18/20	—	2	—	—	—	—	—
BlackRock LifePath ESG Index 2055 Instl	Target-Date 2055	8/18/20	—	2	—	—	—	—	—
BlackRock LifePath ESG Index 2060 Instl	Target-Date 2060+	8/18/20	—	2	—	—	—	—	—
BlackRock LifePath ESG Index 2065 Instl	Target-Date 2060+	8/18/20	—	2	—	—	—	—	—
BlackRock LifePath ESG Index Ret Instl	Target-Date Retirement	8/18/20	—	2	—	—	—	—	—
BlackRock Systematic ESG Bond K	Intermediate Core-Plus Bond	8/23/16	—	56	8.96	32	★★★★	—	—
BlackRock US Impact Institutional	Large Blend	6/30/20	—	7	—	—	—	🌐🌐	—
BNY Mellon Sustainable Balanced K	World Allocation	11/30/17	4/1/19	15	16.32	7	★★★★★	🌐🌐🌐🌐🌐	✓
BNY Mellon Sustainable US Eq Fd Z	Large Blend	3/29/72		437	24.22	7	★★★★	🌐🌐🌐🌐	✓
Boston Common ESG Impact Intl	Foreign Large Blend	12/29/10		386	18.55	8	★★★★	🌐🌐🌐🌐🌐	✓
Boston Common ESG Impact US Equity	Large Blend	4/30/12		49	19.53	28	★★★	🌐🌐🌐🌐🌐	✓
Boston Trust Asset Management	Allocation 70% to 85% Equity	12/1/95	5/1/20	597	7.83	79	★★★★★	🌐🌐🌐🌐🌐	✓
Boston Trust Equity	Large Blend	10/1/03	5/1/20	168	14.53	62	★★★	🌐🌐🌐🌐🌐	✓
Boston Trust Midcap	Mid-Cap Blend	9/24/07	5/1/20	140	8.81	68	★★★★	🌐🌐🌐🌐🌐	✓
Boston Trust SMID Cap	Mid-Cap Blend	11/30/11	5/1/20	226	8.26	72	★★★★	🌐🌐🌐🌐🌐	No
Boston Trust Walden Balanced	Allocation 70% to 85% Equity	6/18/99	—	177	8.26	77	★★★★	🌐🌐🌐🌐🌐	✓
Boston Trust Walden Equity	Large Blend	6/18/99	—	264	13.28	70	★★★	🌐🌐🌐🌐	✓
Boston Trust Walden International Eq	Foreign Large Blend	6/9/15	—	74	7.16	69	★★★	🌐🌐🌐🌐🌐	No
Boston Trust Walden Midcap	Mid-Cap Blend	8/1/11	—	83	8.76	69	★★★★	🌐🌐🌐🌐🌐	✓
Boston Trust Walden Small Cap	Small Blend	12/16/05	—	601	8.17	67	★★★★	🌐🌐🌐🌐	—
Boston Trust Walden SMID Cap	Mid-Cap Blend	6/28/12	—	65	9.13	66	★★★★	🌐🌐🌐🌐🌐	No
Brown Advisory Sustainable Bond Investor	Intermediate Core-Plus Bond	8/7/17	—	199	8.87	35	★★★	—	—
Brown Advisory Sustainable Growth I	Large Growth	6/29/12	—	4,696	39.09	31	★★★★	🌐🌐🌐🌐	✓
Brown Advisory Tax-Exempt Sust Bd Inv	Muni National Interm	12/2/19	—	199	2.07	99	—	—	—
Calvert Balanced A	Allocation 50% to 70% Equity	10/21/82	—	1,076	15.44	24	★★★★	🌐🌐🌐🌐	✓
Calvert Bond A	Intermediate Core-Plus Bond	8/24/87	—	2,090	7.38	69	★★★	—	—
Calvert Conservative Allocation A	Allocation 30% to 50% Equity	4/29/05	—	266	12.18	20	★★★★★	—	—
Calvert Emerging Markets Advancement I	Diversified Emerging Mkts	10/1/19	—	50	15.35	57	—	🌐🌐🌐🌐	—
Calvert Emerging Markets Equity I	Diversified Emerging Mkts	10/31/12	—	4,085	24.87	22	★★★★	🌐🌐🌐🌐	✓
Calvert Equity A	Large Growth	8/24/87	—	5,809	24.27	79	★★★	🌐🌐🌐🌐🌐	✓
Calvert Flexible Bond Fund Class I	Nontraditional Bond	9/30/14	—	204	4.12	51	★★★	—	—
Calvert Floating-Rate Advantage R6	Bank Loan	10/10/17	—	80	0.57	78	★★★	—	—
Calvert Global Energy Solutions I	World Small/Mid Stock	5/31/07	—	169	61.50	4	★★★	🌐🌐🌐	—
Calvert Global Water A	Natural Resources	9/30/08	—	477	14.78	58	★★★★	🌐🌐🌐🌐	—
Calvert Green Bond I	Intermediate Core-Plus Bond	10/31/13	—	761	7.18	72	★★★	—	—
Calvert Growth Allocation A	Allocation 85%+ Equity	6/30/05	—	231	18.54	32	★★★★	🌐🌐🌐🌐	✓
Calvert High Yield Bond I	High Yield Bond	7/9/01	—	362	5.44	46	★★★★	—	—

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Exhibit 42 Sustainable Funds Included in Report (Continued)

Fund*	Morningstar Category 2020-12	Inception Date	Repurposed Funds ESG Start Date**	Fund AUM 12/2020 ($Mil)***	Annual Return 2020	Annual Return % Rank Cat	Morningstar Rating Overall	Morningstar Sustainability Rating	Low Carbon Designation™
Calvert Income A	Corporate Bond	10/12/82	—	679	8.25	76	★★	—	—
Calvert International Equity A	Foreign Large Blend	7/2/92	—	724	17.65	8	★★★★★	🌐🌐🌐🌐	🍃
Calvert International Opportunities I	Foreign Small/Mid Growth	5/31/07	—	434	14.04	85	★★★	🌐🌐🌐🌐	No
Calvert International Responsible Idx I	Foreign Large Blend	10/30/15	—	336	15.32	14	★★★★	🌐🌐🌐🌐	🍃
Calvert Long-Term Income A	Long-Term Bond	12/31/04	—	109	14.55	55	★★	—	—
Calvert Mid-Cap A	Mid-Cap Blend	10/31/94	—	273	11.66	53	★★★	🌐🌐🌐🌐🌐	No
Calvert Moderate Allocation A	Allocation 50% to 70% Equity	4/29/05	—	392	15.17	26	★★★★	🌐🌐🌐🌐	—
Calvert Responsible Municipal Income A	Muni National Interm	8/23/83	—	372	4.37	54	★★★	—	—
Calvert Short Duration Income A	Short-Term Bond	1/31/02	—	1,766	4.51	29	★★★★	—	—
Calvert Small-Cap A	Small Blend	10/1/04	—	2,041	14.64	35	★★★★★	🌐🌐🌐🌐	—
Calvert Ultra-Short Duration Income A	Ultrashort Bond	10/31/06	—	801	0.65	82	★★★	—	—
Calvert US Large Cap Core Rspnb Idx I	Large Blend	6/30/00	—	3,591	26.11	4	★★★★★	🌐🌐🌐	🍃
Calvert US Large Cap Growth Rspnb Idx I	Large Growth	6/19/15	—	170	38.67	32	★★★★	🌐🌐🌐	🍃
Calvert US Large Cap Value Rspnb Idx I	Large Value	6/19/15	—	966	9.03	14	★★★★	🌐🌐🌐	🍃
Calvert US Mid Cap Core Rspnb Idx I	Mid-Cap Blend	10/30/15	—	150	24.00	8	★★★★★	🌐🌐🌐	🍃
Cavanal Hill Mid Cap Diverse Ldrsp Instl	Mid-Cap Blend	12/30/16	12/28/20	1	14.61	32	★★★★	🌐🌐🌐🌐	No
CCM Alternative Income Institutional	Multialternative	5/31/13	—	23	-10.86	93	★	—	—
CCM Core Impact Equity Fund Advisor	Large Blend	11/25/96	10/2/18	66	18.71	33	★★	🌐🌐🌐	🍃
CCM Small/Mid-Cap Impct Val Fd Advisor	Small Value	11/25/96	10/2/18	19	-20.05	100	★	🌐🌐🌐🌐🌐	—
Change Finance US LgCp FossilFuel Fr ETF	Large Blend	10/9/17	—	33	24.82	5	★★★★★	🌐🌐🌐🌐🌐	🍃
Changebridge Capital Sustainable Eq ETF	Large Value	11/12/20	—	2	—	—	—	🌐🌐	—
ClearBridge Dividend Strategy ESG ETF	Large Blend	5/22/17	—	14	10.98	82	★★★	🌐🌐🌐🌐	No
ClearBridge Large Cap Growth ESG ETF	Large Growth	5/22/17	—	133	32.14	55	★★★	🌐🌐🌐🌐	🍃
ClearBridge Sustainability Leaders I	Large Growth	3/31/15	—	24	35.74	42	★★★	🌐🌐🌐🌐	🍃
Coho Relative Value ESG	Large Value	11/27/19	—	12	12.21	5	—	🌐🌐🌐🌐🌐	—
Columbia Sustainable Intl Eq Inc ETF	Foreign Large Value	6/13/16	—	5	-1.22	65	★★★	🌐🌐	No
Columbia Sustainable US Equity Inc ETF	Large Value	6/13/16	—	6	0.67	67	★★	🌐🌐🌐	No
Columbia US Social Bond Inst	Muni National Long	3/26/15	—	68	4.81	65	★★★	—	—
CRA Qualified Investment CRA	Intermediate Government	8/30/99	—	2,838	3.99	76	★★★	—	—
Cushing® Global Clean Equity I	World Large Stock	1/31/20	—	13	—	—	—	—	—
Dana Epiphany ESG Equity Inst	Large Blend	2/13/08	12/19/18	21	13.82	66	★★	🌐🌐🌐🌐	No
Dana Epiphany ESG Small Cap Eq Instl	Small Growth	11/3/15	10/1/20	13	13.32	95	★	🌐🌐🌐	—
DFA Em Mkts Sustnby Cor 1 Instl	Diversified Emerging Mkts	3/27/18	—	803	14.04	64	—	🌐🌐🌐	No
DFA Global Sustainability Fixed Inc Ins	World Bond-USD Hedged	11/6/18	—	626	7.99	27	—	🌐🌐🌐🌐🌐	—
DFA Intl Sustainability Core 1	Foreign Large Blend	3/12/08	—	2,649	11.63	28	★★★★	🌐🌐🌐	🍃
DFA US Sustainability Core 1	Large Blend	3/12/08	—	3,856	21.22	16	★★★★	🌐🌐	🍃
DFA US Sustainability Targeted Val Instl	Small Value	7/2/20	—	140	—	—	—	🌐🌐🌐🌐	—
Direxion MSCI USA ESG Ldrs vs Lggds ETF	Large Blend	2/5/20	—	12	—	—	—	🌐🌐🌐🌐🌐	—
Direxion World Without Waste ETF	Large Blend	12/17/20	—	5	—	—	—	—	—
Domini Impact Bond Investor	Intermediate Core-Plus Bond	6/1/00	—	201	10.09	16	★★★	—	—

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Exhibit 42 Sustainable Funds Included in Report (Continued)

Fund*	Morningstar Category 2020-12	Inception Date	Repurposed Funds ESG Start Date**	Fund AUM 12/2020 ($Mil)***	Annual Return 2020	Annual Return % Rank Cat	Morningstar Rating Overall	Morningstar Sustainability Rating	Low Carbon Designation™
Domini Impact Equity Investor	Large Blend	6/3/91	—	973	30.62	2	★★★★	🌐🌐🌐🌐	✓
Domini Impact International Equity Inv	Foreign Large Value	12/27/06	—	1,267	5.73	19	★★★★	🌐🌐🌐🌐	✓
Domini International Opportunities Ins	Foreign Large Blend	11/30/20	—	24	—	—	—	—	—
Domini Sustainable Solutions Ins	World Large Stock	4/1/20	—	33	—	—	—	🌐🌐	—
DWS ESG Core Equity Institutional	Large Blend	8/1/05	9/23/19	196	19.09	31	★★	🌐🌐🌐🌐	✓
DWS ESG Global Bond S	World Bond-USD Hedged	3/1/91	5/1/19	68	5.62	62	★★	—	—
DWS ESG International Core Eq S	Foreign Large Blend	11/11/14	12/1/19	11	9.99	42	★★	🌐🌐🌐🌐	No
Ecofin Global Renewables Infras Ins	Infrastructure	8/7/20	—	127	—	—	—	🌐🌐🌐	
Ecofin Global Water ESG	Natural Resources	2/14/17	6/5/18	24	15.44	55	★★★★★	🌐🌐🌐🌐	No
Essex Environmental Opportunities Instl	World Small/Mid Stock	9/1/17	—	39	63.14	3	★★★★★	🌐	—
Etho Climate Leadership US ETF	Mid-Cap Growth	11/18/15	—	119	25.21	73	★★★	🌐🌐🌐🌐	✓
Eventide Core Bond I	Intermediate Core Bond	7/31/20	—	52	—	—	—	🌐🌐🌐🌐	—
Eventide Dividend Opportunities I	Mid-Cap Blend	9/29/17	—	168	25.35	7	★★★★★	🌐🌐🌐🌐🌐	No
Eventide Exponential Technologies I	Technology	6/30/20	—	58	—	—	—	🌐🌐	—
Eventide Gilead N	Mid-Cap Growth	7/8/08	—	4,435	55.11	17	★★★★★	🌐🌐🌐	—
Eventide Healthcare & Life Sciences I	Health	12/27/12	—	2,267	37.04	17	★★★★★	🌐	—
Eventide Limited-Term Bond A	Short-Term Bond	7/28/10	12/20/18	95	3.60	56	★★★★	🌐🌐🌐🌐	—
Eventide Multi-Asset Income I	Allocation 30% to 50% Equity	7/15/15	—	205	18.41	6	★★★★★	🌐🌐🌐🌐	—
Federated Hermes Global Equity IS	World Large Stock	4/23/19	—	9	20.53	30	—	🌐🌐🌐🌐	No
Federated Hermes Global Small Cap IS	World Small/Mid Stock	4/23/19	—	3	12.79	73	—	🌐🌐🌐	No
Federated Hermes SDG Eggm HY Crdt IS	High Yield Bond	9/25/19	—	38	7.13	22	—	—	—
Federated Hermes SDG Engagement Eq IS	World Small/Mid Stock	11/6/18	—	51	8.34	89	—	🌐🌐🌐🌐	No
Fidelity® Intl Sustainability Idx	Foreign Large Blend	5/9/17	—	209	12.98	24	★★★★	🌐🌐🌐	No
Fidelity® Select Envir and Alt Engy Port	Industrials	6/29/89	—	291	21.18	22	★★★	🌐🌐🌐	No
Fidelity® Sustainability Bond Index	Intermediate Core Bond	6/19/18	—	215	7.49	54	—	—	—
Fidelity® U.S. Sustainability Index	Large Blend	5/9/17	—	644	18.67	34	★★★★★	🌐🌐🌐🌐🌐	✓
Fidelity® Water Sustainability	Natural Resources	4/16/20	—	28	—	—	—	🌐🌐🌐🌐	—
Fidelity® Women's Leadership	Large Blend	5/1/19	—	74	25.30	5	—	🌐🌐🌐🌐🌐	✓
First Trust EIP Carbon Impact ETF	Utilities	8/20/19	—	3	8.74	4	—	🌐🌐🌐	—
First Trust Global Wind Energy ETF	Miscellaneous Sector	6/16/08	—	402	61.02	—	—	🌐🌐🌐🌐	No
First Trust NASDAQ® Cln Edge® GrnEngyETF	Miscellaneous Sector	2/8/07	—	1,999	183.45	—	—	🌐	—
First Trust NASDAQ® Cln Edge®StGidlfsETF	Miscellaneous Sector	11/16/09	—	137	48.27	—	—	🌐🌐🌐🌐🌐	✓
First Trust Water ETF	Miscellaneous Sector	5/8/07	—	689	21.22	—	—	🌐🌐	—
Firsthand Alternative Energy	Technology	10/29/07	—	19	83.88	15	★★	🌐	—
Fisher IIG All Frgn Eq Env & Scl Val	Foreign Large Blend	7/17/20	—	0	—	—	—	🌐🌐🌐🌐🌐	—
Fisher IIG ESG Fixed Inc for Ret Plns	Intermediate Core Bond	12/13/19	—	3	6.70	78	—	—	—
Fisher IIG ESG Stck for Ret Plns	World Large Stock	12/13/19	—	0	27.23	22	—	🌐🌐🌐	—
Fisher IIG US Lrg Cp Eq Env & Scl Val	Large Blend	7/17/20	—	0	—	—	—	🌐🌐🌐🌐🌐	—
FlexShares STOXX Glbl ESG Impact ETF	World Large Stock	7/13/16	—	131	17.53	37	★★★★	🌐🌐🌐	✓
FlexShares STOXX US ESG Impact ETF	Large Blend	7/13/16	—	119	20.83	19	★★★★★	🌐🌐🌐	✓

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Exhibit 42 Sustainable Funds Included in Report (Continued)

Fund*	Morningstar Category 2020-12	Inception Date	Repurposed Funds ESG Start Date**	Fund AUM 12/2020 ($Mil)***	Annual Return 2020	Annual Return % Rank Cat	Morningstar Rating Overall	Morningstar Sustainability Rating	Low Carbon Designation™
Franklin Municipal Green Bond Adv	Muni National Interm	10/1/19	—	7	6.26	5	—	—	—
Frontier MFG Global Sustainable Instl	World Large Stock	10/9/19	—	22	7.74	72	—	🌐🌐🌐🌐	—
FundX Sustainable Impact	Large Growth	3/31/17	—	25	27.04	73	★★	🌐🌐🌐	✓
Gabelli ESG I	Large Blend	6/1/07	—	37	13.37	69	★	🌐🌐🌐	✓
Glenmede Responsible ESG US Equity	Large Blend	12/22/15	—	26	9.58	86	★★★	🌐🌐🌐🌐🌐	✓
Glenmede Women in Leadership US Eq	Large Value	12/22/15	—	25	7.85	19	★★★★	🌐🌐🌐🌐🌐	✓
Global X CleanTech ETF	Miscellaneous Sector	10/27/20	—	58	—	—	—	🌐🌐🌐	—
Global X Conscious Companies ETF	Large Blend	7/11/16	—	403	16.84	50	★★★★	🌐🌐🌐🌐	No
GMO Climate Change III	World Small/Mid Stock	4/5/17	—	294	42.86	18	★★★	🌐	No
GMO Climate Change Series PS	World Small/Mid Stock	11/16/18	—	22	42.27	20	★★★	🌐	No
Goldman Sachs Clean Energy Income Ins	Equity Energy	6/26/20	—	178	—	—	—	🌐🌐🌐🌐	—
Goldman Sachs ESG Em Mkts Eq R6	Diversified Emerging Mkts	5/31/18	—	11	32.41	12	—	🌐🌐🌐🌐	✓
Goldman Sachs International Eq ESG Svc	Foreign Large Blend	12/1/92	2/28/18	182	22.68	4	★★★★	🌐🌐🌐🌐	✓
Goldman Sachs JUST US Large Cap Eq ETF	Large Blend	6/7/18	—	191	19.64	27	—	🌐🌐🌐	✓
Gotham ESG Large Value Institutional	Large Value	12/28/18	—	1	3.37	43	—	🌐🌐🌐🌐🌐	No
Green California Tax-Free Income Fund	Muni California Intermediate	12/4/85	1/1/15	60	3.22	72	★★	—	—
Green Century Balanced	Allocation 50% to 70% Equity	3/18/92	—	354	15.95	19	★★★★	🌐🌐🌐🌐🌐	✓
Green Century Equity Individual Investor	Large Growth	9/13/95	—	418	22.23	84	★★	🌐🌐🌐🌐🌐	✓
Green Century MSCI Intl Indx Instl	Foreign Large Blend	9/30/16	—	119	12.43	26	★★★★★	🌐🌐🌐🌐🌐	✓
Guinness Atkinson Alternative Energy	Foreign Small/Mid Value	3/31/06	—	26	86.45	1	★★★	🌐🌐🌐	—
Hartford Climate Opportunities Y	World Small/Mid Stock	2/29/16	—	77	41.34	23	★★★★	🌐🌐🌐🌐🌐	No
Hartford Global Impact R6	World Small/Mid Stock	2/28/17	—	102	31.45	37	★★★★	🌐🌐🌐🌐🌐	—
Highland Socially Responsible Equity Y	Large Growth	12/31/96	7/17/19	71	6.82	100	★	🌐🌐🌐🌐	✓
Horizon ESG Defensive Core Inv	Large Blend	12/27/19	—	9	21.76	14	—	—	—
Impact Shares NAACP Minority Empwrmt ETF	Large Blend	7/12/18	—	19	26.25	3	—	🌐🌐🌐🌐	✓
Impact Shares Sus Dev Gls Glb Eq ETF	Large Value	9/24/18	—	4	15.98	2	—	🌐🌐🌐🌐	✓
Impact Shares YWCA Women's Empwrmt ETF	Large Blend	8/24/18	—	12	39.75	1	—	🌐🌐🌐🌐	✓
Integrity ESG Growth & Income A	Large Blend	1/3/95	—	60	17.14	48	★★★	🌐🌐🌐🌐🌐	✓
Invesco Cleantech™ ETF	Miscellaneous Sector	10/24/06	—	466	51.62	—	—	🌐🌐🌐🌐	—
Invesco Floating Rate ESG A	Bank Loan	5/1/97	8/4/20	1,578	1.51	55	★★★★	—	—
Invesco Global Clean Energy ETF	Miscellaneous Sector	6/13/07	—	301	144.13	—	—	🌐🌐	—
Invesco Global Water ETF	Natural Resources	6/13/07	—	236	14.25	62	★★★★	🌐🌐🌐	✓
Invesco MSCI World SRI Index Y	World Large Stock	7/1/16	—	10	12.86	56	★★	🌐🌐🌐🌐🌐	✓
Invesco Real Assets ESG ETF	Real Estate	12/18/20	—	1	—	—	—	—	—
Invesco S&P Global Water ETF	Natural Resources	5/14/07	—	826	15.78	53	★★★★★	🌐🌐🌐	No
Invesco Solar ETF	Miscellaneous Sector	4/15/08	—	3,632	233.26	—	—	🌐	—
Invesco US Large Cap Core ESG ETF	Large Blend	12/18/20	—	1	—	—	—	—	—
Invesco Water Resources ETF	Natural Resources	12/6/05	—	1,314	20.81	24	★★★★★	🌐🌐	No
Invesco WilderHill Clean Energy ETF	Miscellaneous Sector	3/3/05	—	2,175	205.57	—	—	🌐	—
IQ Candriam ESG International Equity ETF	Foreign Large Blend	12/16/19	—	133	10.43	39	—	🌐🌐🌐🌐	No

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Exhibit 42 Sustainable Funds Included in Report (Continued)

Fund*	Morningstar Category 2020-12	Inception Date	Repurposed Funds ESG Start Date**	Fund AUM 12/2020 ($Mil)***	Annual Return 2020	Annual Return % Rank Cat	Morningstar Rating Overall	Morningstar Sustainability Rating	Low Carbon Designation™
IQ Candriam ESG US Equity ETF	Large Blend	12/16/19	—	329	28.18	3	—	🌐🌐🌐🌐🌐	✅
iShares ESG 1-5 Year USD Corp Bd ETF	Short-Term Bond	7/11/17	—	511	5.02	18	★★★★★	🌐🌐🌐🌐	No
iShares ESG Advanced Hi Yld Corp Bd ETF	High Yield Bond	6/14/16	—	79	5.72	40	★★★★★	—	—
iShares ESG Advanced MSCI EAFE ETF	Foreign Large Blend	6/16/20	—	63	—	—	—	🌐🌐🌐🌐🌐	—
iShares ESG Advanced MSCI EM ETF	Diversified Emerging Mkts	10/6/20	—	13	—	—	—	🌐🌐🌐🌐	—
iShares ESG Advanced Ttl USD Bd Mrkt ETF	Intermediate Core-Plus Bond	6/23/20	—	147	—	—	—	—	—
iShares ESG Aware Aggressive Allc ETF	Allocation 70% to 85% Equity	6/12/20	—	5	—	—	—	🌐🌐🌐🌐	—
iShares ESG Aware Conservative Allc ETF	World Allocation	6/12/20	—	4	—	—	—	—	—
iShares ESG Aware Growth Allc ETF	World Allocation	6/12/20	—	4	—	—	—	🌐🌐🌐🌐	—
iShares ESG Aware Moderate Allc ETF	World Allocation	6/12/20	—	4	—	—	—	—	—
iShares ESG Aware MSCI EAFE ETF	Foreign Large Blend	6/28/16	—	3,986	8.62	51	★★★	🌐🌐🌐🌐	No
iShares ESG Aware MSCI EM ETF	Diversified Emerging Mkts	6/28/16	—	6,133	19.22	36	★★★	🌐🌐🌐🌐	No
iShares ESG Aware MSCI USA ETF	Large Blend	12/1/16	—	13,394	22.49	11	★★★★★	🌐🌐🌐🌐	✅
iShares ESG Aware MSCI USA Small-Cap ETF	Small Blend	4/10/18	—	510	19.77	15	—	🌐🌐🌐🌐	—
iShares ESG MSCI USA Leaders ETF	Large Blend	5/7/19	—	2,813	18.76	33	—	🌐🌐🌐🌐🌐	✅
iShares ESG U.S. Aggregate Bond ETF	Intermediate Core Bond	10/18/18	—	740	7.41	59	—	—	—
iShares ESG USD Corporate Bond ETF	Corporate Bond	7/11/17	—	723	9.76	53	★★★	🌐🌐🌐🌐	—
iShares Global Clean Energy ETF	Miscellaneous Sector	6/24/08	—	4,688	141.31	—	—	🌐🌐🌐🌐	—
iShares Global Green Bond ETF	World Bond-USD Hedged	11/13/18	—	157	6.53	42	—	—	—
iShares MSCI ACWI Low Carbon Target ETF	World Large Stock	12/8/14	—	619	17.02	38	★★★★	🌐🌐🌐	✅
iShares MSCI Global Impact ETF	World Large Stock	4/20/16	—	308	44.67	7	★★★★★	🌐🌐	✅
iShares MSCI KLD 400 Social ETF	Large Blend	11/14/06	—	2,628	20.81	19	★★★★	🌐🌐🌐🌐🌐	✅
iShares MSCI USA ESG Select ETF	Large Blend	1/24/05	—	2,298	24.64	6	★★★★★	🌐🌐🌐🌐🌐	✅
iShares® ESG Advanced MSCI USA ETF	Large Blend	6/16/20	—	81	—	—	—	🌐🌐🌐🌐🌐	—
iShares® ESG MSCI EM Leaders ETF	Diversified Emerging Mkts	2/5/20	—	835	—	—	—	🌐🌐🌐	—
iShares® ESG Screened S&P 500 ETF	Large Blend	9/22/20	—	7	—	—	—	🌐🌐🌐🌐🌐	—
iShares® ESG Screened S&P Mid-Cap ETF	Mid-Cap Blend	9/22/20	—	11	—	—	—	🌐🌐🌐	—
iShares® ESG Screened S&P Small-Cap ETF	Small Blend	9/22/20	—	7	—	—	—	🌐🌐🌐	—
Janus Henderson Global Sust Eq I	World Large Stock	6/25/20	—	20	—	—	—	🌐🌐🌐🌐🌐	—
JHancock ESG All Cap Core R6	Large Growth	6/6/16	—	34	19.29	90	★★	🌐🌐🌐🌐🌐	✅
JHancock ESG Core Bond R6	Intermediate Core Bond	12/14/16	—	64	6.60	80	★★		—
JHancock ESG International Equity R6	Foreign Large Growth	12/14/16	—	80	25.31	33	★★★	🌐🌐🌐🌐	✅
JHancock ESG Large Cap Core R6	Large Blend	6/6/16	—	87	18.65	34	★★★★★	🌐🌐🌐🌐🌐	✅
JPMorgan Carbon Transition US Eq ETF	Large Blend	12/9/20	—	23	—	—	—	—	—
JPMorgan Sustainable Municipal Income I	Muni National Interm	2/9/93	2/28/17	311	4.82	34	★★★	—	—
JPMorgan US Sustainable Leaders I	Large Blend	2/28/03	11/1/16	75	19.74	26	★★★★	🌐🌐🌐🌐🌐	✅
Karner Blue Biodiversity Impact Inst	World Large Stock	9/17/19	—	8	18.30	36	—	🌐🌐	No
Kayne Anderson Renewable Infras I	Infrastructure	7/23/20	—	44	—	—	—	🌐🌐🌐	—
KBI Global Investors Aquarius Instl	Natural Resources	10/12/18	—	147	13.48	64	—	🌐🌐🌐🌐	No
Kennedy Capital ESG SMID Cap I	Mid-Cap Blend	6/28/19	—	6	20.98	13	—	🌐🌐🌐	—

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Exhibit 42 Sustainable Funds Included in Report (Continued)

Fund*	Morningstar Category 2020-12	Inception Date	Repurposed Funds ESG Start Date**	Fund AUM 12/2020 ($Mil)***	Annual Return 2020	% Rank Cat	Morningstar Rating Overall	Morningstar Sustainability Rating	Low Carbon Designation™
KraneShares MSCI China Environment ETF	China Region	10/12/17	—	64	136.07	1	★★★★★	🌐🌐🌐	—
KraneShares MSCI China ESG Ldrs ETF USD	China Region	2/3/20	—	21	—	—	—	🌐🌐🌐	—
Lateef Focused Sustainable Growth CL I	Large Growth	9/6/07	9/1/20	54	29.55	63	★★	🌐🌐	✓
Lazard US Sustainable Equity Inst	Large Blend	6/30/20	—	12	—	—	—	🌐🌐🌐🌐🌐	—
Lord Abbett Climate Focused Bond I	World Bond-USD Hedged	5/28/20	—	12	—	—	—	🌐🌐🌐🌐	—
MassMutual Premier Balanced R5	Allocation 50% to 70% Equity	9/30/94	11/18/20	147	10.89	60	★★★★	🌐🌐🌐	—
Matthews Asia ESG Institutional	Pacific/Asia ex-Japan Stk	4/30/15	—	88	43.13	19	★★★	🌐🌐	—
Mesirow Financial Sm Cp Value Sust Instl	Small Value	12/19/18	—	11	6.70	27	—	🌐🌐🌐	—
Mirova Global Green Bond N	World Bond-USD Hedged	2/28/17	—	39	7.89	28	★★★★	🌐🌐🌐🌐	—
Mirova Global Sustainable Equity Y	World Large Stock	3/31/16	—	875	32.42	15	★★★★	🌐🌐🌐🌐	✓
Mirova International Sustainable Eq N	Foreign Large Blend	12/28/18	—	17	23.60	2	—	🌐🌐🌐🌐🌐	✓
Morgan Stanley Inst Global Sustain I	World Large Stock	8/30/13	3/29/18	53	15.96	44	★★★★	🌐🌐🌐🌐	✓
Morgan Stanley Inst Strategic Income IS	Multisector Bond	12/30/14	10/1/19	27	2.71	76	★★	—	—
Nationwide Global Sust Eq R6	World Large Stock	1/28/94	12/10/15	56	20.56	30	★★★★	🌐🌐🌐🌐	✓
Natixis Sustainable Future 2015 N	Target-Date 2015	2/28/17	—	4	13.41	4	★★★★★	🌐🌐🌐🌐🌐	—
Natixis Sustainable Future 2020 N	Target-Date 2020	2/28/17	—	3	14.32	3	★★★★★	🌐🌐🌐🌐🌐	—
Natixis Sustainable Future 2025 N	Target-Date 2025	2/28/17	—	7	14.11	19	★★★★	🌐🌐🌐🌐🌐	✓
Natixis Sustainable Future 2030 N	Target-Date 2030	2/28/17	—	8	15.32	15	★★★★★	🌐🌐🌐🌐🌐	✓
Natixis Sustainable Future 2035 N	Target-Date 2035	2/28/17	—	7	15.56	28	★★★★	🌐🌐🌐🌐🌐	✓
Natixis Sustainable Future 2040 N	Target-Date 2040	2/28/17	—	5	16.56	24	★★★★	🌐🌐🌐🌐🌐	✓
Natixis Sustainable Future 2045 N	Target-Date 2045	2/28/17	—	5	16.89	29	★★★★	🌐🌐🌐🌐🌐	✓
Natixis Sustainable Future 2050 N	Target-Date 2050	2/28/17	—	5	17.44	24	★★★★	🌐🌐🌐🌐🌐	✓
Natixis Sustainable Future 2055 N	Target-Date 2055	2/28/17	—	4	16.48	36	★★★★	🌐🌐🌐🌐🌐	✓
Natixis Sustainable Future 2060 N	Target-Date 2060+	2/28/17	—	3	17.36	28	★★★★	🌐🌐🌐🌐🌐	✓
Neuberger Berman AMT Sustainable Eq I	Large Blend	2/18/99	—	674	19.56	28	★★★	🌐🌐🌐🌐🌐	✓
Neuberger Berman Municipal Impact Instl	Muni National Interm	3/11/13	6/28/18	63	4.30	58	★★★	—	—
Neuberger Berman Sustainable Eq Investor	Large Blend	3/16/94	—	1,756	19.38	28	★★★	🌐🌐🌐🌐🌐	✓
New Alternatives A	World Small/Mid Stock	9/3/82	—	410	69.15	1	★★★★★	🌐🌐🌐🌐	—
Northern Global Sustainability Index I	World Large Stock	3/5/08	—	921	15.48	47	★★★★	🌐🌐🌐🌐	No
Northern US Quality ESG K	Large Blend	10/2/17	—	267	20.15	25	★★★★	🌐🌐🌐🌐🌐	✓
Nuveen ESG Emerging Markets Equity ETF	Diversified Emerging Mkts	6/6/17	—	67	24.56	23	★★★★	🌐🌐🌐🌐	No
Nuveen ESG High Yield Corporate Bd ETF	High Yield Bond	9/25/19	—	72	3.96	69	—	—	—
Nuveen ESG Intl Dev Mkts Eq ETF	Foreign Large Blend	6/6/17	—	82	10.74	36	★★★★	🌐🌐🌐🌐	✓
Nuveen ESG Large-Cap ETF	Large Blend	6/3/19	—	19	22.32	12	—	🌐🌐🌐🌐🌐	✓
Nuveen ESG Large-Cap Growth ETF	Large Growth	12/13/16	—	431	39.67	29	★★★★	🌐🌐🌐🌐🌐	✓
Nuveen ESG Large-Cap Value ETF	Large Value	12/13/16	—	677	1.88	55	★★★	🌐🌐🌐🌐🌐	No
Nuveen ESG Mid-Cap Growth ETF	Mid-Cap Growth	12/13/16	—	257	45.60	26	★★★★	🌐🌐🌐🌐🌐	✓
Nuveen ESG Mid-Cap Value ETF	Mid-Cap Value	12/13/16	—	152	0.96	64	★★★	🌐🌐🌐🌐🌐	No
Nuveen ESG Small-Cap ETF	Small Blend	12/13/16	—	534	23.48	6	★★★★★	🌐🌐🌐🌐	—
Nuveen ESG US Aggregate Bond ETF	Intermediate Core Bond	9/29/17	—	190	7.50	52	★★★	—	—

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Nuveen Winslow Large-Cap Growth ESG I	Large Growth	5/15/09	2/3/20	762	37.89	36	★★★★	🌐🌐🌐🌐🌐	✓
Old Westbury All Cap ESG	World Large Stock	3/1/18	—	46	6.50	75	—	🌐🌐🌐🌐🌐	✓
Pacific Funds ESG Core Bond I	Intermediate Core Bond	12/14/20	—	25	—	—	—	—	—
Parnassus Core Equity Investor	Large Blend	8/31/92	—	23,190	21.19	16	★★★★★	🌐🌐🌐🌐🌐	✓
Parnassus Endeavor Investor	Large Blend	4/29/05	—	3,263	27.42	3	★★★★★	🌐🌐🌐🌐🌐	✓
Parnassus Fixed-Income	Intermediate Core-Plus Bond	8/31/92	—	396	7.91	56	★★	—	—
Parnassus Mid Cap Growth Investor	Mid-Cap Growth	12/27/84	—	1,079	28.61	69	★★★	🌐🌐🌐🌐🌐	✓
Parnassus Mid-Cap	Mid-Cap Blend	4/29/05	—	6,952	14.88	32	★★★★★	🌐🌐🌐🌐🌐	✓
Pax Core Bond Fund Institutional	Intermediate Core Bond	12/16/16	—	760	7.15	68	★★★	—	—
Pax Ellevate Glbl Women's Ldrsp Inv	World Large Stock	10/1/93	—	748	13.67	53	★★★	🌐🌐🌐🌐	✓
Pax ESG Beta Dividend Fund Institutional	Large Blend	12/16/16	—	140	14.54	62	★★★	🌐🌐🌐🌐🌐	✓
Pax ESG Beta Quality Investor	Large Blend	6/11/97	—	257	13.34	69	★★★	🌐🌐🌐🌐	✓
Pax Global Environmental Mrkts Instl	World Large Stock	3/27/08	—	1,620	26.00	23	★★★★	🌐🌐🌐🌐	✓
Pax Global Opportunities Institutional	World Large Stock	6/27/18	—	69	23.12	27	—	🌐🌐🌐🌐🌐	✓
Pax High Yield Bond Investor	High Yield Bond	10/8/99	—	471	7.85	14	★★★★	—	—
Pax Large Cap Fund Institutional	Large Blend	12/16/16	—	1,041	23.99	8	★★★★★	🌐🌐🌐🌐🌐	✓
Pax MSCI EAFE ESG Leaders Index Instl	Foreign Large Blend	1/27/11	—	702	10.78	34	★★★★	🌐🌐🌐🌐	✓
Pax Small Cap Institutional	Small Blend	3/27/08	—	466	12.06	46	★★★★	🌐🌐	—
Pax Sustainable Allocation Inv	Allocation 50% to 70% Equity	8/10/71	—	2,174	16.24	17	★★★★	🌐🌐🌐🌐🌐	—
Payden California Municipal Social Imp	Muni California Intermediate	12/17/98	1/31/20	66	5.57	4	★★★★	—	—
PFG BR Equity ESG Strategy R Shares	World Large Stock	5/1/20	—	129	—	—	—	🌐🌐🌐🌐🌐	—
PIMCO Climate Bond Institutional	Intermediate Core-Plus Bond	12/10/19	—	16	6.77	77	—	—	—
PIMCO Enhanced Short Mtrty Actv ESG ETF	Ultrashort Bond	12/10/19	—	158	2.08	18	—	—	—
PIMCO ESG Income Institutional	Multisector Bond	9/30/20	—	15	—	—	—	—	—
PIMCO Low Duration ESG Institutional	Short-Term Bond	12/31/96	1/6/17	414	3.30	69	★★★	—	—
PIMCO RAFI ESG US ETF	Large Value	12/18/19	—	12	5.41	31	—	🌐🌐🌐🌐	✓
PIMCO Total Return ESG Institutional	Intermediate Core-Plus Bond	5/1/91	1/6/17	1,972	8.97	32	★★★	—	—
Pioneer Balanced ESG Y	Allocation 50% to 70% Equity	12/16/91	12/1/19	379	12.90	41	★★★★	🌐🌐🌐🌐	✓
Praxis Genesis Balanced A	Allocation 50% to 70% Equity	12/31/09	—	88	12.97	41	★★★	🌐🌐🌐🌐	—
Praxis Genesis Conservative A	Allocation 30% to 50% Equity	12/31/09	—	28	10.28	41	★★★	🌐🌐🌐🌐	—
Praxis Genesis Growth A	Allocation 70% to 85% Equity	12/31/09	—	86	14.08	37	★★★★	🌐🌐🌐🌐	✓
Praxis Growth Index I	Large Growth	5/1/07	—	400	33.19	51	★★★★	🌐🌐🌐🌐	✓
Praxis Impact Bond A	Intermediate Core Bond	5/12/99	—	729	7.45	57	★★★	—	—
Praxis International Index I	Foreign Large Blend	12/31/10	—	320	13.18	23	★★★	🌐🌐🌐🌐	No
Praxis Small Cap Index I	Small Blend	5/1/07	—	140	11.04	53	★★★	🌐🌐🌐🌐	—
Praxis Value Index A	Large Value	5/1/01	—	309	3.58	41	★★★★	🌐🌐🌐🌐	No
Preserver Alternative Opportunits Instl	Allocation 50% to 70% Equity	3/1/16	12/30/19	26	14.04	34	★★★	🌐🌐🌐🌐	—
Putnam Sustainable Future A	Large Growth	11/1/99	3/1/18	566	52.74	10	★★★	🌐🌐	✓
Putnam Sustainable Leaders A	Large Growth	8/31/90	3/1/18	5,880	28.51	68	★★★	🌐🌐🌐🌐	✓
Quantified Common Ground Investor	Allocation 50% to 70% Equity	12/30/19	—	69	14.67	30	—	🌐🌐🌐🌐🌐	—

Source: Morningstar Direct. Data as of 12/31/2020. *For funds with multiple share classes, the largest share class is listed. 2020 Return, Return % Rank Category and Morningstar Rating refer to largest share class. **The date of a repurposed fund's first prospectus indicating sustainability focus. ***Fund AUM includes all share classes of multiple

Exhibit 42 Sustainable Funds Included in Report (Continued)

					Annual Return				
Fund*	Morningstar Category 2020-12	Inception Date	Repurposed Funds ESG Start Date**	Fund AUM 12/2020 ($Mil)***	2020	% Rank Cat	Morningstar Rating Overall	Morningstar Sustainability Rating	Low Carbon Designation™
RBC Impact Bond R6	Intermediate Core Bond	12/18/17	—	42	8.01	36	★★★	—	—
Reynders McVeigh Core Equity Instl	Large Growth	3/29/19	—	43	46.35	17	—	🌐🌐🌐🌐	✓
Riverbridge Eco Leaders® Institutional	Mid-Cap Growth	12/31/14	—	16	44.35	28	★★★★	🌐🌐🌐🌐🌐	✓
Russell Inv Sustainable Equity S	Large Blend	9/2/08	1/1/19	281	13.48	69	★★★	🌐🌐🌐🌐	✓
Saturna Sustainable Bond	World Bond	3/27/15	—	21	6.82	74	★★	—	—
Saturna Sustainable Equity	World Large Stock	3/27/15	—	19	24.39	25	★★★★	🌐🌐🌐🌐🌐	✓
Segall Bryant&Hamill Workplace Eq Ret	Large Value	6/1/88	7/11/19	21	6.81	23	★★★	🌐🌐🌐🌐🌐	No
SGI Conservative	Allocation 15% to 30% Equity	6/8/20	—	1	—	—	—	—	—
SGI Peak Growth	World Allocation	6/8/20	—	9	—	—	—	🌐🌐🌐	—
SGI Prudent Growth	Allocation 70% to 85% Equity	6/8/20	—	9	—	—	—	🌐🌐🌐🌐	—
Shelton Green Alpha	Mid-Cap Growth	3/12/13	—	183	113.87	3	★★★★★	🌐🌐🌐	—
Sit ESG Growth I	Large Blend	7/1/16	—	8	15.90	54	★★★	🌐🌐🌐🌐🌐	✓
SmartETFs Sustainable Energy II ETF	Equity Energy	11/11/20	—	1	—	—	—	🌐🌐🌐🌐🌐	—
SPDR® Blmbrg SASB Corp Bd ESG Slct ETF	Corporate Bond	11/5/20	—	27	—	—	—	🌐🌐🌐🌐🌐	—
SPDR® Kensho Clean Power ETF	Equity Energy	10/19/18	—	218	139.56	3	—	🌐🌐🌐	—
SPDR® MSCI ACWI Low Carbon Target ETF	World Large Stock	11/25/14	—	80	17.00	39	★★★★	🌐🌐🌐	✓
SPDR® MSCI EAFE Fossil Fuel Free ETF	Foreign Large Blend	10/24/16	—	171	9.59	44	★★★	🌐🌐🌐	✓
SPDR® MSCI Em Mkts Fossil Fuel Free ETF	Diversified Emerging Mkts	10/24/16	—	139	20.12	34	★★★	🌐🌐🌐	No
SPDR® S&P 500 Fossil Fuel Rsrv Free ETF	Large Blend	11/30/15	—	893	19.67	27	★★★★★	🌐🌐🌐	✓
SPDR® S&P 500® ESG ETF	Large Blend	7/27/20	—	93	—	—	—	🌐🌐🌐🌐	—
SPDR® SSGA Gender Diversity ETF	Large Blend	3/7/16	—	182	17.95	43	★★★	🌐🌐🌐🌐	✓
Third Avenue International RE Val Fndrs	Global Real Estate	5/8/14	—	39	4.97	4	★★★★	🌐🌐	—
Thornburg Better World International I	Foreign Large Blend	9/30/15	—	140	26.75	2	★★★★★	🌐🌐🌐🌐	✓
TIAA-CREF Core Impact Bond Instl	Intermediate Core-Plus Bond	9/21/12	—	6,254	7.45	68	★★★	—	—
TIAA-CREF Green Bond Institutional	Intermediate Core-Plus Bond	11/16/18	—	47	8.59	40	—	—	—
TIAA-CREF Short Duration Impact Bd Instl	Short-Term Bond	11/16/18	—	32	4.61	27	—	—	—
TIAA-CREF Social Choice Eq Instl	Large Blend	7/1/99	—	6,278	20.34	24	★★★★	🌐🌐🌐🌐	✓
TIAA-CREF Social Choice Intl Eq Instl	Foreign Large Blend	8/7/15	—	654	9.87	42	★★★	🌐🌐🌐🌐	No
TIAA-CREF Social Choice LwCrbn Eq Instl	Large Blend	8/7/15	—	558	22.34	12	★★★★★	🌐🌐🌐🌐	✓
Touchstone Global ESG Equity Fd - Cl A	World Large Stock	12/19/97	5/4/15	677	14.44	51	★★★★	🌐🌐🌐	✓
Touchstone Impact Bond Y	Intermediate Core Bond	11/15/91	5/21/18	402	6.71	77	★★★	—	—
Touchstone International ESG Equity A	Foreign Large Blend	12/3/07	—	32	12.70	25	—	🌐🌐🌐🌐	✓
Transamerica High Yield ESG I	High Yield Bond	7/31/20	—	21	—	—	—	—	—
Transamerica Sustainable Bond I	Intermediate Core-Plus Bond	7/31/20	—	25	—	—	—	—	—
Transamerica Sustainable Equity Inc I	Large Value	1/4/13	12/1/20	549	-7.66	97	★	🌐🌐	No
Trend Aggregation ESG ETF	Allocation 50% to 70% Equity	5/7/20	—	17	—	—	—	🌐🌐🌐🌐🌐	—
Trillium ESG Global Equity Fund Retail	World Large Stock	9/30/99	—	754	24.57	24	★★★★	🌐🌐🌐🌐🌐	✓
Trillium ESG Small/Mid Cap Inst	Mid-Cap Growth	8/31/15	—	19	15.93	93	★	🌐🌐🌐🌐	No
TrueShares ESG Active Opportunities ETF	Large Blend	2/28/20	—	7	—	—	—	🌐🌐🌐🌐🌐	—
UBS Engage For Impact P	World Large Stock	10/24/18	—	41	16.94	40	—	🌐🌐	✓

Source: Morningstar Direct. Data as of 12/31/2020. *For funds with multiple share classes, the largest share class is listed. 2020 Return, Return % Rank Category and Morningstar Rating refer to largest share class. **The date of a repurposed fund's first prospectus indicating sustainability focus. ***Fund AUM includes all share classes of multiple

Exhibit 42 Sustainable Funds Included in Report (Continued)

Fund*	Morningstar Category 2020-12	Inception Date	Repurposed Funds ESG Start Date**	Fund AUM 12/2020 ($Mil)***	Annual Return 2020	Annual Return % Rank Cat	Morningstar Rating Overall	Morningstar Sustainability Rating	Low Carbon Designation™
UBS International Sustainable Equity P	Foreign Large Blend	8/31/93	10/28/13	321	12.96	24	★★★★	🌐🌐🌐	✓
UBS Sustainable Development Bank Bond P	World Bond-USD Hedged	10/24/18	—	49	6.80	39	—	🌐🌐🌐🌐🌐	—
UBS US Sustainable Equity P	Large Blend	2/22/94	10/27/17	30	22.73	10	★★★	🌐🌐🌐🌐🌐	✓
US Vegan Climate ETF	Large Blend	9/9/19	—	36	27.69	3	—	🌐🌐🌐🌐🌐	✓
USAA Sustainable World	World Large Stock	10/1/92	10/1/20	1,438	15.71	45	★★★★	🌐🌐	No
VanEck Vectors Environmental Svcs ETF	Industrials	10/10/06	—	38	13.17	46	★★★★	🌐🌐🌐	—
VanEck Vectors Green Bond ETF	World Bond	3/3/17	—	57	7.59	67	★★★	🌐🌐🌐🌐	—
VanEck Vectors Low Carbon Energy ETF	Miscellaneous Sector	5/3/07	—	270	118.63	—	—	🌐🌐🌐	—
Vanguard ESG International Stock ETF	Foreign Large Blend	9/18/18	—	1,584	13.52	20	—	🌐🌐	✓
Vanguard ESG US Corporate Bond ETF	Corporate Bond	9/22/20	—	84	—	—	—	🌐🌐🌐🌐	—
Vanguard ESG US Stock ETF	Large Blend	9/18/18	—	2,981	25.71	4	—	🌐🌐🌐🌐	✓
Vanguard FTSE Social Index I	Large Blend	1/14/03	—	10,798	22.66	11	★★★★★	🌐🌐🌐🌐	✓
Vanguard Global ESG Select Stk Admiral	World Large Stock	6/5/19	—	294	19.44	33	—	🌐🌐🌐🌐🌐	✓
Vert Global Sustainable Real Estate Inst	Global Real Estate	10/31/17	—	84	-10.09	82	★★	🌐🌐🌐🌐🌐	No
Virtus AllianzGI Global Allocation A	World Allocation	9/30/98	10/11/19	307	13.97	17	★★★	—	—
Virtus AllianzGI Global Sust Instl	World Large Stock	12/9/14	—	187	18.87	35	★★★	🌐🌐🌐🌐🌐	✓
Virtus AllianzGI Water Class P	Natural Resources	3/31/08	1/31/18	803	17.00	47	★★★★★	🌐🌐🌐🌐🌐	Yes
WCM Focused ESG Emerging Markets Ins	Diversified Emerging Mkts	3/31/20	—	1	—	—	—	🌐🌐🌐🌐🌐	—
WCM Focused ESG International Ins	Foreign Large Blend	3/31/20	—	1	—	—	—	🌐🌐🌐	—
Wells Fargo Municipal Sustainability Ins	Muni National Interm	2/28/20	—	26	—	—	—	—	—
WisdomTree Emerging Markets ESG ETF	Diversified Emerging Mkts	4/7/16	11/1/20	36	12.31	71	★★★	🌐🌐🌐🌐	No
WisdomTree International ESG	Foreign Large Growth	11/3/16	11/1/20	20	11.32	94	★★★	🌐🌐🌐🌐	Yes
WisdomTree U.S. ESG ETF	Large Blend	2/23/07	10/26/20	84	12.98	71	★★★	🌐🌐🌐🌐	Yes
Xtrackers BBG US Invmt Grd Corp ESG ETF	Corporate Bond	3/3/15	5/12/20	10	-1.86	100	★	🌐🌐🌐🌐	No
Xtrackers JPMorgan ESG EM Sovereign ETF	Emerging Markets Bond	3/3/15	5/12/20	33	-3.09	99	★★	—	—
Xtrackers JPMorgan ESG USD HY Corp BdETF	High Yield Bond	3/3/15	5/12/20	16	1.13	93	★★	—	—
Xtrackers MSCI ACWI ex USA ESG LdrsEqETF	Foreign Large Blend	12/4/18	—	9	13.37	21	—	🌐🌐🌐	No
Xtrackers MSCI EAFE ESG Leaders Eq ETF	Foreign Large Blend	9/5/18	—	16	10.48	38	—	🌐🌐🌐🌐	Yes
Xtrackers MSCI EMs ESG Leaders Eq ETF	Diversified Emerging Mkts	12/4/18	—	11	19.88	35	—	🌐🌐🌐🌐	No
Xtrackers MSCI USA ESG Leaders Eq ETF	Large Blend	3/6/19	—	2,851	18.74	33	—	🌐🌐🌐🌐🌐	Yes
Xtrackers S&P 500 ESG ETF	Large Blend	6/25/19	—	402	19.62	27	—	🌐🌐🌐🌐	Yes
Zeo Sustainable Credit I	Multisector Bond	5/31/19	—	18	-0.85	92	—	—	—

Source: Morningstar Direct. Data as of 12/31/2020. *For funds with multiple share classes, the largest share class is listed. 2020 Return, Return % Rank Category and Morningstar Rating refer to largest share class. **The date of a repurposed fund's first prospectus indicating sustainability focus. ***Fund AUM includes all share classes of multiple share-class funds.

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Measuring Transition Risk in Fund Portfolios

The Morningstar® Portfolio Carbon Risk Score™

Morningstar Research
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Key Takeaways

- Investors are increasingly interested in understanding carbon risk in portfolios.
- The Morningstar® Portfolio Carbon Risk Score™ moves beyond carbon footprinting to provide a direct assessment of the carbon risk embedded in a portfolio.
- The Morningstar Portfolio Carbon Risk Score is the asset-weighted Sustainalytics carbon-risk rating of companies held in a portfolio.
- The Sustainalytics company carbon-risk rating evaluates how much unmanaged carbon risk remains for a company after accounting for its management activities that mitigate overall carbon-risk exposure.
- The company ratings reflect differences in exposure and management across sectors and within sectors.
- Portfolios with overweightings to the energy, utilities, materials, and industrials sectors have higher levels of carbon risk, but risk levels can vary depending on the specific companies held in portfolios.
- Portfolios with overweightings to the technology and healthcare sectors have lower levels of carbon risk.
- Diversified developed-markets portfolios have lower carbon risk than emerging-markets portfolios.
- In global developed-markets and emerging-markets categories, it is estimated that portfolio carbon risk may be reduced by 10% without making otherwise significant changes to a portfolio, while lowering carbon risk by 30% in global developed markets may result in shifts toward growth and quality and in emerging markets may result in lower overall volatility.
- Investors can use the initial Morningstar Portfolio Carbon Risk Score to establish a baseline for ongoing assessments of a portfolio's carbon risk.
- Investors can use the Carbon Risk Score to identify the source of carbon risk within a portfolio and to compare portfolios with peers and benchmarks; the Carbon Risk Score can also inform portfolio decisions, company engagements, and stakeholder communications.
- Beyond the Carbon Risk Score, funds will be designated as low carbon if they have low carbon-risk scores and low levels of fossil-fuel exposure over the trailing 12 months; this gives investors and others a way to easily identify low-carbon funds in the marketplace.

Introduction

Investors are increasingly recognizing the risks posed by climate change. Climate-related risks range from the increasingly evident physical effects of global warming to the low-carbon economic transition that is necessary to mitigate the worst effects of global warming. Climate change poses physical risks resulting from the increased severity and incidence of extreme weather events and from the longer-term changes in precipitation and variability of weather patterns due to rising temperatures and rising sea levels. These risks can have disparate impacts on industries and on companies within a given industry both in terms of their operations and demand for their products and services. Climate change also poses

transition risk, also referred to as *carbon risk*, which addresses how vulnerable a company is to the transition away from a fossil-fuel-based economy to a lower-carbon economy. Such a transition is required to meet the goals of the Paris Agreement to keep the global-temperature rise this century well below 2 degrees Celsius above preindustrial levels and to pursue efforts to limit the rise in temperature to 1.5 degrees Celsius. Specific transition risks include policy and legal regulations limiting carbon emissions, pressure on firms to align their strategies with the Paris Agreement's 2-degree scenario, switching costs to new technologies, and changing consumer preferences.

Exhibit 1 Climate-Related Risks: Transition (or Carbon) and Physical

Type	Climate-Related Risks	Potential Financial Impacts
Transition	**Policy and Legal** ► Increased pricing of GHG emissions ► Enhanced emissions-reporting obligations ► Regulation of existing products and services ► Exposure to litigation	► Increased operating costs ► Write-offs and asset impairment ► Increased costs/reduced demand for products and services ► Fines and judgments
	Technology ► Substitution of existing products and services with lower emissions options ► Unsuccessful investment in new technologies ► Costs to transition to lower emissions technology	► Write-offs and early retirement of existing assets ► Reduced demand for products and services ► Research & development expenditures and capital investments in new and alternative technologies
	Market ► Changing customer behavior ► Uncertainty in market signals ► Increased cost of raw materials	► Reduced demand for products and services ► Increased productions costs due to changing input prices (e.g., energy, water) and output requirements (e.g., waste treatment) ► Abrupt, unexpected shifts in energy costs ► Decreased revenues ► Re-pricing of assets (e.g., fossil-fuel reserves, land valuations, securities valuations)
	Reputation ► Shifts in consumer preferences ► Stigmatization of sector ► Increased stakeholder concern or negative stakeholder feedback	► Reduced revenue from decreased demand ► Reduced revenue from decreased production capacity (e.g., delayed planning approvals, supply chain interruptions) ► Reduced revenue from negative impacts on workforce management and planning (e.g., employee attraction and retention ► Reduction in capital availability
Physical	**Acute** ► Increased severity of extreme weather events such as hurricanes, drought, floods **Chronic** ► Changes in precipitation patterns and extreme variability in weather patterns ► Rising mean temperatures ► Rising sea levels	► Reduced revenue from decreased production capacity (e.g., transport difficulties, supply chain interruptions) ► Reduced revenue and higher costs from negative impacts on workforce (e.g., health, safety, absenteeism) ► Write-offs and early retirement of existing assets (e.g., damage to property and assets in high-risk locations ► Increased operating costs (e.g., inadequate water supply for hydroelectric plants or to cool nuclear and fossil-fuel plants ► Increased capital costs (e.g., damage to facilities) ► Reduced revenues from lower sales/output ► Increased insurance premiums and potential for reduced availability of insurance on assets in high-risk locations

Source: TCFD, Final Report, Recommendations of the Task Force on Climate-Related Financial Disclosures, P. 10, https://www.fsb-tcfd.org/wp-content/uploads/2017/06/FINAL-TCFD-Report-062817.pdf

Investors are increasingly urging companies to address climate risk. The Financial Stability Board's Task Force on Climate-Related Financial Disclosures issued guidance in 2017 for companies to report to investors on climate-related risks. The TCFD recommends that companies disclose to investors how their corporate strategy is affected by climate risk; how they identify, assess, and manage climate risk; the metrics and targets they use to manage climate risk; and their governance oversight of climate-related risks and opportunities. In late 2017, a group of investors launched the Climate Action 100+ initiative, pledging to actively engage with the 100 global companies that have the highest levels of carbon emissions about taking action in line with the TCFD recommendations. To date, investors with $28 trillion in assets under management have signed on to the initiative.[1]

Exhibit 2 Core Elements of Recommended Climate-Related Financial Disclosures

Governance	The organization's governance around climate-related risks and opportunities
Strategy	The actual and potential impacts of climate-related risks and opportunities on the organization's business strategy and financial planning.
Risk Management	The processes used by the organization to identify, assess, and manage climate-related risks
Metrics and Targets	The metrics and targets used to assess and manage relevant climate-related risks and opportunities

Source: TCFD, Final Report, Recommendations of the Task Force on Climate-Related Financial Disclosures, p. v, https://www.fsb-tcfd.org/wp-content/uploads/2017/06/FINAL-TCFD-Report-062817.pdf

Although understanding both physical risk and transition risk is important, investors are increasingly attempting to measure transition risk, or carbon risk, in their portfolios. The TCFD recommends that asset managers and asset owners report on the carbon emissions associated with their portfolios, viewing it as a step toward the development of decision-useful climate-related risk metrics. Signatories to the 2014 Montreal Carbon Pledge, sponsored by the Principles for Responsible Investment and signed by more than 120 asset owners and asset managers with more than $10 trillion in assets, have committed to measuring and disclosing the carbon footprint of their equity portfolios on an annual basis.[2] The Portfolio Decarbonization Coalition has 28 asset owners and asset managers with $3 trillion in assets committing to reducing the carbon exposure in their portfolios and aligning them with the goals of a low-carbon economy.[3] Article 173 of France's Law on Energy Transition for Green Growth, which went into effect in 2016, requires asset owners and asset managers of portfolios with more than EUR 500 million in assets to report on their exposure to transition risk or explain why they do not think doing so is necessary.[4]

Understanding carbon risk in a portfolio can help investors make better decisions. Investors typically do not know the extent to which a portfolio is exposed to carbon risk. While a portfolio’s exposure to fossil

1 http://www.climateaction100.org/
2 http://montrealpledge.org/
3 http://unepfi.org/pdc/
4 http://www.frenchsif.org/isr-esg/wp-content/uploads/Understanding_article173-French_SIF_Handbook.pdf

fuel is a major component of its carbon risk, a much wider range of industries, approaching half the overall market cap by some estimates, have exposure to carbon risk through trends like the shift to renewables or electric vehicles.[5] A portfolio carbon-risk assessment can provide information on overall risk exposure and where in the portfolio the risk is located.

Understanding portfolio carbon risk gives investors the ability to make strategic decisions to mitigate carbon risk and a basis for measuring carbon-risk reduction. This applies to asset managers as well as asset owners and fund investors. An asset manager can use carbon-risk information to inform buy-sell and portfolio-construction decisions, to make decisions on which companies to engage with to better understand their climate-risk mitigation strategies, and to communicate with clients and other stakeholders about their activities. An asset owner or fund investor can use carbon-risk information to better understand how climate risk affects their investments overall and as a basis for action to reduce their exposure to climate risk. This information allows fund investors to take climate risk into consideration as they monitor, compare, and select funds and asset managers.

Morningstar began providing information pertinent to these issues in 2016 with the launch of the Morningstar Sustainability Rating. The rating is based on Sustainalytics company-level ESG scores, which do reflect assessments of companies' carbon exposure but as part of a broader evaluation of their exposure to ESG risks and opportunities. To help investors specifically focus on and better understand carbon risk in portfolios, Morningstar has developed portfolio-level carbon-risk scores that are based on an innovative new set of company carbon-risk ratings from Sustainalytics, covering more than 4,000 companies.

The remainder of this paper describes the Sustainalytics company carbon-risk model and the Morningstar Portfolio Carbon Risk Score, then presents information on the first quarterly calculation of the scores and suggests how investors can incorporate them into their decisions.

Measuring Carbon Risk

Most efforts to measure carbon risk in portfolios rely on a technique called *carbon footprinting*. A portfolio's carbon footprint is calculated by estimating the greenhouse gas emissions that are attributable to each underlying holding. Scope 1 emissions emanate from a company's internal operations, including on-site energy production, vehicle fleets, manufacturing operations, and waste. Scope 2 emissions are indirect emissions generated by the production of energy used by the company. Scope 3 emissions are indirect emissions that occur in the upstream and downstream value chain.

Carbon footprinting has widely acknowledged limitations. These include GHG emissions data provided by companies that can be incomplete, inaccurate, or not independently verified. Footprinting typically does not account for Scope 3 emissions. Furthermore, a carbon footprint is not a direct measure of risk, but more of a starting point for considering the magnitude of carbon risk faced by a company. A carbon

5 Kepler Cheuvreux Transition Research, "Investor primer to transition risk analysis," P. 9, http://et-risk.eu/wp-content/uploads/2018/02/Investor-primer-to-transition-risk-analysis.pdf

footprint does not consider the financial materiality of a company's carbon-risk exposure or its strategy to manage such risk.

Sustainalytics has developed a carbon-risk rating for companies that provides deeper insights than carbon footprinting alone can provide. The carbon-risk rating evaluates the degree to which a company's economic value is at risk in the transition to a low-carbon economy. The rating is based on an assessment of a company's overall carbon exposure and its management of that exposure. It recognizes that not all industries and not all companies are equally exposed to carbon risk. A company's carbon risk is defined as the unmanaged carbon exposure that remains after considering the management activities being taken to mitigate it.

Using Sustainalytics' carbon-risk rating for companies, Morningstar has created the Morningstar Portfolio Carbon Risk Score, a new metric that investors can use to evaluate carbon risk at the portfolio level.[6] The Carbon Risk Score for portfolios is calculated across Morningstar's global mutual fund and managed accounts universe, thereby allowing for fund-to-fund comparisons, category and benchmark comparisons, and longitudinal comparisons.

Sustainalytics Carbon-Risk Rating for Companies

The carbon-risk rating is based on assessments across two dimensions: exposure and management. Exposure is a measure of the degree to which carbon risks are material across the entire value chain--in the firm's supply chain, its own operations, and in its products and services. Management is a measure of the ability of the firm to manage, and the quality of the management approach, to reduce emissions and related carbon risks. The carbon-risk rating is the remaining unmanaged carbon risk of a company after taking into account its efforts to mitigate carbon risk through its management activities.

Exhibit 3 The Sustainalytics Carbon-Risk Model

Source: Sustainalytics.

Company unmanaged risk scores range from low to high (lower is better) starting from zero and are sorted into five risk categories, as shown in Exhibit 4. Many companies have scores of zero, indicating that their carbon risk is negligible. Companies with non-zero scores of less than 10 are considered to

6 Morningstar is also providing portfolio carbon-emissions data as part of its portfolio carbon-metrics data, enabling the Carbon Risk Score to be used in conjunction with carbon-footprint assessments.

have Low levels of unmanaged carbon risk that could have some material impact on company value. At the other end of the scale, companies with scores from 30 to 49.99 have High carbon risk, and those at 50 or above carry Severe carbon risk. Companies with High and Severe carbon risk are those for whom transition risk poses a more serious financial threat that may lead to significant underperformance relative to the overall market or that may even be existential in nature.[7]

Exhibit 4 Sustainalytics Company Carbon-Risk Rating

Risk Score	Rating	# of Companies
50+	Severe	81
30–49.9	High	246
10–29.9	Medium	2,090
0.1–9.99	Low	744
0	Negligible	696

Source: Sustainalytics. Data as of April 2018.

Company Carbon-Risk Exposure--Manageable and Unmanageable

The Sustainalytics company carbon-risk rating begins with an assessment of a company's exposure to carbon risk, which is largely driven by the type of business in which a firm is engaged. Carbon exposure is measured by subindustry, with company-specific adjustments made as necessary. Sustainalytics divides the universe into 146 subindustries, some of which have significantly more carbon-risk exposure than others. For some subindustries, a significant portion of their carbon-risk exposure is intrinsic to the industry and cannot be effectively managed away. Take airlines, for example: Sustainalytics assesses that 60% of the carbon-risk exposure they face in their own operations is unmanageable because there are no current alternatives to fossil-fuel-based jet fuel. The other 40% of exposure faced by airlines can be managed through actions such as increases in routing efficiency or engineering planes for better fuel economy.

For most subindustries, carbon risk is manageable either in total or in substantial part. Manageable carbon risk in a firm's "Own Operations" across most subindustries largely consists of carbon emissions related to energy use. For "Products & Services," a firm's carbon risk includes the degree of fossil-fuel involvement in its products and services and the degree to which the firm can transition its product mix to reduce its carbon impact or to produce new carbon solutions.[8]

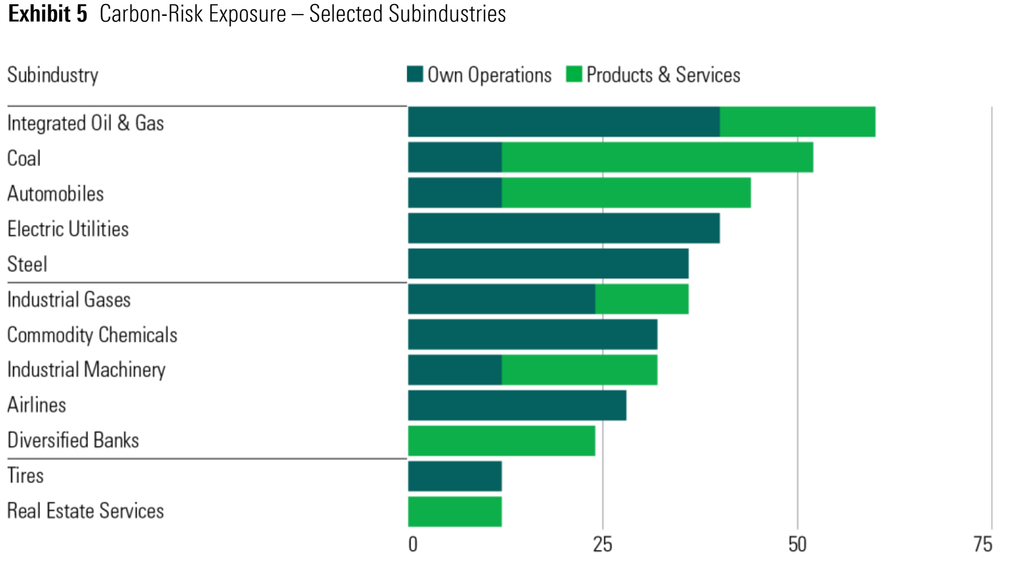
The carbon-risk rating accounts for the fact that some subindustries are fundamentally better positioned for the transition to a low-carbon economy than others. Some subindustries have more carbon exposure than others and, among subindustries, the distribution of exposure across Own Operations and Products

7 Because carbon risks can materialize at an unknown future time, a company's carbon-risk level is not a specific prediction of financial or share-price impacts or of the time horizon over which such impacts might be felt.

8 While carbon emissions are often present in a company's supply chain, Sustainalytics found that it only rarely materializes as carbon risk to the company itself. The risk is borne by the firm's upstream suppliers.

& Services varies. Exhibit 5 shows the carbon-risk exposure levels of various subindustry groups. Those with the highest levels of carbon-risk exposure are in energy-related and automobile subindustries, while healthcare and technology subindustries are among those with the lowest levels. For some groups, like utilities, exposure is entirely in Own Operations; for others, like real estate, exposure is embedded in Products & Services.

Exhibit 5 Carbon-Risk Exposure – Selected Subindustries



Source: Sustainalytics. Data as of April 2018.

Within a subindustry, each company starts with the same level of carbon exposure assessed across Own Operations and Products & Services. Company-specific adjustments are made for those firms whose operations or product mix cause their exposure to deviate from the subindustry norm. These adjustments also have financial-strength and geographical components. Companies that are weaker financially have less capacity to address carbon risk. Those operating in more highly regulated areas may face greater costs, and may face them sooner, than those operating in less-regulated areas.

An example of how this works can be seen in the automobile subindustry by comparing Tesla and Ford. Both companies have carbon-emissions intensity levels higher than the automobile subindustry average within their own operations, so both have initial carbon-risk exposures higher than the subindustry norm for the Own Operations component. Because Tesla manufactures only electric vehicles, its initial exposure for Products & Services is below the subindustry norm, while Ford's is higher because of its much-higher fleet emissions. As a result, Ford starts off with a higher level of overall exposure to carbon risk than does Tesla and its average automobile subindustry peer.

Exhibit 6 Carbon-Risk Exposure – Tesla and Ford

Carbon-Risk Exposure	Automobiles	Tesla	Ford
Own Operations	12	13.5	14.2
Products & Services	32	30.1	41
Overall Exposure	44	43.6	55.2

Source: Sustainalytics. Data as of April 2018.

Company Carbon-Risk Management

Carbon-risk management is an assessment of how much of a firm's risk is being successfully managed away by the firm's activities. This is referred to as "managed risk." It is measured through a firm's policies, programs, and management systems and is applied to the firm's Own Operations and its Products & Services. The primary manageable risk, which applies across most subindustries albeit to varying degrees, is that companies can bring down their carbon emissions by switching to renewable energy and improving energy efficiency in their Own Operations. The management assessment includes carbon-reduction and overall environmental management policies and systems. It also considers a firm's track record of reducing carbon intensity. In their Products & Services, companies managing carbon risk more effectively are reducing the reliance of their products and services on fossil fuels and placing a greater emphasis on developing "greener" products and services. The management assessment includes carbon-reduction goals for products, design and development of sustainable products, and the carbon-intensity trend in the use of a firm's products and services. In the automobile example, while Ford is doing a better job than Tesla in managing its carbon exposure within Own Operations, Tesla is doing a far better job than Ford at managing carbon exposure in the Products & Services area.

Exhibit 7 Carbon-Risk Management – Tesla and Ford

Carbon-Risk Management	Tesla	Ford
Own Operations	1.2	6.7
Products & Services	24.1	2.3
Overall Management	25.3	9

Source: Sustainalytics. Data as of April 2018.

Company Carbon-Risk Rating

A company's carbon-risk rating is the unmanaged risk that remains after accounting for carbon-risk management. This unmanaged risk is a combination of unmanageable risk over which a company has no control and manageable risk that has the potential to be managed but has not been. Overall, Sustainalytics evaluates Tesla as having managed a significant portion of its carbon risk (about 58% of it, based on the scores in Exhibit 8), leaving it with a Medium carbon-risk rating of 18.3. Ford, on the other hand, is managing only a small portion of its carbon risk, leaving it with a High carbon-risk rating of 46.2.

Exhibit 8 Carbon-Risk Rating – Tesla and Ford

	Own Operations			**Products & Services**			**Overall Carbon Risk**			
	Exposure	Managed	Unmanaged	Exposure	Managed	Unmanaged	Exposure	Managed	Unmanaged	Risk Level
Tesla	13.5	1.2	12.3	30.1	24.1	6.0	43.6	25.3	18.3	Medium
Ford	14.2	6.7	7.5	41.0	2.3	38.7	55.2	9.0	46.2	High

Source: Sustainalytics. Data as of April 2018.

Exhibit 9 shows the carbon-risk rating across selected subindustries. The exhibit highlights the variation in carbon risk across subindustries as well as the often-considerable variation within subindustries. While the rating allows investors to make carbon-risk comparisons across subindustries, it also allows for intragroup comparisons for investors interested in best-in-class analysis.

Exhibit 9 Carbon-Risk Rating – Selected Subindustries

Subindustry
Average
Lowest 5%
Middle 90%
Highest 5%
Integrated Oil & Gas
Coal
Automobile
Steel
Airlines
Commodity Chemicals
Electric Utilities
Industrial Machinery
Industrial Gases
Diversified Banks
Real Estate Services
Tires
0
25
50
75

Source: Sustainalytics. Data as of April 2018.

Morningstar Portfolio Carbon Risk Score

Based on Sustainalytics company carbon-risk ratings, the Morningstar Portfolio Carbon Risk Score is the asset-weighted company carbon-risk rating of the holdings in a portfolio. A portfolio with a lower Carbon Risk Score is positioned to fare better in the transition to a low-carbon economy than is a portfolio with a higher Carbon Risk Score.

Carbon Risk Scores, calculated quarterly based on the most recent portfolios in the Morningstar database, can be used to compare funds with each other, with their Morningstar Category average, and with their benchmarks. Because funds will receive Carbon Risk Scores on a quarterly basis going forward and will receive 12-month average scores, it will be possible to evaluate change over time and the extent to which portfolio managers are addressing carbon risk.

While carbon footprinting is a useful first step in understanding the carbon risk in a portfolio, the Morningstar Portfolio Carbon Risk Score advances that understanding by providing a direct assessment of material carbon risk itself. The initial scores also provide, for the first time, a baseline carbon-risk measurement of funds across the global universe. While there have been some limited efforts in this direction, none span a global universe of more than 30,000 funds. The scores will give investors a better understanding of the carbon risk in funds by investment style and region and a better understanding of the range of carbon risk among portfolios that share an investment style or region.

Carbon Risk in Mutual Funds

Based on the initial Morningstar Portfolio Carbon Risk Scores, this section presents the carbon-risk profile of global funds by Morningstar Category. Fund scores were calculated in April 2018 and averaged based on quarterly portfolios from the past 12 months. The scores are based on the initial Sustainalytics company carbon-risk ratings. While these initial company ratings were just released in April 2018, Sustainalytics has been calculating them over the past year, so they can reasonably be applied to fund portfolios over that time frame. The initial Sustainalytics company carbon-risk ratings will continue to be applied to portfolios for the coming year. Sustainalytics will update the ratings annually during the first quarter of each calendar year. Updated ratings will be used to calculate Carbon Risk Scores for the subsequent 12 months.

Exhibit 10 shows the 12-month average Carbon Risk Scores as of April 2018. The average fund has a score of 12, which is in the Medium risk range. Two thirds of funds have scores between 10 and 19.99, while only about 4% have scores of 20 or higher. About 29% of funds have scores in the Low risk range.

Exhibit 10 Morningstar Portfolio Carbon Risk Scores

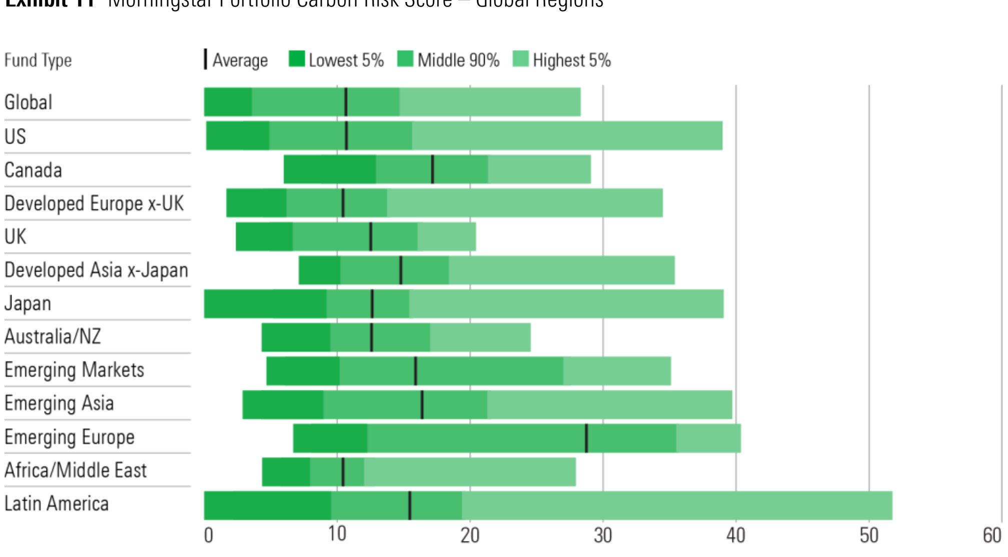
Risk Score	Risk Category	# of Funds
0–9.99	Low	8,695
10–14.99	Medium (Low)	16,305
15–19.99	Medium	3,655
20–30	Medium (High)	593
30+	High	385

Axis: 0, 4,000, 8,000, 12,000, 16,000, 20,000

Source: Morningstar. Data as of April 2018.

Exhibit 11 shows the average Carbon Risk Scores across a range of Morningstar global investment categories. Diversification helps keep the average fund's Carbon Risk Score in the Medium risk range, with developed-markets equity funds landing near the low end of it. Diversified global equity portfolios that invest primarily in developed-markets equity have an average Carbon Risk Score of 10.42. Within developed-markets regions, Europe ex-UK has the lowest score, 10.05, while Asia ex-Japan has the highest, at 14.54. The average Carbon Risk Score for U.S. funds is 10.45. Risk scores are higher for emerging-markets funds. Diversified emerging-markets equity funds have an average Carbon Risk Score of 15.59. Within the emerging-markets group, emerging Europe, a group dominated by Russia funds, has the highest average Carbon Risk Score (28.53), while Africa/Middle East funds have the lowest (10.23).

Exhibit 11 Morningstar Portfolio Carbon Risk Score – Global Regions

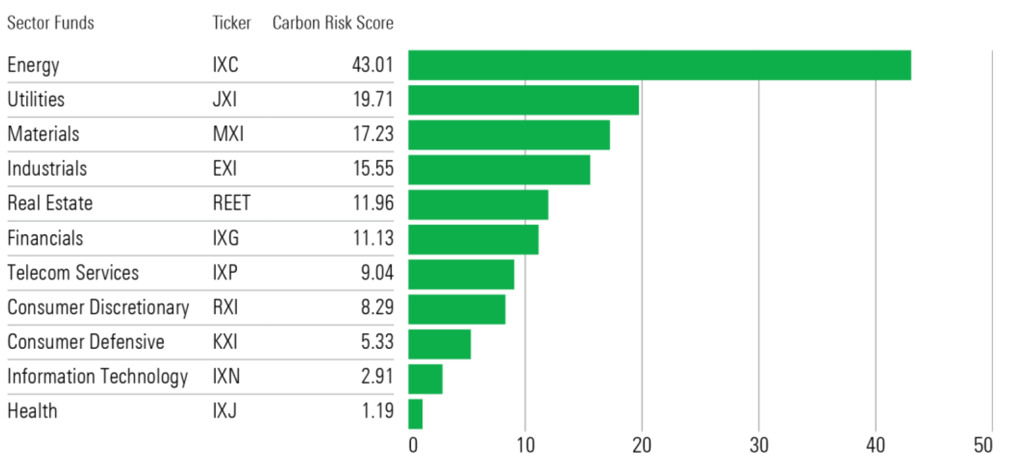


Source: Morningstar. Data as of April 2018.

Carbon Risk Scores of funds can be explained, in part, by their sector weightings. Exhibit 12 shows the Carbon Risk Scores by GICS sector, using iShares global sector exchange-traded funds as proxies. The energy sector, not surprisingly, carries the largest carbon risk, at 43.01, more than twice that of utilities, which has a Carbon Risk Score of 19.71. Materials and industrials also have higher relative scores. On

the low end of the range are technology, which weighs in at 2.91, and healthcare, which has an ultralow score of 1.19.

Exhibit 12 Morningstar Portfolio Carbon Risk Score – Sector

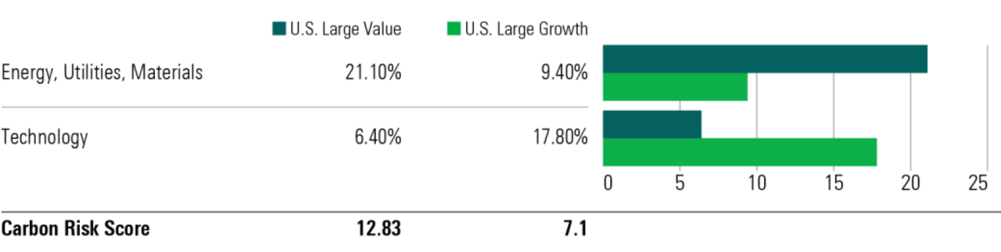


Sector Funds	Ticker	Carbon Risk Score
Energy	IXC	43.01
Utilities	JXI	19.71
Materials	MXI	17.23
Industrials	EXI	15.55
Real Estate	REET	11.96
Financials	IXG	11.13
Telecom Services	IXP	9.04
Consumer Discretionary	RXI	8.29
Consumer Defensive	KXI	5.33
Information Technology	IXN	2.91
Health	IXJ	1.19

Source: Morningstar. Data as of April 2018.

Funds that have overweightings to the higher carbon-risk sectors tend to have higher Carbon Risk Scores, while those with overweightings to the lower carbon-risk sectors tend to have lower Carbon Risk Scores. U.S. large-value funds, for example, have an average Carbon Risk Score of 12.83, considerably higher than the 7.1 average score of U.S. large-growth funds. As shown in Exhibit 13, large-value funds devote more than one fifth of their assets to the three sectors with the highest Carbon Risk Scores (energy, utilities, and materials), while U.S. large-growth funds have less than one tenth of their assets invested in those sectors. Large-value funds average just a 6.4% weighting in technology, which has one of the lowest carbon-risk profiles, compared with 17.8% for large-growth funds. Large-value and large-growth funds have similar average exposure to the healthcare sector, so both benefit about equally from that sector's low carbon risk.

Exhibit 13 Morningstar Portfolio Carbon Risk Score – Style



	U.S. Large Value	U.S. Large Growth
Energy, Utilities, Materials	21.10%	9.40%
Technology	6.40%	17.80%
Carbon Risk Score	**12.83**	**7.1**

Source: Morningstar. Data as of April 2018.

Regional differences play a role as well. Emerging-markets managers, for example, generally must choose among higher carbon-risk companies compared with developed-markets managers. In the automobile subindustry, emerging-markets firms have an average Carbon Risk Score of 41.2, in the High risk range, while developed-markets firms have a much lower average Carbon Risk Score of 26.3, in the Medium risk range. Funds in all emerging-markets regions, except for Africa/Middle East, have average Carbon Risk Scores of 15 or more.

Considerable variation in fund Carbon Risk Scores exists within most categories. Intracategory comparisons of Carbon Risk Scores can highlight the possibilities for investors wanting to lower the carbon risk in their portfolios. Asset managers, for example, can compare their risk scores with those of peer funds that are significantly lower to understand whether and how lower-carbon portfolios differ from higher-carbon portfolios across other standard portfolio metrics. This information can help asset managers assess the feasibility of lowering carbon risk in their own portfolios. Fund investors can set a goal for carbon-risk reduction and use it to find lower-carbon alternatives.

To illustrate, two Morningstar Categories, world large cap and diversified emerging markets, were analyzed using the Morningstar Risk Model to assess the differences between average carbon-risk funds and lower carbon-risk funds. For each of the two categories, an iShares ETF was selected to represent a market-cap-weighted average portfolio. Next, the five funds in each category with the Carbon Risk Scores closest to 10% below the iShares ETFs were selected and another five funds with the Carbon Risk Scores closest to 30% below the iShares ETFs were selected. The 10% group and the 30% group were then compared with the iShares portfolios using the Morningstar Risk Model.

For world large cap, the average factor profile of the funds with 10% less carbon risk was similar to that of the iShares portfolio. This suggests that investors can lower their carbon risk by 10% without otherwise altering their factor exposures in any significant way. As Exhibit 14 shows, the 10% lower carbon-risk funds are somewhat more growth-oriented (Value-Growth), but otherwise their factor premiums are close to those of the market-cap-weighted portfolio. Investors wanting to lower carbon risk more significantly in their global equity exposure would experience a more noticeable shift in style and quality. The 30% lower carbon-risk funds are more growth-oriented (Value-Growth, Valuation) and higher quality (Economic Moat).

Exhibit 14 Reducing Carbon Risk: World Large Cap Stock

World Large Cap Stock	ACWI	10% Lower Carbon Risk	30% Lower Carbon Risk
Valuation	0.02	0.04	**–0.06**
Economic Moat	0.82	0.87	**1.04**
Valuation Uncertainty	–0.77	–0.83	–0.74
Financial Health	0.58	0.56	0.65
Ownership Risk	–0.42	–0.42	–0.35
Ownership Popularity	–0.38	–0.42	–0.34
Value-Growth	0.05	**0.20**	**0.43**
Size	–1.43	–1.43	–1.41
Liquidity	0.21	0.24	0.22
Momentum	0.19	0.22	0.27
Volatility	–0.6	–0.63	–0.61

Source: Morningstar Direct. Data as of April 2018.

For diversified emerging markets, the results were similar, as shown in Exhibit 15. The 10% lower-carbon emerging-markets funds do not differ markedly from the iShares portfolio. Modest differences in the average premiums of three factors (Ownership Risk, Price Volatility, Size) suggest the 10% group is somewhat less risky in traditional investment terms and invests in smaller companies. Emerging-markets investors could lower carbon risk without otherwise making significant changes to the overall risk profile, as traditionally measured, of their investment. As was the case with global equity, the 30% lower carbon-risk funds exhibit greater differences from the market-cap-weighted average portfolio across several factors in the Risk Model. The 30% lower-carbon funds are more growth-oriented (Value-Growth, Valuation), less volatile (Price Volatility, Valuation Uncertainty) and higher quality (Moat, Financial Health).

Exhibit 15 Reducing Carbon Risk: Diversified Emerging Markets

Diversified Emerging Markets	EEM	10% Lower Carbon Risk	30% Lower Carbon Risk
Valuation	–0.13	–0.16	**–0.22**
Economic Moat	0.42	0.39	**0.82**
Valuation Uncertainty	–0.09	–0.13	**–0.31**
Financial Health	0.43	0.46	**0.55**
Ownership Risk	0.31	**0.22**	0.26
Ownership Popularity	0.51	0.54	0.38
Value-Growth	–0.04	–0.05	**0.21**
Size	–1.24	**–1.06**	–1.18
Liquidity	–0.2	–0.21	–0.23
Momentum	0.43	0.37	0.45
Price Volatility	–0.49	**–0.55**	**–0.56**

Source: Morningstar Direct. Data as of April 2018.

Using the Morningstar Portfolio Carbon Risk Scores

Fund investors can use the Morningstar Portfolio Carbon Risk Scores in several ways. The initial scores can be used to set a baseline for ongoing monitoring of the carbon-risk exposure of an investor's portfolio holdings. Portfolio scores can be compared with category averages and benchmarks to determine whether funds are above or below the category average or benchmark exposure. Finally, as we saw in the last section, the portfolio scores can be used to identify and evaluate lower carbon-risk alternatives, allowing fund investors to lower the carbon risk in their portfolios.

For asset managers, the initial portfolio scores can also be used to set a baseline for ongoing monitoring of their funds' carbon-risk exposures. Those that have or are considering carbon-reduction targets can use the portfolio scores over time to evaluate their progress. The portfolio scores give asset managers an ongoing comparison with their peers and with benchmarks. Asset managers can also use the portfolio scores to communicate with interested stakeholders about carbon risk and any efforts they are making to reduce it.

The Morningstar® Low Carbon Designation™

Portfolios that exhibit low overall carbon risk and have lower-than-average fossil-fuel exposure will receive the Morningstar® Low Carbon Designation™, shown in Exhibit 16. This designation, represented by a green leaf icon, is meant to help investors quickly and easily identify low-carbon funds and, in general, to educate key stakeholders and the public about the availability of low-carbon investment choices. The designation is an indicator that a portfolio's holdings are in general alignment with the transition to a low-carbon economy.

For a fund to receive the Low Carbon designation, it must have a Morningstar Portfolio Carbon Risk Score below 10 for the trailing 12 months and fossil-fuel exposure below 7% over the same trailing 12 months. The initial Carbon Risk Scores were calculated in April 2018 and applied to quarterly portfolios over the prior year. Fossil-fuel exposure was calculated over the same period. A list of funds receiving the designation will be created every quarter.

Exhibit 16 Morningstar Low Carbon Designation

Source: Morningstar.

The fossil-fuel exposure requirement is designed to highlight the degree to which a portfolio is exposed to this most significant carbon risk. Companies with fossil-fuel exposure are defined as those with involvement, based on a percentage of revenue, in the following five activities:

Thermal coal extraction	(5% revenue threshold)
Thermal coal power generation	(5% revenue threshold)
Oil & gas production	(5% revenue threshold)
Oil & gas power generation	(5% revenue threshold)
Oil & gas products and services	(50% revenue threshold)

The portfolio exposure threshold was set at 7% because it represents about a one-third lower level of exposure to fossil fuel than that of major global indexes. The S&P 500, MSCI ACWI, MSCI World, and MSCI Europe indexes all have exposures between 10% and 11% to companies involved in the activities listed above.

In the Morningstar database, approximately 6,000 portfolios out of 30,000, or about one in five, receive the Low Carbon designation initially. Many of these portfolios invest in areas of the market that are low-carbon, so they receive the designation by virtue of their investment style. The designation will help investors better understand what areas of the market are intrinsically low-carbon. Many diversified portfolios also receive the designation. This will highlight the fact that investors have low-carbon fund choices across virtually all investment styles and regions.

Conclusion

The Morningstar Portfolio Carbon Risk Score provides investors and other interested stakeholders with unique portfolio-level carbon-risk information on approximately 30,000 funds globally. Using Sustainalytics' innovative new company carbon-risk ratings, the Morningstar Portfolio Carbon Risk Scores go beyond traditional carbon footprinting, taking account of management actions to mitigate a firm’s carbon risk. The vast coverage of the global-funds universe and the uniqueness of the measure itself open new doors for investors analyzing the carbon risk of portfolios.

Based on the initial scores, we observed a range of Carbon Risk Scores by Morningstar Categories. Funds investing in Europe ex-UK and in the U.S. have the lowest average carbon risk, while those investing in Asia ex-Japan and in emerging markets have the highest average carbon risk. Most categories of diversified funds, however, have low-carbon fund choices regardless of their average risk levels. Investors can use the Morningstar Portfolio Carbon Risk Scores and the Morningstar Low Carbon Designation to identify such funds. Investors can now incorporate carbon risk into their due diligence process alongside traditional investment criteria. M

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Investing in Times of Climate Change
An Expanding Array of Choices for Climate-Aware Investors

Morningstar Manager Research
April 2020

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Executive Summary

If there is one lesson the coronavirus pandemic has taught investors is that the global economy can be brought to a sudden standstill by a large-scale unpredicted event. A parallel can be drawn with climate change, now widely recognised as a large systemic risk that will affect the global economy. And investment portfolios may be affected in ways we can't yet fully imagine or predict.

Climate change has become perhaps the biggest sustainability issue for investment portfolios. Investors are increasingly aware that greater climate variability and more frequent extreme weather events could have considerable effects on businesses. They are also recognizing that the world must transition from a fossil-fuel-based economy to a low-carbon economy sooner rather than later. Regulators, technology, and consumers will all play a role in this paradigm shift. This, in turn, creates tangible risks and opportunities for investors.

Through the transition, there will be winners and losers. The winners will be companies that innovate and successfully adapt to a greener world. The losers will be those that don't evolve and end up with stranded assets and outmoded business models.

Asset managers have responded to this new dynamic by launching a flurry of climate-aware funds and tweaking existing strategies to incorporate climate change objectives such as lower-carbon footprint, reduced exposure to fossil fuels, and greater exposure to renewable energy opportunities.

Climate-aware funds represent a broad range of approaches that aim to meet varying investor needs and preferences. In this report, we take a deep dive into these funds. We analyse them using Morningstar's suite of carbon metrics and test their claims. We examine involvement in fossil fuels, participation in carbon solutions, carbon intensity, and carbon risk. We look under the bonnet at their most common holdings. And finally, we discuss how these climate-aware funds can fit into an investor's portfolio. The purpose of this report is to help climate-aware investors navigate the expanding array of options available to them in Europe.

Key Takeaways

- We identified 405 open-end and exchange-traded funds in Europe with a climate-related investment objective.
- Close to EUR 60 billion of assets are held in climate-aware funds in Europe, as of 31 March 2020.
- The past couple of years have seen a surge in the number of climate-aware funds. In 2019, 76 new offerings came to market, following 67 new launches in 2018. In addition, many existing conventional and sustainable funds have either changed their mandate to focus on the "climate" theme or added specific climate-related criteria to their investment objective.
- Climate-aware funds focus on avoiding carbon risk or promoting the transition and can be subgrouped into six types: Low Carbon, Ex-Fossil Fuel, Climate Conscious, Climate Solutions, Green Bond, and Clean Energy/Tech.
- These represent a broad range of approaches that aim to address different climate and investment goals. For example, Low Carbon and Ex-Fossil Fuel strategies may appeal more to investors concerned about climate risk who want to decarbonise their portfolios, while Climate Solutions and Clean Energy/Tech funds represent more-attractive options for investors looking to take advantage of the opportunities created by the transition to a low-carbon economy.
- Climate-aware funds largely deliver on their promises. For example, relative to their benchmark, virtually all Low Carbon funds do provide access to companies with lower carbon intensity, while Climate Solutions and Clean Energy/Tech funds score high on carbon solutions.
- But there are surprises, too. For example, only 40% of Ex-Fossil Fuel funds are fossil-fuel free. This is due to the varying definitions of fossil-fuel exclusions. Meanwhile, many Carbon Solutions and Clean Energy/Tech funds carry some of the highest carbon risk. Alongside companies that focus on providing green solutions, these funds also invest in transitioning companies that operate in carbon-intensive sectors such as utilities, energy, and industrials and that are developing solutions to help reduce their and others' carbon emissions.

Methodology

This report analyses Europe-domiciled open-end funds and ETFs that have a climate-related mandate. Funds were identified based on name and fund prospectus language. Many funds in our list are marketed as climate-themed funds using a range of terms in their names such as *climate, carbon, green, clean energy,* and *ex-fossil-fuel*. Many others do not use such signaling words in their names but nevertheless use explicit climate-related language in their investment objective as stated in their funds' legal documentation. We include these funds in our analysis as they often share the same characteristics as branded climate-themed funds.

Our list of funds spans all key asset classes, including equity, fixed income, allocation, and alternative. Most funds in our list can be found by using Morningstar's Sustainability Attributes for funds[1] and two Morningstar Categories called sector equity ecology and sector equity alternative energy.

1 https://www.morningstar.com/content/dam/marketing/shared/pdfs/Research/Sustainable_Attributes_Definitions_final.pdf

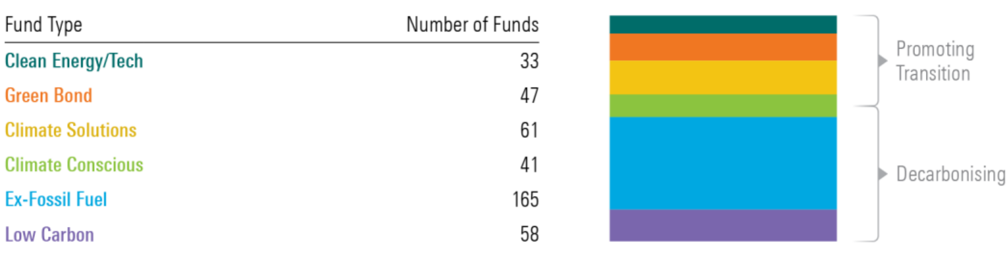
For the purposes of this study and to bring greater granularity to the exploration of climate-aware funds, we subdivided into six mutually exclusive groups: Low Carbon, Ex-Fossil Fuel, Climate Conscious, Climate Solutions, Green Bond, and Clean Energy/Tech (see Exhibit 1). These groups were defined based on the funds' objective, exclusions, the funds' diversification, and sector exposure.

Our Taxonomy of Climate-Aware Funds

The 405 Europe-domiciled climate-aware funds held EUR 57.7 billion of assets, as of the end of March 2020.

Exhibit 1 - Climate-Aware Funds by Strategy Type

Fund Type	AUM (€ Mil)
Clean Energy/Tech	5,331
Green Bond	9,011
Climate Solutions	13,521
Climate Conscious	5,859
Ex-Fossil Fuel	16,530
Low Carbon	7,441



Fund Type	Number of Funds
Clean Energy/Tech	33
Green Bond	47
Climate Solutions	61
Climate Conscious	41
Ex-Fossil Fuel	165
Low Carbon	58

Source: Morningstar Direct. Morningstar Research, Data as of 31 March 2020.

- Low Carbon funds seek to invest in companies with reduced carbon intensity and/or carbon footprint relative to a benchmark index. These strategies typically offer broad market exposure across all sectors. Examples include strategies clearly marketed as low carbon such as **DNB Global Lavkarbon** and **Amundi IS Equity Europe Low Carbon** but also funds with a broader sustainability mandate such as the **iShares MSCI ESG Enhanced ETF** range and **Dimensional Global Sustainable Core Equity**, which do not have *low carbon* in their name but explicitly state in their prospectuses that they target low-carbon investments.

- Ex-Fossil Fuel funds have incorporated a fossil-fuel exclusion into their mandate. The exclusion can be flagged in the name of the fund, as is the case with **Schroder ISF QEP Global ESG ex Fossil Fuel** and **BNP Paribas Easy € Corp Bond SRI Fossil Free**. But in most cases, fossil fuel is part of a broader exclusion list, which includes weapons, tobacco, and other controversial activities. Definitions of fossil-fuel exclusions can vary greatly, from no investments in companies with fossil-fuel reserves to no involvement in any fossil-fuel-related activities, including exploration, production, and distribution. Ex-

Fossil Fuel funds are distinct from Low Carbon funds by the style of decarbonisation. Ex-Fossil Fuel funds take a negative screening approach to specific brown energy companies, whereas Low Carbon funds achieve decarbonisation across the portfolio, choosing companies with a lower carbon footprint when compared with their peers.

- Climate Conscious funds select or tilt towards companies that consider climate change in their business strategy and therefore are better prepared for the transition to a low-carbon economy. Climate Conscious funds tend to invest in a mix of companies: those that positively align with the transition and those that provide carbon solutions. Examples include **Templeton Global Climate Change Fund**, **Aviva Investors Climate Transition Euro Equity**, and **UBS CCF-Global Climate Aware.** Climate Conscious funds share many characteristics with both Low Carbon and Climate Solutions funds. As such, they represent somewhat of a hybrid group.

- Climate Solutions funds only target companies that are contributing to the transition to a low-carbon economy through their products and services and that will benefit from this transition. For example, **Candriam SRI Equity Climate Action Fund** invests in companies for which climate change solutions are central to their growth story and whose products, process, technologies, and/or services address climate challenges. **Wellington Climate Strategy** has a similar strategy. Climate Solutions differ from Climate Conscious funds in that they invest exclusively in companies whose goods and services provide solutions for climate change mitigation and adaptation. Their sector exposure is therefore more concentrated.

- Clean Energy/Tech funds invest in companies that contribute to or facilitate the clean energy transition. This includes renewable energies such as wind, solar, hydro, tidal, and geothermal power along with grid infrastructure improvements, energy storage, and innovative technologies such as carbon capture and storage. Clean Energy/Tech funds are characterised as sector-specific and are typically more concentrated than any of the above fund groupings with also a bias towards mid- and small caps. Examples include **RobecoSAM Smart Energy**, which invests across renewable energy enablers and producers, “smart-grid” distribution networks, energy efficient storage and power management technologies, and the electrification of end-use applications.

- Green Bond funds invest in debt instruments that finance projects facilitating the transition to a green economy. The Green Bond Principles provide high-level categories for eligible green projects. The eligible categories include, but are not limited to, renewable energy, energy efficiency, pollution prevention and control, clean transportation, sustainable water and wastewater, climate change adaptation, eco-efficient and/or circular economy adapted products, and green buildings. We have also included in this grouping a couple of climate bond funds that have slightly broader mandates, including the **LO Funds Global Climate Bond** and the **DPAM L Bonds Climate Trends Sustainable.**

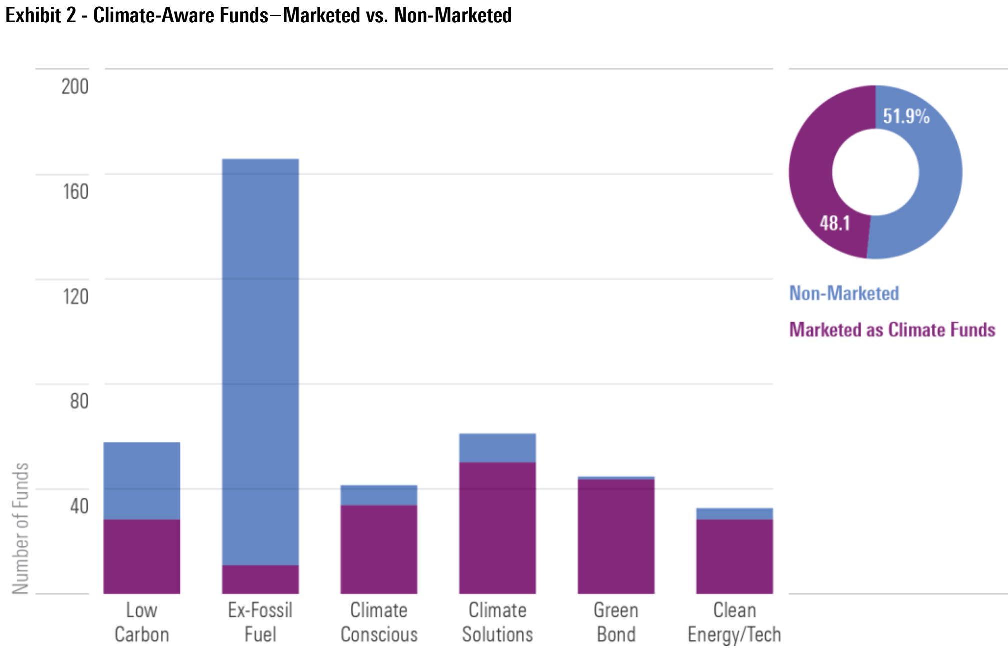
What's in a Name?

This review has identified 196 funds that market themselves as having a specific climate-change mandate communicated within the name of the fund. The remaining 209 funds in our list have explicit

and specific climate-related language in the descriptions of their investment strategy in fund documentation.

Exhibit 2 breaks down the six strategy groupings into funds that do and do not specify their climate-related mandate in their names. Most noticeably, Ex-Fossil Fuel funds, the largest group in our list, are the least likely to flag the exclusion in their name.

Exhibit 2 - Climate-Aware Funds—Marketed vs. Non-Marketed



Source: Morningstar Direct. Morningstar Research. Data as of January 2020.

Development of Climate-Aware Funds Over Time

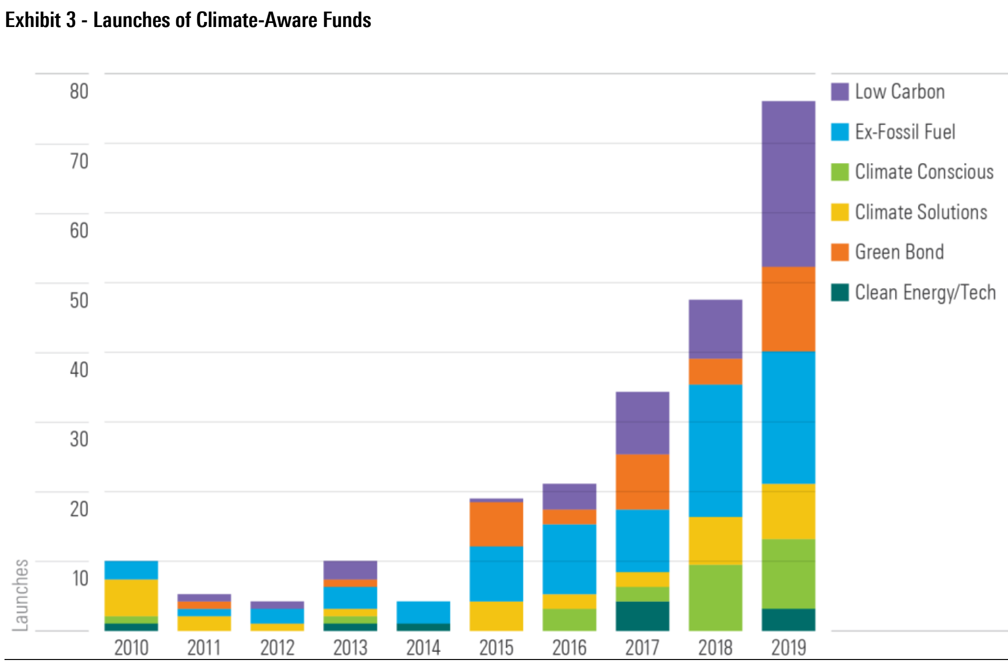
Although climate change and its negative effects have been recognised for decades, only in the past four years has this become a mainstream investment theme. Investors and asset managers started paying attention after the Paris Climate Agreement in 2015 and the UN Sustainable Development Goals in 2016. By putting the fight against climate change in the spotlight, both served as catalysts for the development of new investment strategies. Prior to that, choice for climate-conscious investors was limited to a small number of environmental funds and niche renewable energy funds.

While some of those funds are still on offer and continue to attract inflows, a new wave of climate-related products has come to market, with a surge in launch activity over the past two years. In 2019, 76 came to market, following 67 new launches in 2018. The decarbonisation-type of strategy, including Low Carbon and Ex-Fossil Fuel, has seen the highest number of new launches.

Examples of new climate-aware funds include **THEAM Quant Europe Climate Carbon Offset Plan, BGF Circular Economy Fund**, and **LO Funds Global Climate Bond.** These new offerings showcase the

innovation and ingenuity adopted by asset managers in addressing climate risks and opportunities, supported by the increased amount of ESG data disclosed by companies.

Exhibit 3 - Launches of Climate-Aware Funds



Source: Morningstar Direct. Morningstar Research. Data as of January 2019.

At the same time, many traditional and sustainable funds have also tweaked their investment mandates to focus on the climate-change theme and/or add climate-related objectives such as lower-carbon footprint, reduced exposure to fossil fuels, and greater exposure to renewable energy opportunities.

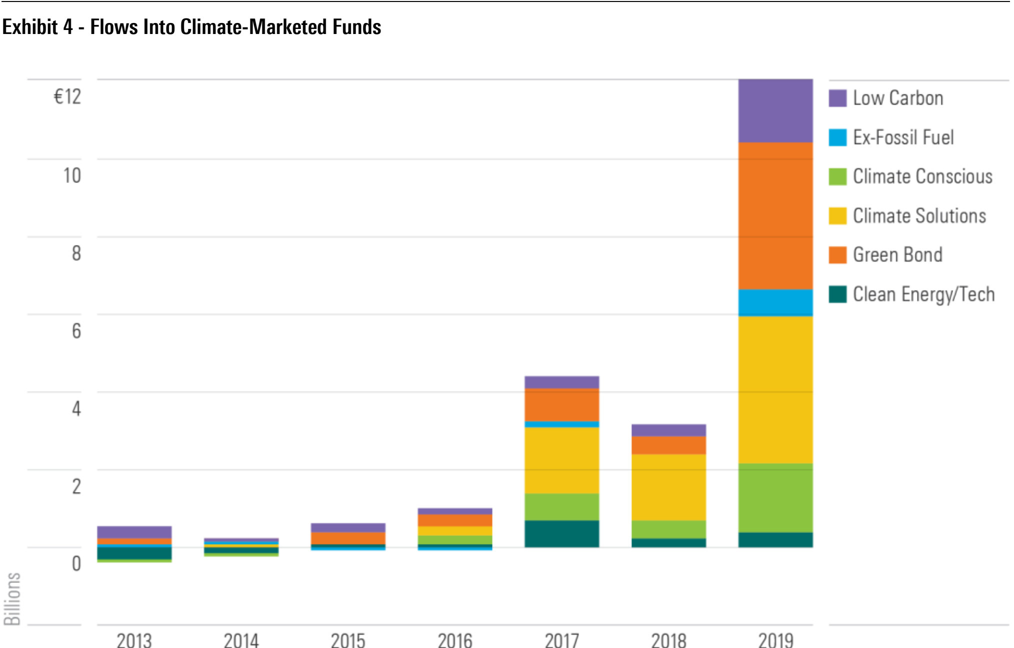
For example, **Templeton Global (Euro) Fund** was repurposed in March 2018 to **Templeton Global Climate Change Fund**. The new fund aims to invest in companies preparing for the transition to a lower-carbon economy. In late 2019, BlackRock lowered exposure to fossil-fuel companies in five **iShares MSCI SRI ETFs**, while Swedish asset managers SPP and Handelsbanken made their entire fund range fossil-fuel-free (or nearly fossil-fuel-free as the latter remains invested in some "transition companies").

Flows

As shown in Exhibit 4, flows into funds that specifically market themselves as climate funds (i.e. excluding the non-marketed funds) have increased in recent years with a major uptick in 2019. About EUR 12 billion poured into these products last year, driven mainly by growing investor interest in climate issues but also the increase in the number of climate-related offerings. Climate Solutions and Green Bond funds proved the most popular climate strategies.

We expect flows into all types of climate-aware funds to continue their upward trajectory in the coming years, supported by significant regulatory developments including the EU Action Plan on Sustainable Finance.

Exhibit 4 - Flows Into Climate-Marketed Funds



Source: Morningstar Direct. Morningstar Research. Data as of December 2019.

How Do Climate-Aware Funds Stack Up?

In this section, we analyse our list of funds by climate strategy type to ascertain how they compare against one another and whether they deliver what they claim to deliver. For example, do Low Carbon and Ex-Fossil Fuel funds actually exhibit lower exposure to high-carbon-emitting companies relative to a broad market benchmark index? Do Climate Solution and Clean Energy/Tech funds score high on carbon-solution metrics? Do these give investors access to companies that provide products and services that address climate challenges?

The next few exhibits compare the six climate strategy groups using the following Morningstar metrics: Carbon Intensity, Fossil Fuel Involvement, Oil and Gas Production Involvement, Thermal Coal Involvement, Carbon Solutions Involvement, and Carbon Risk. For each one, Morningstar uses Sustainalytics' company-level carbon metrics, which it aggregates at the fund's level on an asset-weighted basis.

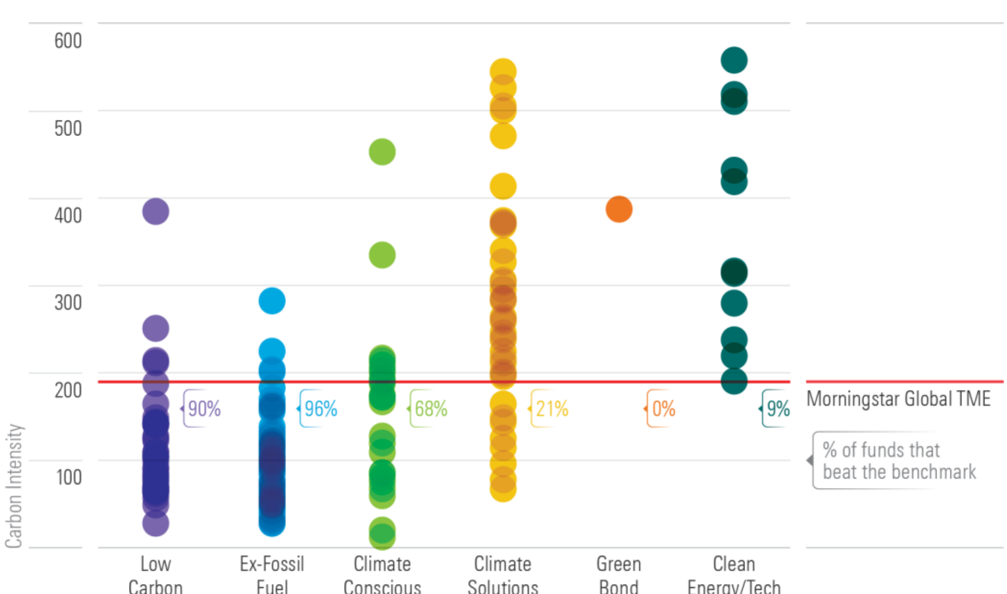
Additionally, we plot the Morningstar Global Target Market Exposure index[2], which we chose as the market benchmark. In this test, a low percentage is optimal (except for the Carbon Solutions Involvement, for which a high percentage is better).

2 The Morningstar® Global Target Market Exposure Index is designed to provide exposure to the top 85% market capitalization by free float in each of two economic segments, developed markets and emerging markets. Together, these two economic segment indexes make up the Global Target Market Exposure Index.

Carbon Intensity

First, we test each fund's level of carbon intensity, which is computed as follows: Total Emissions (metric tons of Co2) / Revenue (Mil USD), aggregated at the fund level on an asset-weighted basis.
Each marker in Exhibit 5 represents a fund and its carbon intensity. The callout boxes display the percentage of funds in each climate strategy group that exhibit lower carbon intensity than the Morningstar Global Target Market Exposure index.

Exhibit 5 - Carbon Intensity for All Fund Groups Against Morningstar Global Target Market Exposure Index



Source: Morningstar Direct. Morningstar Research. Data as of January 2020. For Green Bonds, the analysis is carried out at issuer level, not on the issuance itself.

Of 206 funds with carbon intensity numbers, 149, or 72%, offer an improvement on the benchmark. The majority of these are Low Carbon, Ex-Fossil Fuel, and Climate Conscious funds.

Looking at Low Carbon funds more specifically, we found that the only ones that land above the benchmark line are emerging-markets funds. This is not a surprise given that emerging-markets portfolios typically hold more carbon-intensive companies than developed-markets portfolios. Meanwhile, compared with their own benchmark, all Low Carbon funds but one achieve reduced carbon intensity, with most achieving a carbon-intensity reduction between 20% and 40%.

By contrast, most Climate Solutions and Clean Energy/Tech funds exhibit higher carbon-intensity scores than the Morningstar Global Target Market Exposure index. This reflects the fact that alongside pure-plays in the renewable energy sector like wind turbine manufacturers Siemens Gamesa Renewable Energy and Vestas Wind Systems, which score low on carbon intensity, many Climate Solutions and Clean Energy/Tech portfolios invest in more-diversified companies that operate carbon-intensive businesses. An example is SSE, which develops and operates renewable energy across the UK and

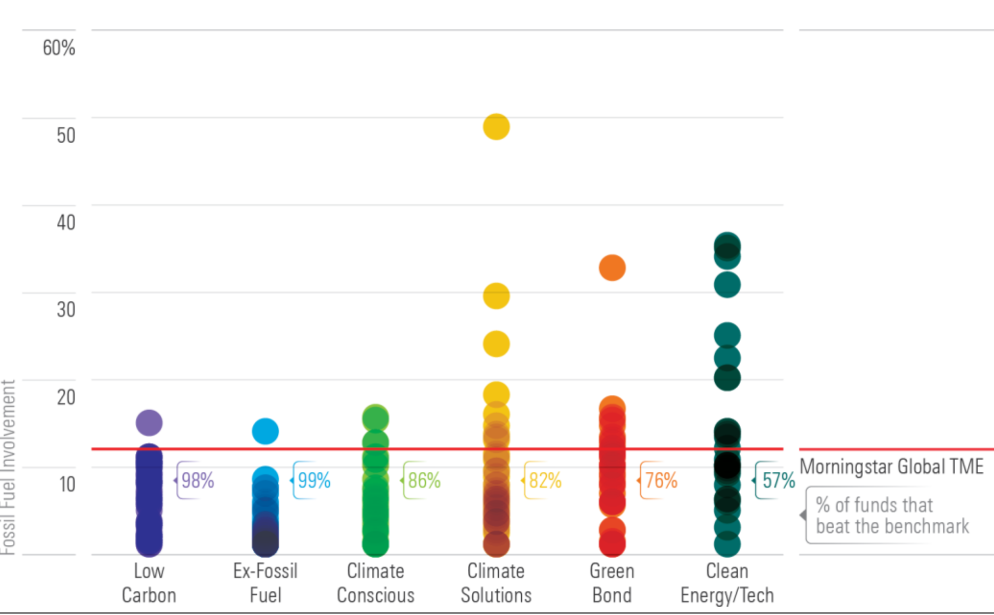
Ireland but also generates about two thirds of electricity from gas and oil. NextEra Energy, a leading wind farm and solar builder and operator in the US, exhibits high carbon intensity because its generating capacity is still more than half fossil fuels. Denmark's Orsted, the world's largest renewable energy company, carries much less carbon intensity but still scores higher than the benchmark, as its energy mix consists of 19% coal and 17% gas. These are companies at different stages of their transition journey.

It is crucial to understand that carbon intensity is a normalised metric, dependent on both carbon footprint and revenue. Large-cap equity stocks can often have a lower carbon intensity due to higher revenue and low scope 1 emissions[3] when compared with the type of industrial companies that would be involved in engineering green energy solutions.

Fossil Fuel Involvement

Next, we test the exposure of climate-aware funds to fossil-fuel companies. For this, we use the Morningstar Portfolio Fossil Fuel Involvement metric, which is defined as a portfolio's asset-weighted percentage exposure to fossil fuels. Companies with fossil-fuel involvement are defined by Sustainalytics as those deriving at least 5% of their revenue from the following activities: thermal coal extraction, thermal coal power generation, oil and gas production, and oil and gas power generation. Companies deriving at least 50% of their revenue from oil and gas products & services are also included.
Each marker in Exhibit 6 represents a fund and its involvement in fossil fuel. A lower involvement percentage is optimal.

Exhibit 6 - % Fossil Fuel Involvement vs. Morningstar Target Market Exposure Index



Source: Morningstar Direct. Morningstar Research. Data as of January 2020. For Green Bonds, the analysis is carried out at issuer level, not on the issuance itself.

3 Scope 1 describes direct emissions from owned or controlled resources. Scope 2 describes indirect emissions from purchased electricity. Scope 3 describes all other indirect emissions that occur in a company's value chain including business travel and procurement.

As expected, Low Carbon and Ex-Fossil Fuel funds have the lowest exposure to fossil-fuel companies. All but two funds in these groupings offer an improvement on the Morningstar Global Target Market Exposure index. Nevertheless, it may come as a surprise to some investors that a majority of Ex-Fossil Fuel funds (60%) do have some Fossil-Fuel Involvement. This can be explained by the variety of definitions of fossil-fuel exclusions, from no investments in companies with fossil-fuel reserves to no involvement in any fossil-fuel-related activities, including exploration, production and distribution.

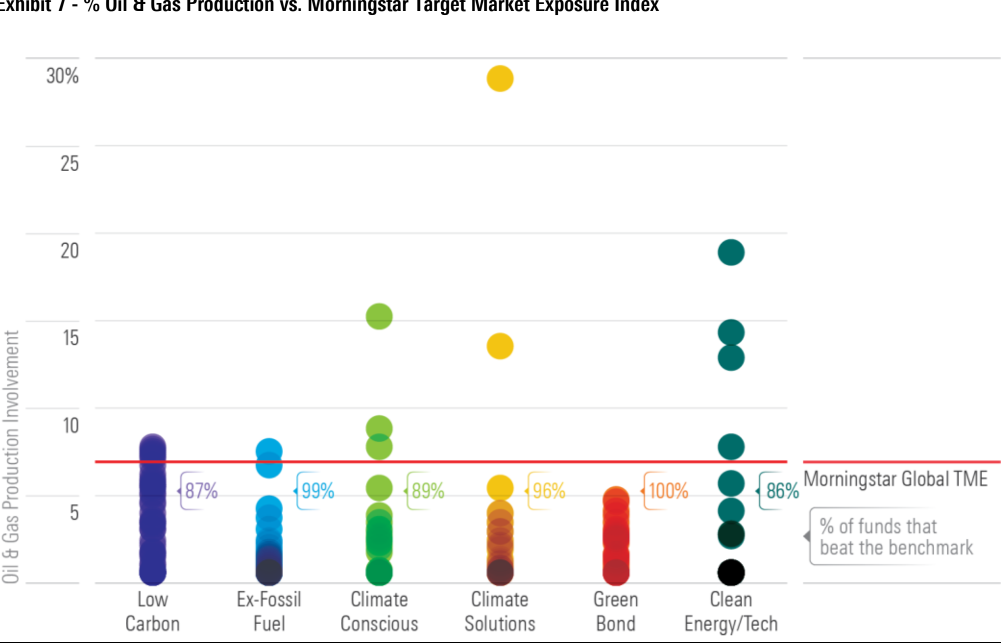
Over 80% of Climate Conscious and Climate Solutions funds also have lower Fossil-Fuel Involvement than the index. However, only 57% of Clean Energy/Tech funds meet this criterium. This is because, as previously mentioned, many Clean Energy/Tech portfolios invest in utilities companies that have built large renewable energy operations but still operate their legacy fossil-fuel businesses. To provide further examples, Iberdrola derive between 25% and 50% of its revenues from fossil-fuel activities, while Enel derives over 50% of its revenues from these activities. Additionally, a few Clean Energy/Tech funds hold energy companies like Neste, which produces renewable fuels, but oil products remain its largest contributor of revenue.

Oil & Gas Production Involvement

We now test the exposure of climate-related funds to oil & gas production. Oil & Gas Production Involvement is the portfolio's asset-weighted exposure to companies that derive at least 5% of revenue from oil & gas production, exploration, transportation, storage, and refining.

Each marker in Exhibit 7 represents a fund and its involvement in oil & gas production. A lower involvement percentage is optimal.

Exhibit 7 - % Oil & Gas Production vs. Morningstar Target Market Exposure Index



Source: Morningstar Direct. Morningstar Research. Data as of January 2020. For Green Bonds, the analysis is carried out at issuer level, not on the issuance itself.

The vast majority of funds in our list have lower exposure to oil & gas producers than the benchmark, which at the end of January amounted to 6.5%. In the Low Carbon grouping, five of the six funds with above-benchmark Oil & Gas Production Involvement are passive funds with holdings like Total, Equinor, and Repsol, which are considered to be better placed than their direct competitors to succeed in a low-carbon world. These "best-in-class" oil & gas producers can also be found in a few Climate Conscious, Climate Solutions, and Clean Energy/Tech funds.

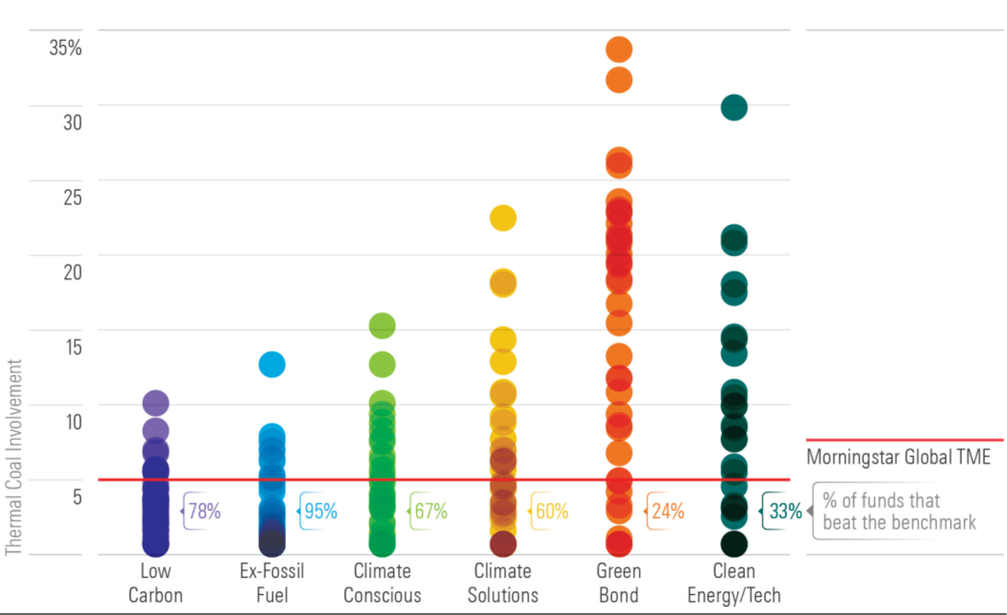
All Green Bond funds keep their Oil & Gas Production Involvement below the benchmark's. Traditional oil & gas companies are not currently among the largest issuers of green bonds.

Thermal Coal Involvement

Here, we test the exposure of our list of funds to one of the most carbon-intensive energy sources. Each marker in Exhibit 8 represents a fund and its involvement in thermal coal.

Thermal Coal Involvement tracks the percentage of a company's generating capacity based on coal (instead of revenue like the other carbon metrics). Companies with Thermal Coal Involvement are defined as those that extract thermal coal for coal mining and exploration (direct involvement) and those that generate electricity from thermal coal, including utilities that own or operate coal-fired power plants (indirect involvement). On a lifecycle basis, thermal coal is the most carbon-intensive fossil-fuel source, while from an energy-generation perspective, it is easily substitutable. In this test, again, a lower involvement percentage is optimal.

Exhibit 8 - % Thermal Coal Involvement vs. Morningstar Target Market Exposure Index



Source: Morningstar Direct. Morningstar Research. Data as of January 2020. For Green Bonds, the analysis is carried out at issuer level, not on the issuance itself.

Most notable is the high level of Thermal Coal Involvement with Green Bond funds. But this is unsurprising given the relatively high exposure of these funds to traditional utilities companies looking to access new capital to finance green projects that allow them to transition away from their highly intensive coal-fired electricity generation activities. For example, Iberdrola, Southern Company, and DTE Energy, which feature among the most held issuers in our list, have used the proceeds of their green bond issuance to finance the development and construction of solar and wind farms. (Note that Morningstar doesn't collect data on the individual green bonds. We therefore can't assess the "greenness" of the green bonds' underlying projects).

The other grouping with high exposure to thermal coal is Clean Energy/Tech. Two thirds of these funds exhibit higher Thermal Coal Involvement than the Morningstar Global Target Market Exposure index. This is again due to those diversified utilities holdings, including Iberdrola, EDP Renováveis, and Enel, that continue to run fossil-fuel businesses alongside their newer renewable energy operations.

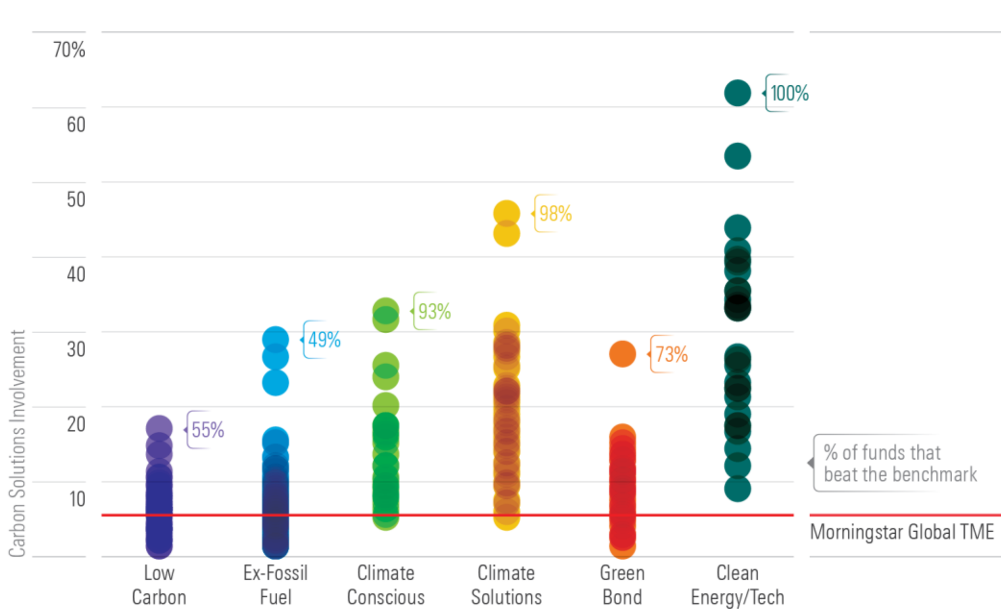
Low Carbon and Ex-Fossil Fuel funds exhibit a much lower level of Thermal Coal Involvement. Out of 154 Ex-Fossil Fuel funds, six have more exposure than the Morningstar Global Target Market Exposure Index.

Carbon Solutions Involvement

Here, we analyse how much exposure to climate solutions investors can expect from climate-aware funds. Morningstar's Carbon Solutions Involvement is defined as a fund's asset-weighted percentage exposure to carbon solutions, including renewal energy production, renewal energy supporting products & services, and green transportation. Holdings are considered involved with carbon solutions if they have at least 0.1% exposure.

Each marker in Exhibit 9 represents a fund and its Carbon Solutions Involvement. In this test, a higher involvement percentage is optimal.

Exhibit 9 - % Carbon Solutions Involvement vs. Morningstar Global Target Market Exposure Index



Source: Morningstar Direct. Morningstar Research. Data as of January 2020. For Green Bonds, the analysis is carried out at issuer level, not on the issuance itself.

As expected, the funds offering the highest exposure to carbon solutions are Clean Energy/Tech and Climate Solutions, although the level of involvement across offerings varies greatly. Climate Conscious funds follow closely behind. By contrast, only about half of Low Carbon and Ex-Fossil Fuel funds beat the global market benchmark in terms of carbon solution exposure. By excluding or reducing exposure to fossil fuel companies, Low Carbon and Ex-Fossil Fuel funds may be missing out on exposure to carbon solutions as these companies are increasingly developing products and services that address climate change.

Carbon Risk

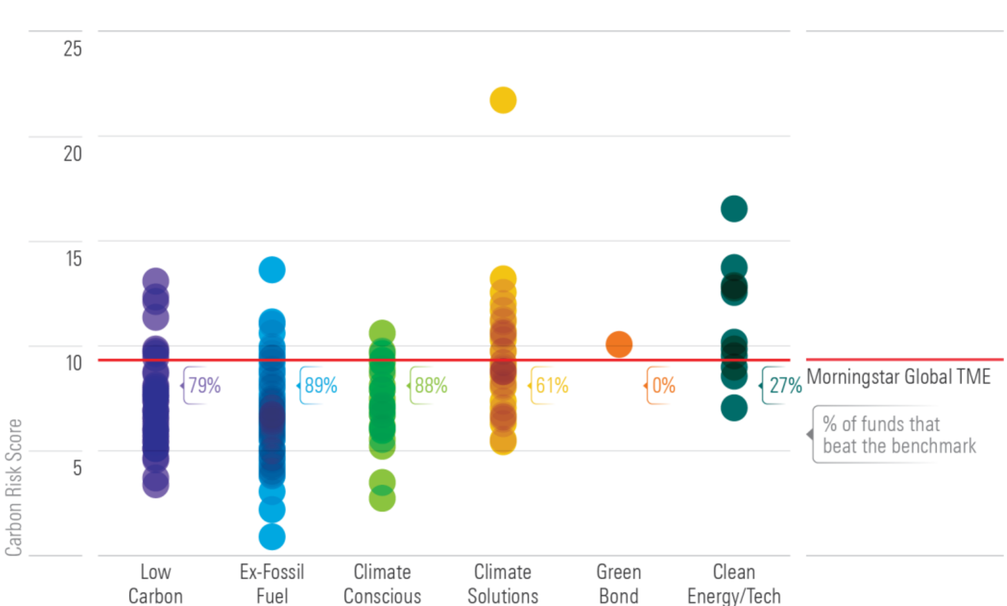
Finally, we examine the carbon risk embedded in each climate strategy type. At company level, carbon risk scores indicate the degree to which a company's economic value is at risk in the transition to a low-carbon economy. Unlike the involvement metrics used in our previous tests, which are purely quantitative, carbon risk scores are the result of a qualitative analytical process performed by Sustainalytics' analysts.

Carbon risk goes beyond traditional carbon footprinting, taking account of management actions to mitigate a firm's carbon risk[4]. Sustainalytics arrives at a company's carbon risk score by evaluating carbon intensity, fossil-fuel involvement, stranded assets exposure, mitigation strategies, and green solutions. At fund level, a Carbon Risk Score is the asset-weighted Carbon Risk Score of the equity or corporate bond holdings in a fund.

Each marker in Exhibit 10 represents a fund and its Carbon Risk Score. A lower score is optimal.

4 https://www.morningstar.com/lp/measuring-transition-risk.

Exhibit 10 - Carbon Risk Score of All Fund Groups vs. the Morningstar Global Target Market Exposure Index



Source: Morningstar Direct. Morningstar Research. Data as of January 2020. For Green Bonds, the analysis is carried out at issuer level, not on the issuance itself.

The fund groups with the lowest Carbon Risk Scores are Ex-Fossil Fuel and Climate Conscious, followed by Low Carbon. On the other hand, Climate Solutions and Clean Energy/Tech funds tend to carry more carbon risk. This is because alongside companies that focus on providing green solutions, Climate Solutions and Clean Energy/Tech funds also invest in more diversified businesses that are at different stages of their transition journey. These are companies operating in carbon-intensive sectors like industrials, utilities, energy, and materials that are developing solutions to help reduce their and others' carbon emissions.

Exhibit 11 plots all the funds in our list on the basis of their Carbon Solutions Involvement and Carbon Risk Score. Exhibit 12 plots the average fund in each grouping.

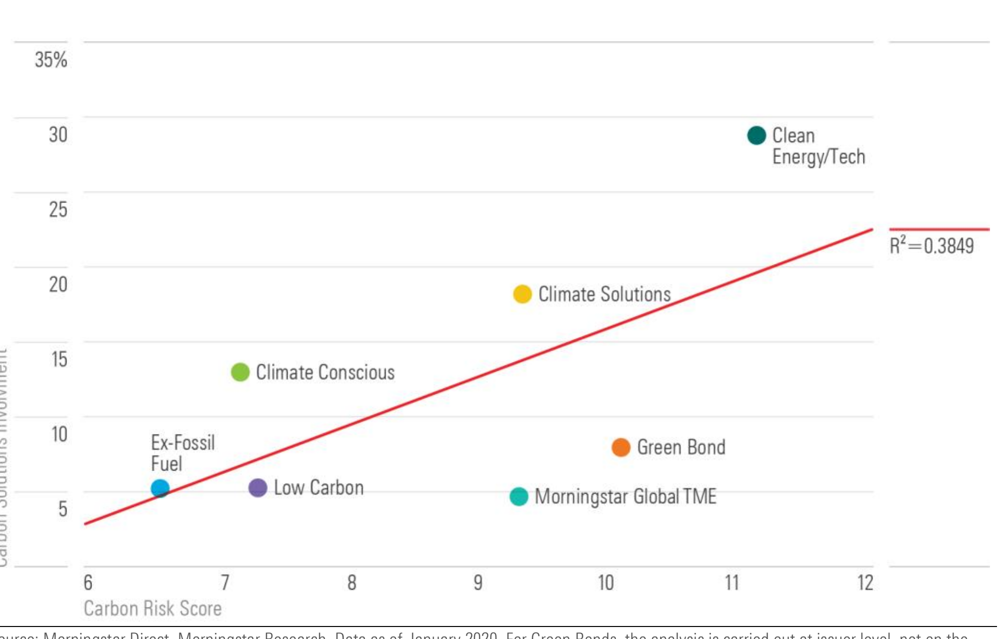
Exhibit 11 - Relationship Between Carbon Solutions Involvement and Carbon Risk

50%
40
30
20
10
Carbon Solutions Involvment
0 2 4 6 8 10 12 14 16 18
Carbon Risk Score

Morningstar Global TME
Low Carbon
Ex-Fossil Fuel
Climate Conscious
Climate Solutions
Clean Energy/Tech

Source: Morningstar Direct. Morningstar Research. Data as of January 2020.

Exhibit 12 - Relationship Between Carbon Solutions Involvement and Carbon Risk - Averages



Source: Morningstar Direct. Morningstar Research. Data as of January 2020. For Green Bonds, the analysis is carried out at issuer level, not on the issuance itself.

As shown in Exhibit 11, the majority of Clean Energy/Tech funds sit on the upper right-hand side of the graph, which signals that diversified exposure to renewable energy is often achieved by taking some extra carbon risk. Carbon Solutions funds land underneath, carrying more carbon risk on average than the rest of the groupings, as shown also in Exhibit 12. This supports a common narrative that the

companies trying to solve the carbon challenge are often operating in the most carbon-intensive sectors. These are the transitioning companies; over time, as they develop and implement their solutions, they should see their carbon risk decrease. That said, it is still possible to find funds that score high on Carbon Solutions Involvement, while keeping a lid on their Carbon Risk. Examples include **AXA World Funds - Framlington Clean Economy**, **Candriam SRI Equity Climate Action**, and **Wellington Climate Strategy Fund**.

What's Under the Bonnet of Climate-Aware Funds?

In this section, we look under the bonnet of climate-aware funds and examine the most commonly held companies in each grouping as well as their sector, size, style, and Carbon Risk Rating.

Following is a list of the 20 companies most commonly held in Low Carbon funds.

Exhibit 13 - Most Commonly Held Companies in Low Carbon Funds

Low Carbon

Company	Sector	Style Box	Carbon Risk Score	Carbon Risk Rating
Microsoft Corp	Technology	Large Growth	0	Negligible
Roche Holding AG	Healthcare	Large Blend	0	Negligible
L'Oreal SA	Consumer Defensive	Large Blend	0.68	Low
Novo Nordisk A/S	Healthcare	Large Growth	0	Negligible
SAP SE	Technology	Large Growth	0	Negligible
Schneider Electric S.E.	Industrials	Large Blend	1.48	Low
Unilever N.V.	Consumer Defensive	Large Blend	1	Low
Danone SA	Consumer Defensive	Large Blend	4.47	Low
Siemens Aktiengesellschaft	Industrials	Large Value	10.1	Medium
adidas AG	Consumer Cyclical	Large Growth	0	Negligible
Allianz SE	Financial Services	Large Value	5.27	Low
AXA SA	Financial Services	Large Value	3.6	Low
Banco Bilbao Vizcaya Argentaria SA	Financial Services	Large Value	10.92	Medium
Colgate-Palmolive Co	Consumer Defensive	Large Value	2.55	Low
Intuit Inc	Technology	Large Growth	0	Negligible
Merck & Co Inc	Healthcare	Large Blend	0	Negligible
Orange S.A.	Comm. Services	Large Value	7.49	Low
Royal Philips NV	Healthcare	Large Blend	2.28	Low
The Procter & Gamble Company	Consumer Defensive	Large Blend	4.08	Low
Visa, Inc.	Financial Services	Large Growth	0	Negligible

Source: Morningstar Direct. Sustainalytics. Data as of March 2020.

Low Carbon funds tend to be well-diversified portfolios with broad sector and stock exposure. All 20 of the most represented stocks are large caps, while 18 carry Carbon Risk Ratings of Negligible or Low.

Exhibit 14 - Most Commonly Held Companies in Ex-Fossil Fuel Funds

Ex-Fossil Fuel

Company	Sector	Style Box	Carbon Risk Score	Carbon Risk Rating
Novo Nordisk A/S	Healthcare	Large Growth	0	Negligible
AstraZeneca PLC	Healthcare	Large Growth	0	Negligible
Svenska Handelsbanken AB	Financial Services	Large Value	6.89	Low
Boliden AB (publ.)	Basic Materials	Mid Value	10.04	Medium
ASSA ABLOY AB (publ)	Industrials	Large Blend	4.05	Low
Essity Aktiebolag (publ)	Consumer Defensive	Large Blend	5.18	Low
Skandinaviska Enskilda Banken AB	Financial Services	Large Value	4.7	Low
AB Electrolux (publ)	Technology	Mid Blend	5	Low
Atlas Copco AB	Industrials	Large Blend	10.96	Medium
Microsoft Corp	Technology	Large Growth	0	Negligible
Roche Holding AG	Healthcare	Large Blend	0	Negligible
Vestas Wind Systems A/S	Industrials	Large Blend	1.39	Low
AB Volvo (publ)	Industrials	Large Value	1.49	Low
ABB Ltd	Industrials	Large Blend	3.84	Low
H & M Hennes & Mauritz AB (publ)	Consumer Cyclical	Large Value	0	Negligible
Nordea Bank Abp	Financial Services	Large Value	5.42	Low
Telenor ASA	Comm. Services	Large Blend	12.25	Medium
Sandvik AB	Industrials	Large Blend	8.77	Low
Husqvarna AB (publ)	Industrials	Mid Blend	9.89	Low
Securitas AB	Industrials	Mid Value	0	Negligible

Source: Morningstar Direct. Sustainalytics. Data as of March 2020.

Ex-Fossil Fuel funds tend to be diversified portfolios, albeit perhaps not as well diversified as funds in the Low Carbon grouping because of their policy to screen out stocks involved in fossil-fuel activities. Note that Exhibit 14 includes many Nordic stocks because a majority of Ex-Fossil Fuel funds in our list are offered by Swedish managers Handelsbanken and SPP, whose investment universe is biased towards the Nordic region. In our list, 17 out of the 20 most commonly held stocks in Ex-Fossil Fuel funds rate Negligible or Low on carbon risk.

Exhibit 15 - Most Commonly Held Companies in Climate Conscious Funds

Climate Conscious

Company	Sector	Style Box	Carbon Risk Score	Carbon Risk Rating
Schneider Electric S.E.	Industrials	Large Blend	1.48	Low
ASML Holding N.V.	Technology	Large Growth	0	Negligible
Danone SA	Consumer Defensive	Large Blend	4.47	Low
Kingspan Group PLC	Industrials	Mid Growth	3.57	Low
Ørsted A/S	Utilities	Large Growth	11.93	Medium
Siemens Gamesa Renewable Energy, S.A.	Industrials	Mid Growth	6.58	Low
Umicore S.A.	Industrials	Mid Growth	18.24	Medium
Vestas Wind Systems A/S	Industrials	Large Blend	1.39	Low
Microsoft Corp	Technology	Large Growth	0	Negligible
Johnson Matthey PLC	Basic Materials	Mid Blend	10.43	Medium
SAP SE	Technology	Large Growth	0	Negligible
Siemens Aktiengesellschaft	Industrials	Large Value	10.1	Medium
Tomra Systems ASA	Industrials	Mid Growth	14.89	Medium
Air Liquide SA	Basic Materials	Large Blend	15.96	Medium
AXA SA	Financial Services	Large Value	3.6	Low
Croda International PLC	Basic Materials	Mid Growth	8.59	Low
Sanofi	Healthcare	Large Value	0	Negligible
Compagnie de Saint-Gobain S.A.	Industrials	Large Value	12.3	Medium
Compagnie Générale des Etablissements Michelin	Consumer Cyclical	Large Value	4.13	Low
Ecolab Inc	Basic Materials	Large Growth	8.83	Low

Source: Morningstar Direct, Sustainalytics. Data as of March 2020.

As seen previously, Climate Conscious funds share many characteristics with Low Carbon and Climate Solutions funds. They also share many common holdings with these two groupings. Schneider Electric, Umicore, Vestas Wind Systems, Orsted, and Ecolab are popular names found in Climate Solutions portfolios, while Microsoft, Danone, and AXA are commonly held by Low Carbon portfolios.

Furthermore, Climate Conscious funds represent a mix of large and mid-caps and Carbon Risk Ratings. Thirteen out of the 20 most popular stocks in this grouping carry a Negligible or Low rating; the rest have a Medium rating.

Exhibit 16 - Most Commonly Held Companies in Climate Solutions Funds

Climate Solutions

Company	Sector	Style Box	Carbon Risk Score	Carbon Risk Rating
Vestas Wind Systems A/S	Industrials	Large Blend	1.39	Low
Schneider Electric S.E.	Industrials	Large Blend	1.48	Low
Tomra Systems ASA	Industrials	Mid Growth	14.89	Medium
Umicore S.A.	Industrials	Mid Growth	18.24	Medium
Kingspan Group PLC	Industrials	Mid Growth	3.57	Low
Xylem Inc	Industrials	Mid Growth	3	Low
Itron, Inc.	Technology	Small Growth		
Koninklijke DSM N.V.	Basic Materials	Large Blend	6.23	Low
Ørsted A/S	Utilities	Large Growth	11.93	Medium
American Water Works Co Inc	Utilities	Large Blend	5.37	Low
Beijing Enterprises Water Group Limited	Utilities	Large Blend	6.83	Low
Ecolab Inc	Basic Materials	Large Growth	8.83	Low
First Solar, Inc.	Technology	Mid Value	6.01	Low
Trimble Inc	Technology	Mid Growth	0	Negligible
Veolia Environnement S.A.	Industrials	Large Blend	18.41	Medium
China Everbright International Limited	Industrials	Large Blend	14.66	Medium
East Japan Railway Company	Industrials	Large Value	11.88	Medium
Infineon Technologies AG	Technology	Large Growth	6.15	Low
Legrand SA	Industrials	Large Blend	10	Low
Novozymes A/S	Basic Materials	Large Blend	6.51	Low

Source: Morningstar Direct, Sustainalytics. Data as of March 2020.

Climate Solutions funds are typically more concentrated at the sector level than any of the previous three groupings, and this is well reflected here. Industrial companies dominate the league table of the 20 most commonly held stocks in Climate Solutions funds. However, additional sectors, including technology, utilities, basic materials, as well as healthcare, consumer cyclical and real estate (which don't appear in the table) make Climate Solutions funds still more diversified than Clean Energy/Tech funds. Many Climate Solutions portfolios also tend to have a mid-cap and growth tilt.

On the carbon risk front, only one stock carries a Negligible rating, 12 have a Low Carbon Risk Rating, while six carry a Medium rating. (Note that Itron doesn't have a Carbon Risk Rating as Sustainalytics' coverage of small and mid-caps is more limited than that of large caps.)

Exhibit 17 - Most Commonly Held Companies in Clean Energy/Tech Funds

Clean Energy/Tech

Company	Sector	Style Box	Carbon Risk Score	Carbon Risk Rating
First Solar, Inc.	Technology	Mid Value	6.01	Low
Siemens Gamesa Renewable Energy, S.A.	Industrials	Mid Growth	6.58	Low
Vestas Wind Systems A/S	Industrials	Large Blend	1.39	Low
Canadian Solar Inc.	Technology	Small Blend		
Schneider Electric S.E.	Industrials	Large Blend	1.48	Low
Samsung SDI Co., Ltd.	Technology	Large Blend	11.81	Medium
Sunrun Inc.	Technology	Small Growth		
Johnson Matthey PLC	Basic Materials	Mid Blend	10.43	Medium
SolarEdge Technologies, Inc.	Technology	Mid Growth		
TPI Composites, Inc.	Industrials	Small Growth		
China Longyuan Power Group Corporation Limited	Utilities	Large Value	0	Negligible
EDP Renováveis, S.A.	Utilities	Mid Growth		
Iberdrola, S.A.	Utilities	Large Blend	11.87	Medium
Enel SpA	Utilities	Large Blend	11.5	Medium
Hannon Armstrong Sustainable Infrastructure Cap Inc	Real Estate	Small Blend		
Itron, Inc.	Technology	Small Growth		
Ørsted A/S	Utilities	Large Growth	11.93	Medium
Prysmian S.p.A.	Industrials	Mid Blend	17.54	Medium
Umicore S.A.	Industrials	Mid Growth	18.24	Medium
Xinyi Solar Holdings Ltd	Technology	Large Blend	0	Negligible

Source: Morningstar Direct, Sustainalytics. Data as of March 2020.

Clean Energy/Tech funds tend to be concentrated at the sector level and have a small and mid-cap bias. Technology, industrials, and utilities are the three main sectors represented, while small and mid-caps account for 60% of the top 20 most commonly held stocks. Growth stocks make up 40% of the top 20.

In the previous section, we saw that Clean Energy/Tech portfolios typically carry higher carbon risk than other types of climate-related strategy. Out of the 13 stocks with a Carbon Risk Rating, six have a rating of Negligible or Low, while seven have a rating of Medium.

It is also worth pointing out that the higher Carbon Risk Scores of Clean Energy/Tech portfolios come in addition to the higher financial risk that comes with investing in smaller stocks.

Exhibit 18 - Most Commonly Held Companies in Green Bond Funds

Green Bond

Company	Sector	Carbon Risk Score	Carbon Risk Rating
LeasePlan New Zealand Ltd.	Financial Services	0	Negligible
TenneT Holding B.V.	Utilities	6.53	Low
Digital Euro Finco, LLC	Real Estate	8.25	Low
Iberdrola International BV	Utilities	11.87	Medium
Lietuvos Energija UAB	Utilities		
ACS Servicios Comunicaciones y Energía SL	Industrials	13.42	Medium
MTR Corporation (C.I.) Limited	Consumer Cyclical		
Prologis International Funding II	Financial Services		
Fibria Overseas Finance Ltd.	Basic Materials		
Royal Schiphol Group N.V.	Industrials	0	Negligible
Bank of China Limited, Luxembourg Branch	Financial Services	15.61	Medium
Southern Power Co.	Utilities	18	Medium
Swire Properties MTN Financing Ltd.	Real Estate		
DTE Electric Co.	Utilities		
MAF Sukuk Ltd.	Consumer Defensive		
Public Service Company of Colorado	Utilities		
Bazalgette Finance Plc	Financial Services		
Boston Properties LP	Real Estate		
Indian Railway Finance Corp. Ltd.	Industrials		
Northern States Power Co.	Utilities		

Source: Morningstar Direct. Sustainalytics. Data as of March 2020. For Green Bonds, the analysis is carried out at issuer level, not on the issuance itself.

While our coverage of Carbon Risk Ratings for green bond issuers remains limited, we find that the sector composition in the table above is well representative of the green bond market in terms of corporate issuer types, which include financials, utilities, real estate, and industrials.

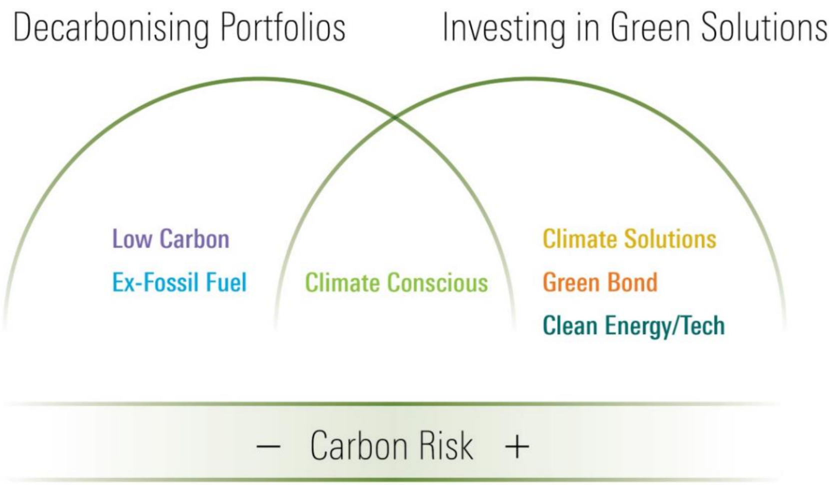
How Climate-Aware Funds Fit Into an Investor's Portfolio

The six climate-aware fund groupings we have identified represent a broad range of approaches that aim to meet different investor needs and preferences. The choice of one type over another largely depends on an investor's investment goals, risk appetite, and preferences.

Investors concerned about climate-related risks can use Low Carbon or Ex-Fossil Fuel funds to de-carbonise their portfolios. As we've seen, these approaches provide broad and diversified exposure to the market. They are therefore suitable as part of a portfolio core allocation. In fact, within an asset allocation, Low Carbon and Ex-Fossil Fuel funds can substitute for a lot of core equity exposure, but it would be a mistake to believe these are investments in the transition to a low-carbon economy. For that, investors must choose among the remaining types.

Investors looking to take advantage of this transition can turn towards Climate Conscious funds. These typically exhibit low carbon risk and fossil-fuel exposure—like Low Carbon and Ex-Fossil Fuel funds—with the added benefit of higher Carbon Solutions Involvement. These are suitable for investors wanting to strike a balance between mitigating risk and looking to benefit from the green transition.

Exhibit 19 - Climate Strategies and Their Role in Portfolios



Source: Morningstar Research.

Further along the risk-opportunity spectrum, Climate Solutions and Clean Energy/Tech strategies can appeal to investors with a greater risk appetite and who consider climate change as an alpha-generating opportunity. Because of their narrower market exposure and bias towards mid- and small caps, Climate Solutions and Clean Energy/Tech funds represent more-volatile investments. They also currently often come with higher carbon risk. We expect this to change in the future as the transitioning companies implement their solutions. Given their less diversified and higher risk profile, Climate Solutions and Clean Energy/Tech funds are more suitable as part of a satellite allocation to complement rather than replace existing core holdings. Clean Energy/Tech funds can fit particularly well with Ex-Fossil Fuel core exposures.

Similarly, Green Bonds funds can complement core bond holdings rather than substitute core bond funds. Despite many having similar duration and credit quality profiles, the underlying bonds are issued to finance specific projects in a limited number of sectors. This, however, will evolve, as the market continues to grow. In addition, green bonds may be inherently lower risk, but investors must be sure that the projects sitting within the bonds are indeed providing green solutions, as many green-bond issuers have high exposure to traditional brown industries such as those involved with thermal coal.

Conclusion

The menu of options for climate-conscious investors in Europe has expanded considerably in recent years and will continue to expand as asset managers strive to help reorient capital towards more climate-friendly investments, in line with the ambition of the EU Action Plan on Sustainable Finance. More choice and better information on the carbon characteristics of their investments will help investors meet their climate goals.

When choosing a climate product, investors should carefully consider their green preferences and carbon risk appetite. As we've seen, Ex-Fossil Fuel or Low Carbon funds provide the greatest shield from carbon risk but will offer little in the way of carbon solutions. Conversely, Clean Energy/Tech funds offer high exposure to carbon solutions as expected but also currently hold the greatest carbon risk in the bunch. This, however, shouldn't put investors off. The rationale for investing in solutions is not only to profit from their potential success, but also to help provide the capital and support to bring those solutions into being, and if these companies are able to do so successfully, they will have sidestepped their carbon risk in the process.

At first glance, the universe of climate-aware funds may appear complex and, in some cases, counterintuitive. It is therefore important that investors do their homework. They should understand the funds' investment objectives and how the portfolios are constructed, ensure they are comfortable with the level of carbon exposure, and crucially, look at the funds' holdings to avoid any bad surprises. Despite their similar names, climate-aware funds offer a variety of climate strategies and invest in different types of companies, which result in different outcomes. Some climate change investment strategies can result in narrow and concentrated portfolios, which makes them more suitable as satellite holdings than as a core part of a portfolio. Climate-aware funds also have a relatively short history, with most launched in the past two to three years, making their performance hard to assess.

One must also bear in mind that this is a whole new world for many asset managers as well. They must contend with a lack of or inconsistent data to create new investment products. It can be difficult to quantify a company’s contribution to combatting climate change, and variable operational boundaries and company structure can make effective carbon accounting a challenge. This is coupled with great uncertainty about governments' climate plans. Identifying risks and opportunities in this context is certainly not easy.

As companies are being asked to disclose more fulsome and accurate data, we can expect funds with a climate-related mandate to become clearer in their mission and more accountable to investors. This is an opportunity for fund managers to showcase their ingenuity and commitment to client service and education. The recent proliferation of funds is just the first attempt of the asset-management industry to throw its weight behind the climate crisis, and we will continue to see a sharpening of skills and improved disclosure over the next couple of years. This report is a snapshot of the current state of play, but we expect this universe will fluctuate, and Morningstar will continue to monitor its progress.

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Sustainable Investment Survey

2020

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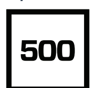

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Please reference the accompanying data pack for a breakdown of survey data included in this report and full question wording.

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2020 survey by the numbers

650 (248, 109, 60, 233)	Began the survey (GPs, LPs, Both, Others)
368 (157, 63, 32, 116)	Completed the survey (GPs, LPs, Both, Others)
8	Geographic regions represented
32	Days the survey was open
$1,840	Donated to World Central Kitchen

Hilary Wiek, CFA, CAIA
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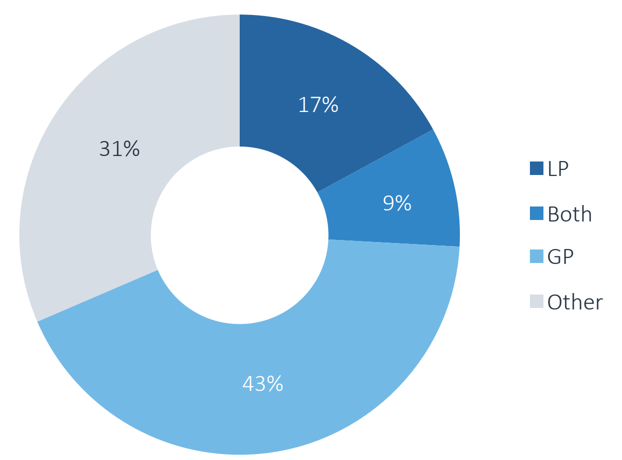
About this survey

As PitchBook makes significant improvements to its sustainable investing data capabilities, we have also ensured we are connected to the pulse of the industry. We ran a survey from July 7, 2020, to August 7, 2020, seeking out the views of investors and their advisors about this rapidly maturing space. 368 individuals completed the survey, though we recorded at least one answer from 650 individuals, providing us even more data on a partial basis. We tailored the survey to ask specific lists to different types of organizations. Given that each path was at least 26 questions long, we were particularly pleased by the completion rate. We ran a similar survey in 2016 that garnered 48 completed responses; the growth in numbers may be partially attributable to the increase in reach PitchBook has achieved in four years, but it is also a measure of heightened interest in the sustainable investing landscape.

2020 completed surveys by participant type



Source: PitchBook | **Geography:** Global | **Respondents:** All
Question 1

We were delighted with the respondent mix, as well. Of those who fully completed the survey, 157 identified as general partners (GPs), 63 as limited partners (LPs), 32 as Both (largely fund of funds investors), and 116 as something "Other" in the private market ecosystem. This last group self-identified as angel investors, consultants, advisors, banks, credit rating agencies, and more; we will often refer to them as Other or service providers in this report. While we assume there was some self-selection bias in terms of individuals interested in sustainable investing being more likely to complete the survey, 40 organizations identifying as an asset manager or both an LP and GP had neither an ESG approach nor an impact offering, and 27 LPs had no sustainable investing program, providing representation from those not currently participating in the space.

The other reason we were so happy with the numbers is that we had committed to make an impact with this survey, donating $5 for every completed survey to the World Central Kitchen. This organization has done terrific work in the past—in 2019 alone, it provided food during or following the US federal government shutdown, the refugee crisis along the border of Venezuela and Colombia, nationwide protests in Haiti, flooding in Nebraska and South Dakota, a cyclone disaster in Mozambique, tornadoes in the US Midwest, an earthquake in Albania, a tropical storm in Louisiana, and more. During the COVID-19 crisis, WCK has been working to safely distribute meals to children, seniors, and families in need. In addition, the nonprofit gathers these meals from restaurants that have suffered from the inability to fully open their doors to seated customers. Our choice of beneficiary was particularly appropriate given the geographic reach of the survey. In 2016, we did not have nearly the global reach we achieved in the 2020 edition.

While it is useful to follow trends over time, this survey saw a significant update from the prior offering. The 2016 survey focused strictly on ESG, or the environmental, social, and governance framework of investing, and the abbreviation was used in a more general sense than the industry is coming around to today.[1] The 2020 survey offered this short explanation as an introduction:

"For the purposes of this survey, we use sustainable investing as the umbrella overarching both impact investment approaches and the incorporation of ESG (environmental, social & governance) risk factors into the investment process. We will ask about each aspect of sustainable investing in the survey, using each deliberately as defined here."

This more specific language allowed us to identify more nuanced thoughts and practices across the sustainable investment landscape. We also updated the options for a number of questions to better capture the current environment. In addition, many questions left space for open-ended responses, which allowed us to gain further insights into the industry's evolution.

Read on for our findings.

1: For more on sustainable investing as an umbrella over impact investing and investing with the consideration of ESG factors, please reference this analyst note from earlier in 2020.

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Geography

Geographic breakdown by participant type

North America
65%
LP: 45 GP: 89
Both: 22 Other: 83

Europe
17%
LP: 9 GP: 31
Both: 8 Other: 16

Asia
7%
LP: 3 GP: 14
Both: 0 Other: 10

Middle East
1%
LP: 1 GP: 3
Both: 0 Other: 1

Africa
2%
LP: 2 GP: 4
Both: 0 Other: 3

Central America
1%
LP: 2 GP: 1
Both: 0 Other: 0

South America
6%
LP: 1 GP: 12
Both: 2 Other: 2

Oceania
1%
LP: 0 GP: 3
Both: 0 Other: 1

Source: PitchBook | **Geography:** Global | **Respondents:** All
Question 62

This survey achieved much better representation from regions outside of North America than in the past. While the percentage was still heavily tilted to North America, we did have responses for every other region except the Caribbean. GPs and those identifying as Both were slightly less tilted to North America, with 59% of those responses coming from the region and 21% from Europe. LPs and Other respondents, on the other hand, were 72% from North America and 14% from Europe.

Given how sustainable investment has evolved over the past two decades, we expected Europe to lead North America in terms of implementing sustainable investing practices. This hypothesis rang true in our survey responses. 73% of European participants had fully or partially implemented sustainable investing into their processes, compared to 60% of North American respondents. Across all regions, 61% said they had implemented at least some level of a sustainable investment program.

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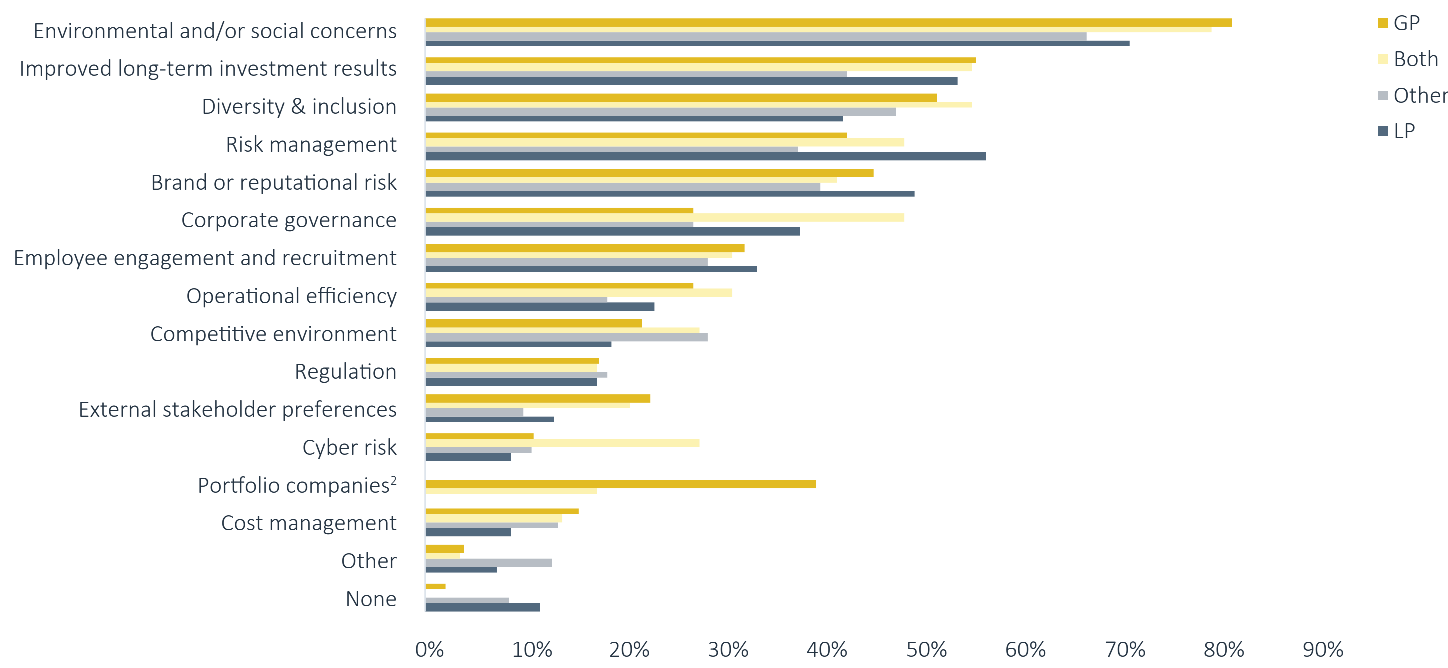
2016 versus 2020

Drivers of sustainable investing programs in 2020 by participant type



Source: PitchBook | **Geography:** Global | **Respondents:** All
Questions 23 and 24

The 2016 survey only used ESG terminology in its questions, while the 2020 survey stepped up a level to talk about sustainable investing—which incorporates both ESG and impact investing—making a number of the questions difficult to contrast. However, we can draw some comparisons to show changing attitudes.

In both 2016 and 2020, we asked all respondents about the factors driving their ESG or sustainable investing efforts, providing a long list of potential reasons and the ability to select multiple answers.

Improved long-term results was not an option provided in the 2016 question, but many respondents of all types in 2020 felt they could improve their long-term results by focusing on risks beyond those typically found in financial statements. If industry participants feel they can improve their risk-adjusted returns, they will be much more likely to stick with a sustainable investing approach rather than considering it a “nice to have” that can be set aside when other concerns arise. One LP in 2020 took exception with lumping social with environmental concerns, feeling that the natural world could not speak for itself but “humans can vote.” Another provided a concise Other response: “makes sense and makes money.”

GPs’ top driving factors for ESG efforts in 2016

Risk management

Environmental and social consciousness

Brand/ image

LPs’ top driving factors for ESG efforts in 2016

Risk management

Environmental and social consciousness

Corporate governance

2: We did not offer the option “portfolio companies” to LP and Other participants.

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2016 vs 2020

Practices for developing a sustainable investment program, scaled from not at all important (1) to extremely important (5), average response

5
4
3
2
1
0

Developing a strategy at the firm level
Setting goals for the program
Engaging outside experts
Appointing dedicated in-house sustainability professionals
Using common industry guidelines
Measuring the success of sustainability initiatives
Communicating progress
Outlining a sustainable investment philosophy in a limited partnership agreement
Engaging with portfolio companies/ asset managers to develop a corporate sustainability program

GP, Both LP Other[3] 2016 overall

Source: PitchBook | **Geography:** Global | **Respondents:** All
Questions 26, 27, and 28; 2016 survey results

We also asked survey participants what factors are most important in developing a sustainable investing program and provided a number of activities for respondents to rank on a scale from “not at all important” to “extremely important.”

While in 2016 many of the respondents centered on the somewhat to very important responses (twos, threes, and fours), 2020 saw a marked shift toward most of these practices being seen as very important to extremely important (fours and fives).

Engaging outside experts received the least extremely important votes; even among the Other category, which houses a number of those experts, only 20% considered this activity extremely important. Only 12% of LPs thought so. It was particularly interesting that using common industry guidelines was such a relatively low priority for most: Only 13% of LPs thought this was extremely important, perhaps one explanation for why the industry has taken so long to come to a consensus on measurement and reporting. With that said, measuring the success of sustainability initiatives received extremely important or very important votes from 75% of participants—but it seems few have agreed on a unified idea for how to do so.

3: Other respondents, a category made up primarily of service providers to investment firms and LPs, were not provided the responses “Outlining a sustainable investment philosophy in a limited partnership agreement” or “Engaging with portfolio companies/asset managers to develop a corporate sustainability program.” The 2016 survey also had a slightly different list of selections, explaining the lack of data for three of the responses.

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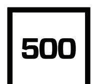


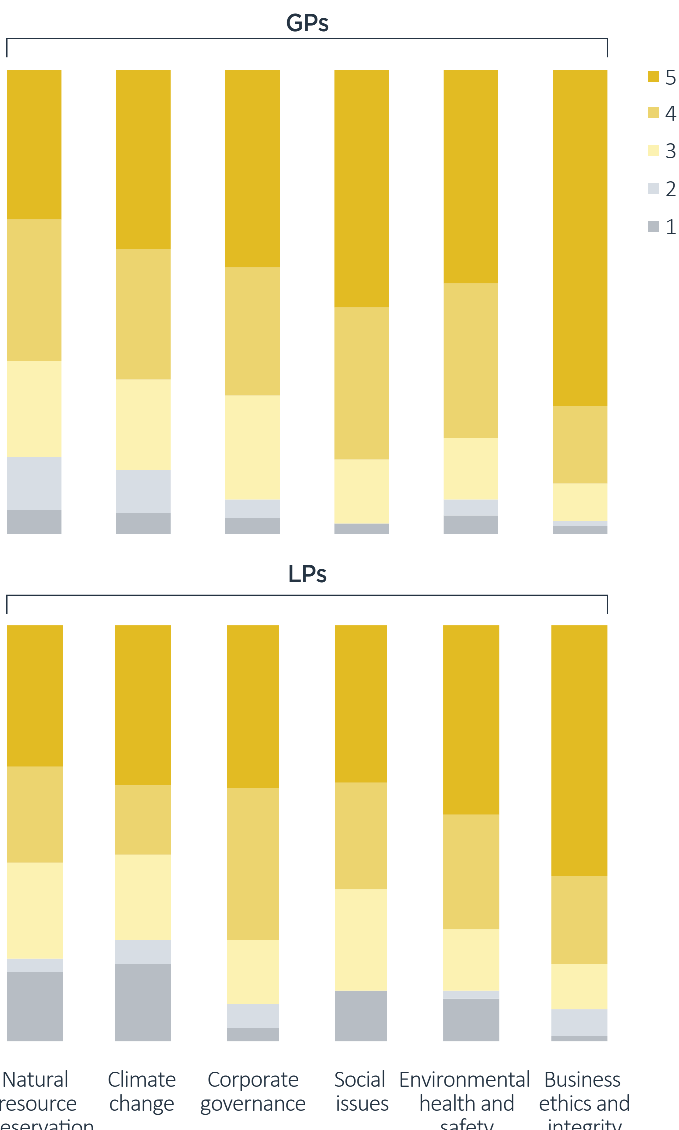
2016 vs 2020

We also asked about what respondents are most focused on in their sustainable investment efforts. In our 2016 survey, the top concerns were business integrity, environmental health and safety, and social issues. While we changed the wording for the 2020 edition, the top areas of focus remained thematically the same. This is surprising as the concepts of business ethics and integrity are somewhat amorphous and difficult to measure; we would be curious to find out how these respondents quantify and approach this particular area of focus. Interestingly, individuals who believe sustainable investing practices are "silly feel-good investments," as one of our participants stated, might be surprised at how rooted in good business practices the practitioners are. This top response contrasts to the number-one driver of sustainable investment programs being environmental and social concerns.

In general, respondents of all types largely thought all these issues were "very important" to "extremely important" and worth considering in an investment context.

While we noticed our participant pool trended toward those interested in sustainable investing, we still had more skeptical participants give voice to the other side in our open-ended responses. One firm that identified as Both said the biggest challenge they face was "the vast and undue attention given to decarbonizing the economy when science is not necessarily accurate and validated." A fund manager said they had "no interest in injecting social agenda into investing business." An LP said the biggest challenge to sustainable investment programs and initiatives is "fiduciary issues." The respondent most vehemently against sustainable investing throughout the survey asked: "Why was this survey created? Are you trying to brow-beat my peers into silly and unprofitable investments?"

Areas of focus for sustainability by participant type, scaled from not at all important (1) to extremely important (5)



Source: PitchBook | **Geography:** Global | **Respondents:** LPs and GPs
Question 25

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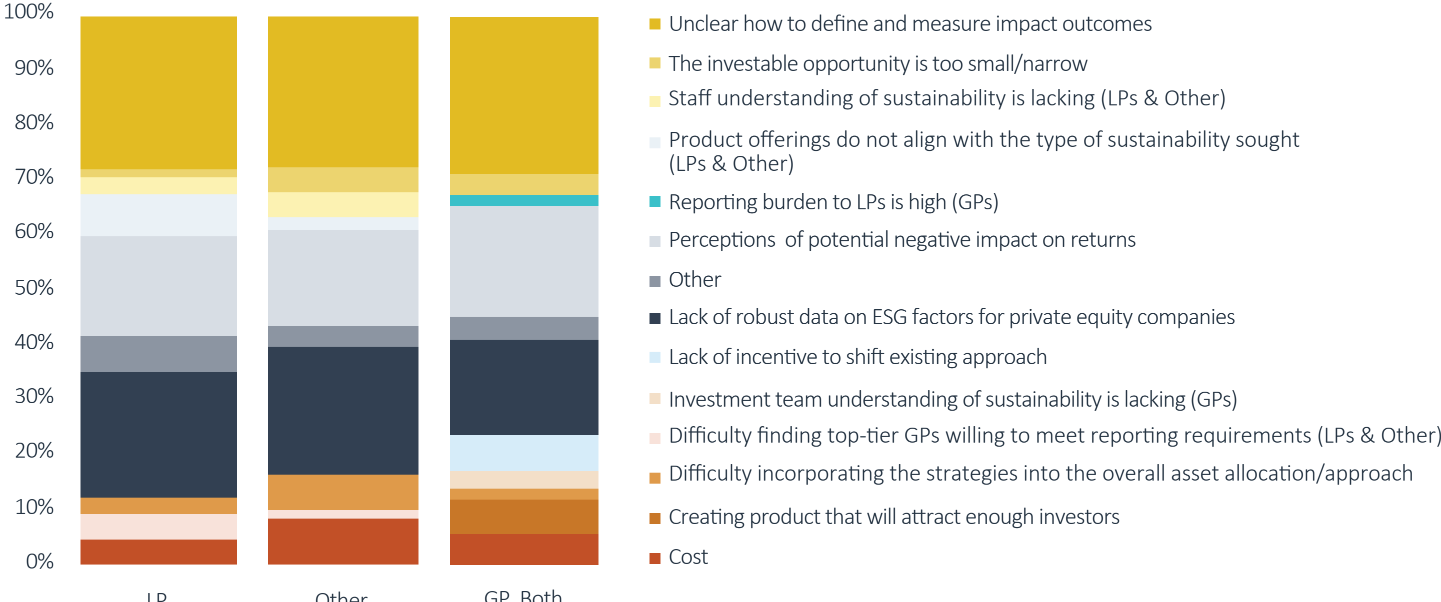
2016 vs 2020

Biggest sustainable investment challenges by participant type



Source: PitchBook | **Geography:** Global | **Respondents:** All
Questions 29 and 30

For our final discussion of attitudes, we asked about the biggest challenge for sustainable programs and initiatives. Only one selection was allowed, though several respondents indicated that many of the choices were challenges for them and the industry.

In 2016, the top answers were effective metrics to monitor performance, cost, and implementation. We expanded the list of options to this question in 2020, but the leading answer was essentially the same: most respondents were "unclear how to define and measure impact outcomes." Next in line were "lack of robust data on ESG factors for private equity companies" and "perceptions of potential negative impact on overall returns."

This last response is in marked contrast with the top driver behind our respondents' move into sustainable investing: improved long-term investment results. This tells us those that believe in sustainable investing as a return enhancer may still be having difficulty convincing others of the potential benefit. In 2020, the Department of Labor stepped into this conflict by proposing a rule that would require pensions and 401(k) plans to justify all ESG investment strategies from a fiduciary perspective.[4,5] Interestingly, 95% of the comments to the DoL proposal opposed the rules,[6] as the investment industry seems to be converging around the idea that ignoring the non-financial but material risks that ESG is meant to capture may be acting contrary to a fiduciary standard.

The top three 2020 responses were in largely the same order no matter the type of respondent. Cost, the number-two response from 2016, was the fourth-place answer overall in 2020.

The fourth-place answer for LPs was a new option for the 2020 survey: "product offerings do not align with the type of sustainability sought." We know it is difficult for an LP with a particular impact mission to find an asset manager that can provide the right exposures. PitchBook is creating a second level of labels for impact funds to help facilitate easier connections—LPs seeking to fund investments in themes such as education, clean water, or affordable housing will be able to search PitchBook for funds working toward measurable impact in those areas.

On the flip side, some GPs and funds of funds expressed concern surrounding creating product that will attract enough investors. Many areas in the sustainability landscape still have a fairly narrow audience—sometimes due to the geography in which LPs want to create an impact and sometimes due to themes that do not lend themselves to scalable investment opportunities.

4: "US Department of Labor Proposes New Investment Duties Rule," US Department of Labor, June 23, 2020.
5: "The US Department of Labor Attempts to Throttle ESG Investing," Morningstar, John Rekenthaler, July 2, 2020.
6: "Trump Plan to Block Green 401(k)s Stirs Fund Industry Fury," Bloomberg, Tim Quinson, August 31, 2020.

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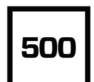


Current sustainability programs

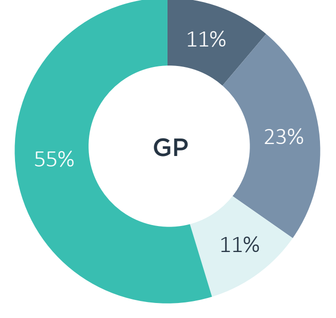
All participants were asked questions to prompt an assessment of their sustainable investing journey. We have to assume the respondents do not represent the investment community at large, given that those who took the survey were overwhelmingly likely to have some level of preexisting interest in the topic. The survey was not marketed to any specific affinity groups, so this bias came through self-selection. Of the respondents who reported they had no sustainable investment plans, however, 36 made it to the end of the survey, providing us with some representation of views other than whole-hearted support.

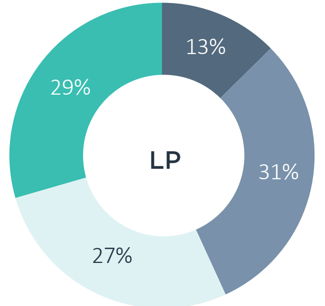
The asset managers were furthest along in implementing sustainable investing initiatives; 55% had integrated this work into their process while another 11% had a dedicated sustainable investment team. Many asset managers started their sustainable efforts with someone in charge of keeping an eye on ESG factors, then progressed to folding such thinking into the full process so all investors are responsible for considering the risks. The latter approach will likely lead to more consistent consideration of both financial and ESG risks.

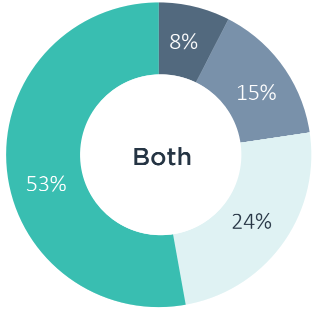
Asset owners were given a slightly different set of possible responses, as noted in the chart legend, but the results show them to be slightly behind in the actual implementation of sustainable investment principles. Only 29% had integrated sustainability throughout their portfolio (most LPs will start with an allocation of a portion of their portfolio to ESG or impact investment funds rather than mandating all managers focus on sustainable investment all at once), though another 27% had implemented at least a partial integration into their total portfolio. Service providers were the furthest behind; half of the Other respondents either have done no sustainable investment work or are still exploring a path.

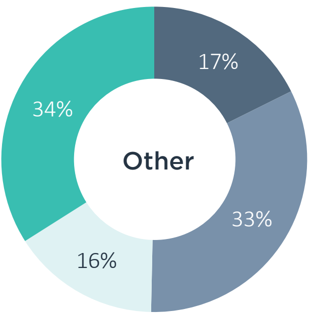
While the GP and LP results for the next question show that many of the respondents to this survey have been working on sustainable investment efforts for two or more years, service provider respondents were barbelled. 28% have no initiatives and 26% have been active in the space for more than five years.

Integration of sustainable investing by participant type









- We have integrated sustainability throughout
- We have a dedicated team that works on this thinking (GPs & Other)/We have partially implemented a sustainability program in our investment portfolio (LPs & Both)
- We are exploring what sustainability means for us
- We are not working on any sustainable investment work

Source: PitchBook | **Geography:** Global | **Respondents:** All
Questions 10, 11, and 12

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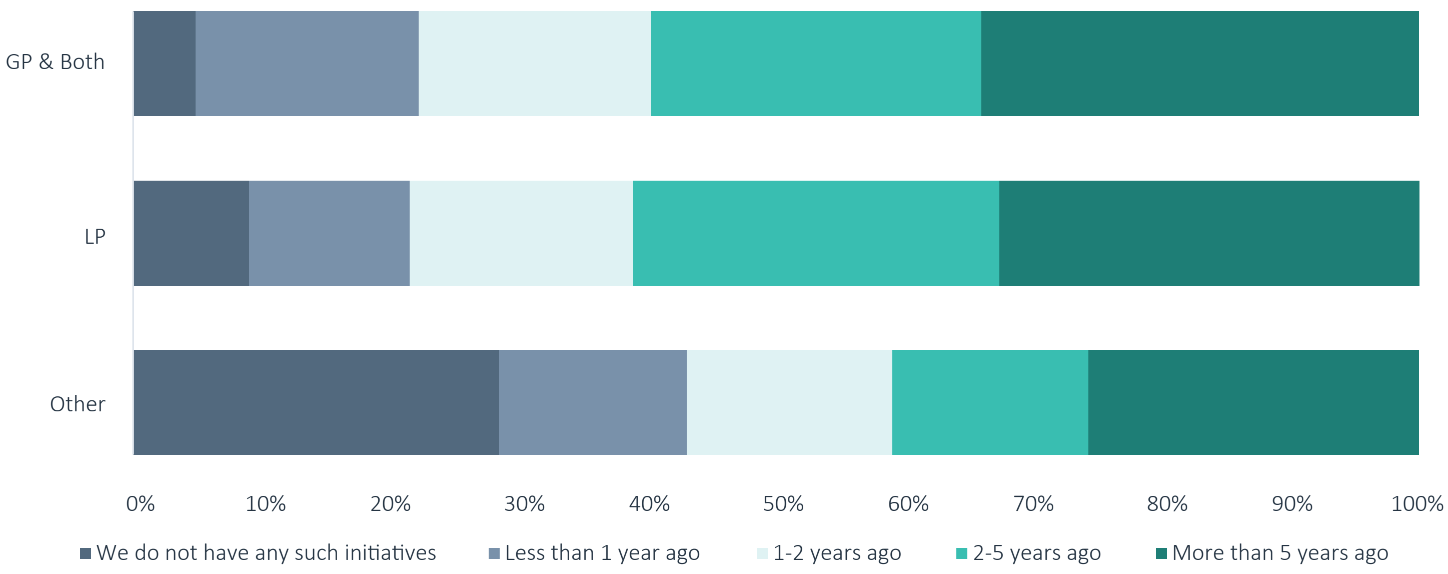
Current sustainability programs

Timeline of sustainable investing initiatives by participant type



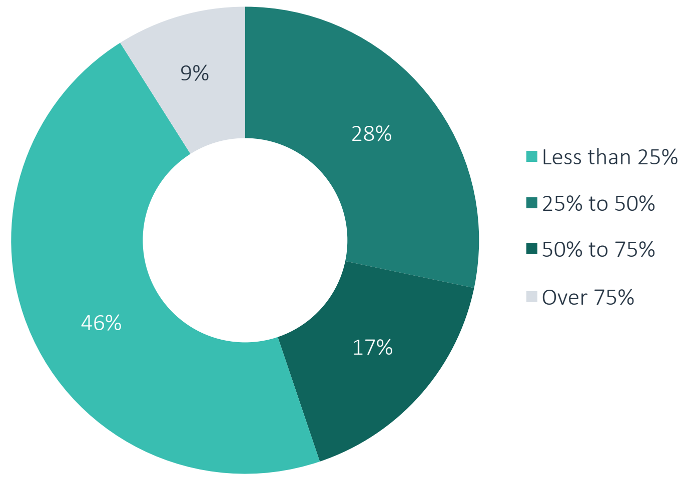
Source: PitchBook | **Geography:** Global | **Respondents:** All
Questions 8 and 9

Despite a massive amount of interest in this subject—think of all the webinars and conference sessions in recent years—sustainable investing efforts are still fairly immature at many organizations. With that said, as we'll show in a later section, a tumultuous 2020 does not appear to have derailed many plans to continue with sustainable investment.

Our prior survey in 2016 did not separate out the Other respondent category, or those entities that didn't fit cleanly into the LP, GP, or Both options. This group consisted primarily of service providers in areas including consulting, executive search, investment banking, education, media, law firms, placement agents, and OCIO. While there were exceptions, most of the respondents provide advice and services to LPs, GPs, or both. Their views on the sustainability topic are thus extremely important, as they often influence investors' thought processes. A robust 116 respondents that identified as Other completed the whole survey.

One question asked only to the Other respondents centered around the demand they see for sustainable investments from their GP or LP clients. Almost half said that less than 25% of prospective or current clients are expressing interest, while only 9% said that more than 75% of their clients are showing interest in sustainable investing.

Proportion of current or prospective clients raising sustainable investment topics



Source: PitchBook | **Geography:** Global | **Respondents:** Other
Question 74

This question may provide a more comprehensive view on the broader sustainable investment landscape, as consultants and other service providers are working with investors of all stripes, not just ones interested in completing a sustainable investment survey.

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Q&A: Early stage isn't too early for ESG

500 Startups & PitchBook convened to discuss a more in-depth, focused perspective on issues pertaining to ESG across the startup realm, conversing about how ESG concerns can apply earlier to companies' lifecycles than some may presume, and best practices on the part of both investors and founders.

Christine Tsai

CEO and Founding Partner
500 Startups

Christine is the CEO and Founding Partner of 500 Startups. Since the firm's inception in 2010, she grew 500 Startups to over $600 million in committed capital, 2,400+ portfolio investments, 140+ team members, and a vibrant community of founders spanning over 77 countries. Christine has spent her entire professional career building and investing in Silicon Valley. Prior to founding 500 Startups, she held product marketing and operating roles at Google, focusing primarily on monetization and developer products. Christine holds a B.A. in Cognitive Science from the University of California at Berkeley.

What are the biggest misconceptions about how and why ESG concerns should be incorporated into early-stage investing?

One common misconception is that it's too early for young companies to integrate environmental, social, and corporate governance (ESG) policies. It's arguably tougher for VC firms to help fledgling companies implement ESG measures when they are still fine-tuning their business models, and even more so when they have a small stake in the company and therefore not as much sway. But it's never too soon to raise awareness by asking startups in their formative stages to think hard about the long-term impact of their actions as they outline their mission. The bigger a company gets, the costlier it is to make changes.

Today's ESG principles are becoming tomorrow's laws. Regulations and young companies are at greater risk than more developed companies with greater resources. One such example is governance of personal data. If a two-person startup wants to do business in the modern economy, size does not exempt it from safeguarding customers from data and cybersecurity breaches. Europe's General Data Protection Regulation (GDPR) on personal data applies regardless of a company's scale or location, with sanctions of up to €20 million or 4% of annual revenue, whichever is higher, and bans on further data processing.[7]

The California Consumer Protection Act (CCPA) is the state of California's version of GDPR data privacy laws for companies falling into certain parameters. For example, for startups generating revenues of $25 million or over, if 50% of revenues are generated out of California or the business is processing the data from 50,000 or more California residents, the company will have to comply with CCPA rules or risk fines.

When it comes to early-stage companies, ESG provides an opportunity to attract talent and consumers, enhance regulatory compliance, and develop greater market access. The sooner companies start, the greater the ability to capture these opportunities and mitigate risk. In our view, it's never too early for VCs to encourage young companies to engage in sustainable practices, but it requires commitment and farsightedness. Imagine if today's unicorns had applied ESG at the onset; we might be living in a more inclusive and sustainable world today.

What are the most significant challenges that early-stage investors (for example, 500 Startups) face when implementing ESG factors into their investment theses and processes?

ESG and impact investing have, at times, been used interchangeably, but these two concepts are different. ESG focuses on the operations of a company, while impact focuses on achieving specific impact goals. If an investor partakes in "ESG investing," it refers to investing in a company that has the policies and

7: "What Are the GDPR Fines?" GDPR, n.d.

practices in place that establish good labor practices, improve diversity and inclusion, protect user data, and mitigate environmental damage. "Impact investing" involves investing in a company that produces products or services to achieve specific goals that benefit the world (typically societal or environmental benefits), thus narrowing the types of companies that receive investment.

Integrating ESG criteria into investment theses and processes doesn't change the type of markets, geographies, and sectors we invest in at 500 Startups. Rather, ESG enables us to mitigate risks and identify value creation opportunities that may have been overlooked. For 500, ESG is perfectly aligned with our strategy. Diversification across sectors, geographies, and founders has been central to our investment thesis and approach since we were founded in 2010. We believe this can lead to greater access to differentiated deal flow, capital, partners, and coinvestors.

The value of ESG in guidelines, talent retention, recruiting, and more is gradually being established, although it's still in the early days. What evidence do you find compelling for prioritizing ESG?

It is a well-known fact that the VC industry suffers from a lack of diversity. Women and people of color are woefully underrepresented as founders and funders. As enablers of wealth and job creation, many of us in the VC community are able to take a systematic approach to tackle societal issues from the ground up. At the very beginning of a company's journey, we can start to encourage the actions that are necessary for the future wellbeing of our world.

We have the tools at our disposal. Institutional investors have been increasingly integrating ESG policies into their decision-making process to limit the adverse effect of their investments on climate change and labor practices, or to foster inclusive economic growth. The VC investment community can do the same.

How can current ESG guidelines and considerations be improved? Put another way, what should ESG approaches evolve into next?

ESG policies and practices don't always translate easily to emerging markets contexts. More than half of our portfolio comes from outside the US and spans over 77 countries.[8] Seven of our 19 unicorns also come from outside of the US.[9] Establishing diverse employment practices means something entirely different in Malaysia compared to the US. However, as VC investing and entrepreneurship expand globally, adapting ESG guidelines to local contexts has become increasingly important. Working with companies that are disrupting markets and creating new business models means we must work with them in real time to anticipate the potential for ESG impact.

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500 Startups' responses are intended solely for general informational or educational purposes and represent the current views and thinking of 500 Startups, which is subject to change. Under no circumstances should any content in such responses be construed as investment, legal, tax or accounting advice by 500 Startups, or an offer to sell or solicitation of interest to purchase any securities advised by 500 Startups. Prospective investors considering an investment into any 500 Startups fund should not consider or construe this content as fund marketing material.

8: Based on internal estimates as of June 30, 2020 and has not been independently verified.
9: Based on internal estimates as of June 30, 2020 and has not been independently verified.

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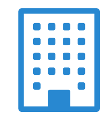
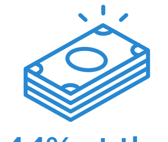
The LP perspective

LPs consider ESG risk factors and/or impact at the following levels:



59% at their own organization

44% at the GP or asset manager level



44% at the fund level

60% at the portfolio company level

15% do not consider such factors at any level.

Source: PitchBook | **Geography:** Global | **Respondents:** LPs
As of August 7, 2020 | Question 34
Note: Multiple answers were allowed, so percentages do not add to 100%.

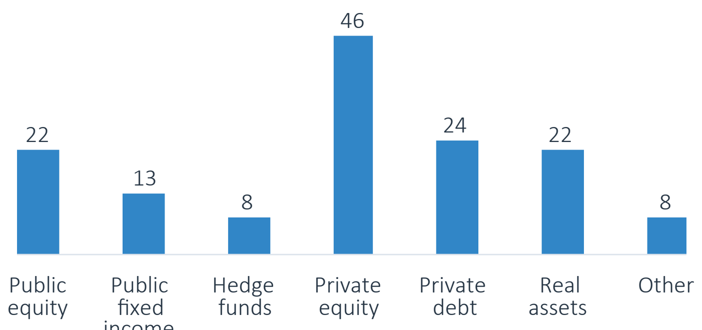
Several questions were posed just to LPs to determine how they are approaching sustainable investment in their work. The majority of these asset owners said they are focusing on ESG at the portfolio company level, expecting that those companies are managing the material non-financial risks that could torpedo an investment. Slightly fewer respondents said they are focused on such risks at their own organizations, evidently operating under the same expectations to which they are holding their underlying investments.

Given the audience PitchBook reaches, it is not terribly surprising that the most frequent answer was private equity when asked about the asset classes in which LPs were focusing sustainable investments. Private debt was next, with public equity and real estate ranking a close third and fourth. Of the eight Other responses, six noted that they currently have no parts of their portfolio focused on sustainable investing.

Many people in the investment ecosystem have struggled with the dichotomy of how to balance financial returns with sustainable investing principles. In 2016, we asked a binary question: Would you rather have no ESG and top performance or a strong ESG program and slightly lower performance? 44% of participants said they'd accept lower performance for a strong ESG program, while 56% felt profits were more important.

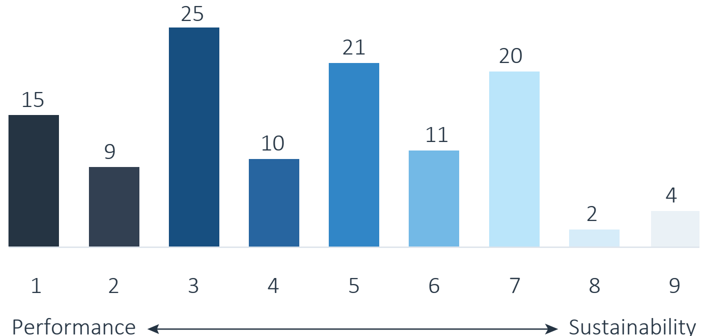
In 2020, when asked to place themselves on a scale from one to nine of performance versus sustainability, the average response came out at 4.37—still closer to financial returns, but a five would have meant that they balance profit and sustainability equally. Only 3% of responses said sustainability is the only important factor, but at the other end, only 13% said that performance is the only important factor. LPs are of course not monolithic. For some, GPs could differentiate themselves by a small shift toward sustainable investing but remaining focused on profit motives. For others, sustainable investing is a necessary factor, and its absence could exclude a manager from consideration altogether.

LPs' sustainable investment program focus by asset class



Source: PitchBook | **Geography:** Global | **Respondents:** LPs
Question 43

How LPs prioritize sustainable investment versus top performance



Source: PitchBook | **Geography:** Global | **Respondents:** LPs
Question 61

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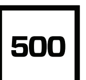
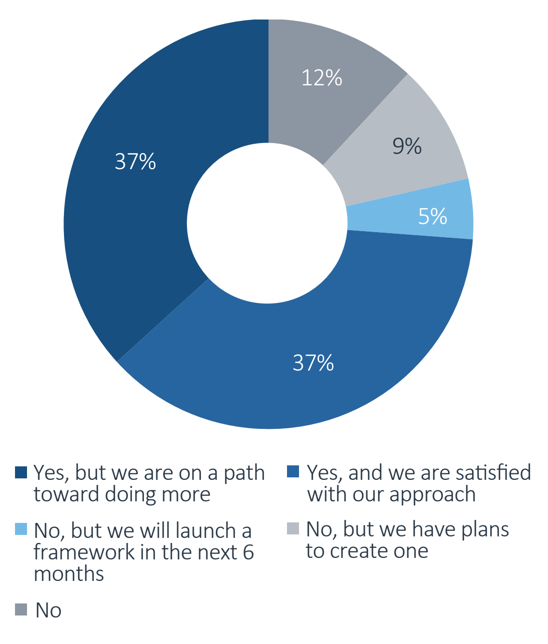


Contrasting views: ESG

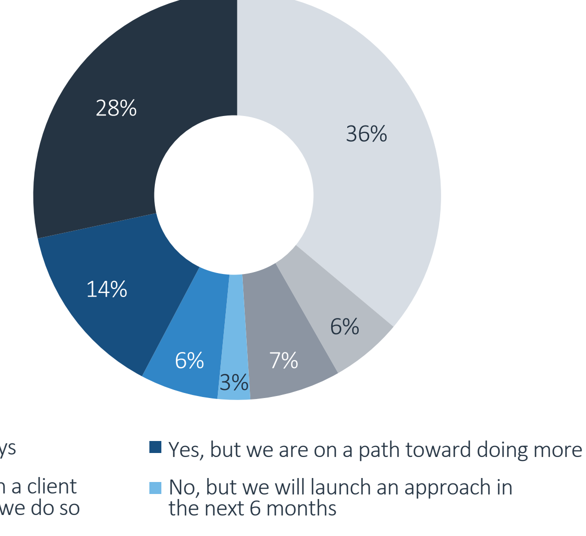
Asset managers' incorporation of ESG risk-factor frameworks



- Yes, but we are on a path toward doing more
- Yes, and we are satisfied with our approach
- No, but we will launch a framework in the next 6 months
- No, but we have plans to create one
- No

Source: PitchBook | **Geography:** Global
Respondents: GPs and Both
Question 2

Service providers' evaluation of investment managers' ESG risk-factor frameworks

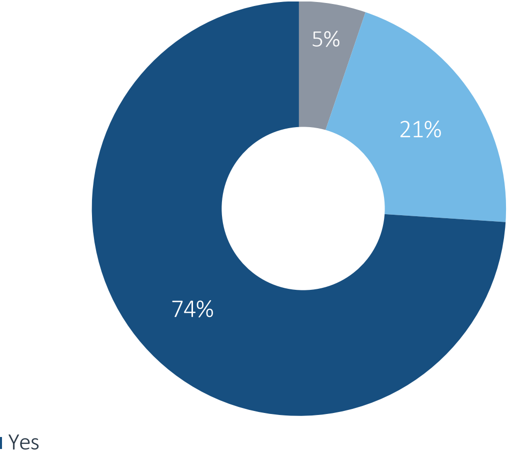


- Yes, always
- Yes, but we are on a path toward doing more
- Yes, when a client requests we do so
- No, but we will launch an approach in the next 6 months
- No, but we have plans to create an approach
- No, we currently have no plans to do this
- Question not relevant to our business

Source: PitchBook | **Geography:** Global
Respondents: Other
Question 4

With the questions associated with these charts, we hoped to contrast what asset managers are doing versus what allocators and their gatekeepers[10] are looking for. The vast majority of asset manager respondents say they are incorporating ESG risk factors into their work. An even greater proportion of LPs—95%—are already evaluating or are increasing their attention to such work, which suggests that asset managers should begin to consider ESG factors if they haven't already. The service provider community appears furthest behind in incorporating ESG thinking into their work. Of those that felt the question was relevant to their work, 24% have not yet implemented an approach to evaluate the ESG risk-factor work done by asset managers.

Proportion of LPs and Both that plan to increase attention to ESG risk factors in the next year



- Yes
- No, we have already fully implemented our ESG factor program
- No, we do not intend to implement an ESG factor assessment into the analysis of our funds

Source: PitchBook | **Geography:** Global
Respondents: LPs and Both
Question 21

10: Many LP consultants are charged with performing initial diligence on asset managers and providing short lists of names to LPs from which to select, which is why they are often called gatekeepers.

Contrasting views: ESG

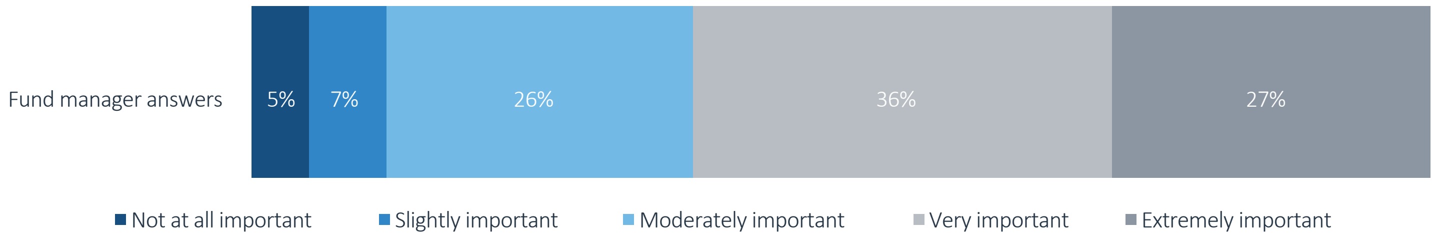
Proportion of GPs that require portfolio companies to focus on financially material ESG factors

Source: PitchBook | **Geography:** Global | **Respondents:** GPs and Both
Question 55

We also asked a follow-up question to asset managers to go a level deeper into their incorporation of ESG factors. Many have heard of the term "greenwashing," which refers to when a fund manager claims to "do" ESG, but in reality, these efforts are surface-level at best, not truly assessing and managing the material risks that ESG factors entail. One significant way a GP could ensure the consideration of ESG factors throughout its portfolio would be to require portfolio companies to have these risks in mind, as well. But our survey respondents indicated that only 25% are carrying the ESG effort through to portfolio companies, where the risks can not only be assessed, but addressed.

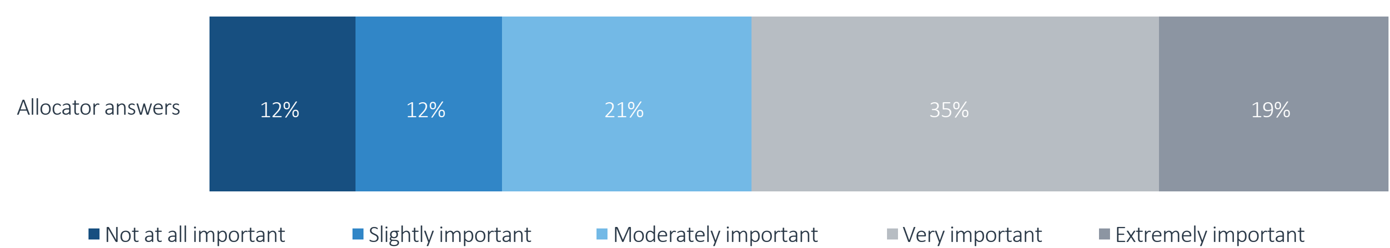
Both GPs and those who evaluate them seem to agree that ESG risk factors are worthy of consideration when managing portfolio companies. This contrasts to the prior question where 75% of GPs said they do not require their portfolio companies to consider such risks. It seems GPs may still be working on this area—if they think it is important, they will presumably move toward implementing a strategy to address the issue.

Importance of ESG risk factors to portfolio company improvements



Source: PitchBook | **Geography:** Global | **Respondents:** GPs and Both
Question 32

Importance of asset managers considering financially material ESG risk factors



Source: PitchBook | **Geography:** Global | **Respondents:** LPs, Both, Other
Question 33

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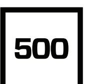
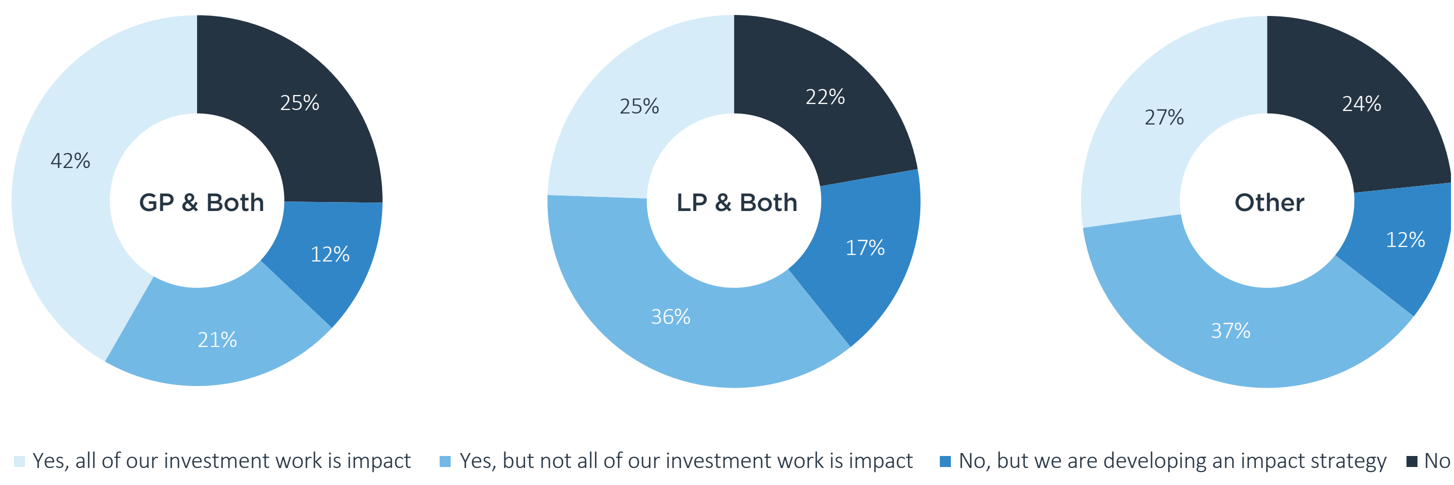


Contrasting views: Impact

Proportion of LPs, GPs, and service providers that offer, allocate to, or evaluate impact investment strategies

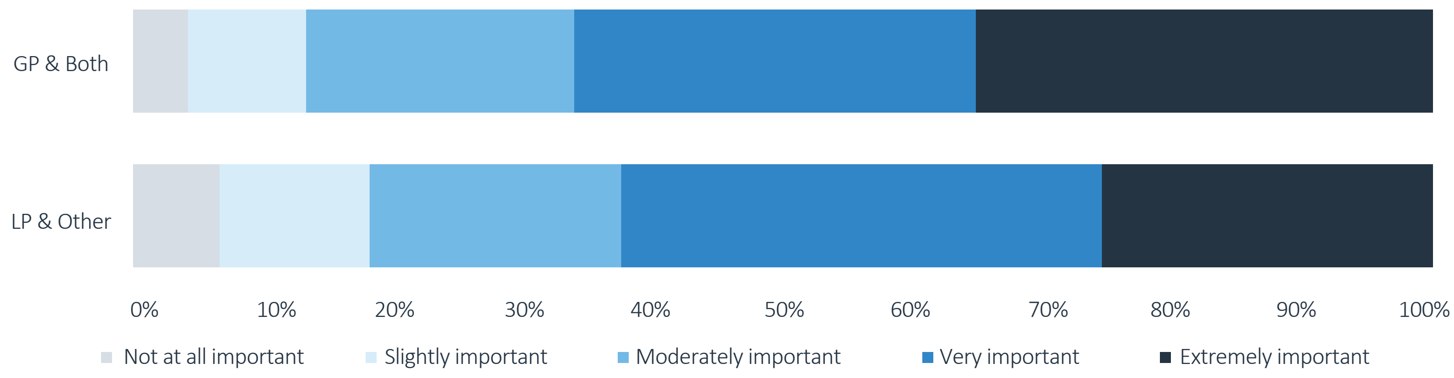


Source: PitchBook | **Geography:** Global | **Respondents:** All
Questions 5, 6, and 7

Turning to how different constituents are incorporating impact, or not, 42% of our fund managers consider all their strategies to be impact offerings. 25% of LPs have all their investments in impact strategies and 27% of the other service providers focus all their work on impact investing. This seems unlikely to be representative of the broader industry, but it does illustrate that the survey reached an audience with a strong commitment to investing for the double bottom line. Only about a quarter of respondents from each type said they have no work involved with impact investing. The remainder either had some portion of their work focused on impact or were working on something in the space.

When it comes to measuring the impact of portfolio companies, asset managers felt it was more important than LPs and their advisors. Elsewhere in the survey, respondents of all types indicated that one of the biggest challenges to implementing a sustainable investment program is measurement, so while many think it is important, fund managers and asset owners are still struggling with how to do so.

Importance of measuring social and/or environmental impact of portfolio companies by participant type



Source: PitchBook | **Geography:** Global | **Respondents:** All
Questions 35 and 36

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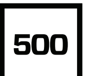
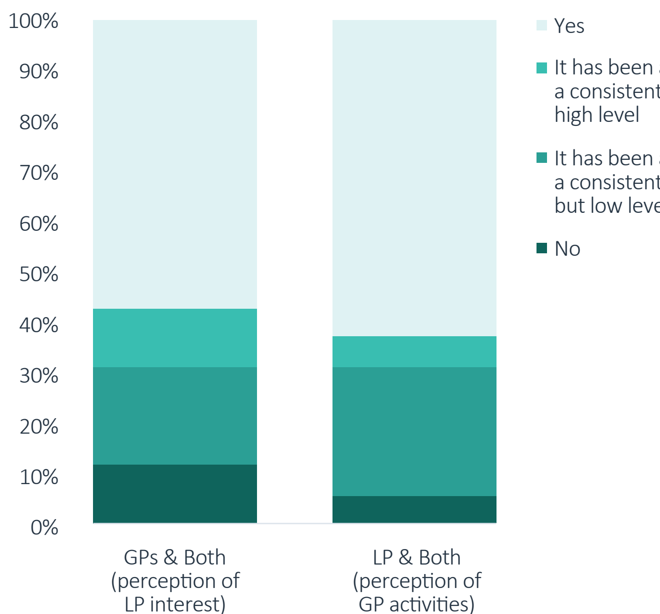
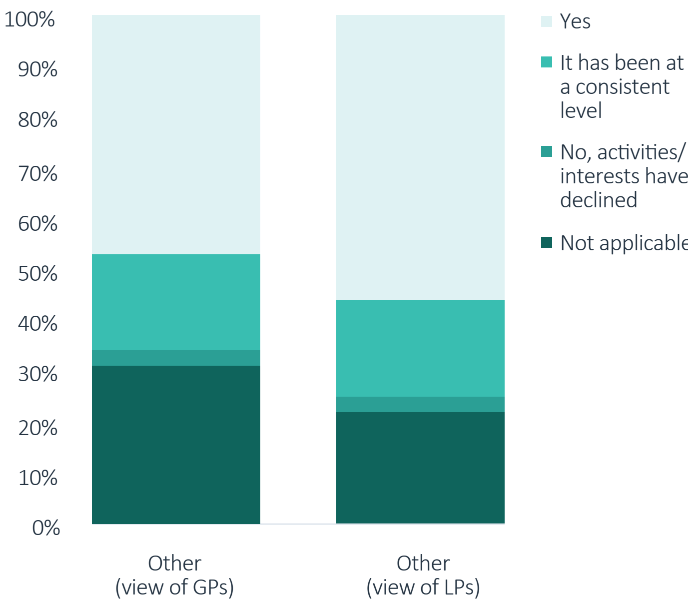


Perceptions

Perception of whether clients, managers, and asset owners have been expressing increased interest in sustainable investment in the last three years



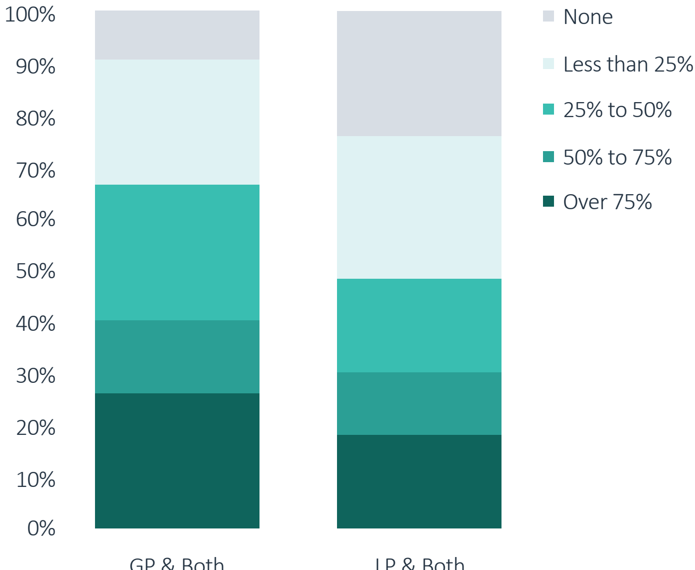


Source: PitchBook | **Geography:** Global | **Respondents:** All
Questions 16, 17, 18, and 19

GPs have definitely been hearing about sustainable investing from inquiring LPs—69% said interest has been increasing or has stayed at a consistently high level. When asked if they had noticed GPs improving in this space, asset owners showed that they believe progress has been made. Service providers, which often see a broader spectrum of the industry than just the LPs or GPs that are dedicated to sustainable investing, as many of this survey's respondents are, have seen less progress in the industry over the past three years.

Measuring how prevalent the conversations are around sustainable investing, 40% of asset managers said over half of clients and prospects were bringing it up, while only 9% said that none of their interactions broached the subject. LPs were asked a somewhat different question: what percent of their current line-up of fund managers are incorporating sustainable investment principles in their strategy. 52% indicated that 25% or less (including none) of their investment managers provided sustainable investment work. Only 18% of LPs had over 75% of their asset managers managing for impact or taking ESG risk factors into account.

Proportion of LPs asking about sustainability versus the proportion of holdings with an existing approach



Source: PitchBook | **Geography:** Global | **Respondents:** All
Questions 41 and 42

Note: For LPs and Both, we gave the option "we do not utilize external fund managers," which is incorporated here in the "none" response bucket.

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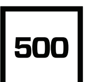

Impact measurement

Impact measurement strategy by participant type

Source: PitchBook | **Geography:** Global | **Respondents:** All
Questions 64, 65, and 66

One of the biggest complaints of the impact investing space, confirmed elsewhere in this survey, has been measurement and reporting; it seems that for every practitioner, there are nearly as many methods for providing the social or environmental results of a company or portfolio. When we asked participants how they deal with this challenge, it appears most have chosen to create some custom method to track their impact investments. Service providers were somewhat more inclined to adopt a standard industry framework, but two thirds of those that endorsed some methodology (half said they do not support any custom or standard framework) still utilize something custom. Several LPs and GPs said they use a combination of a standard framework and something custom.

We received dozens of responses when we asked participants to explain their measurement methodologies, few of which had substantially similar answers from other respondents. Many were often specific to the mission of the mandate. A representative sample of these open-ended responses can be seen above.

A number of participants did mention the UN Sustainable Development Goals (SDGs), SASB standards, and the GIIN's IRIS+ framework, but each seemed to use them in their own specific way, usually in combination with another framework.

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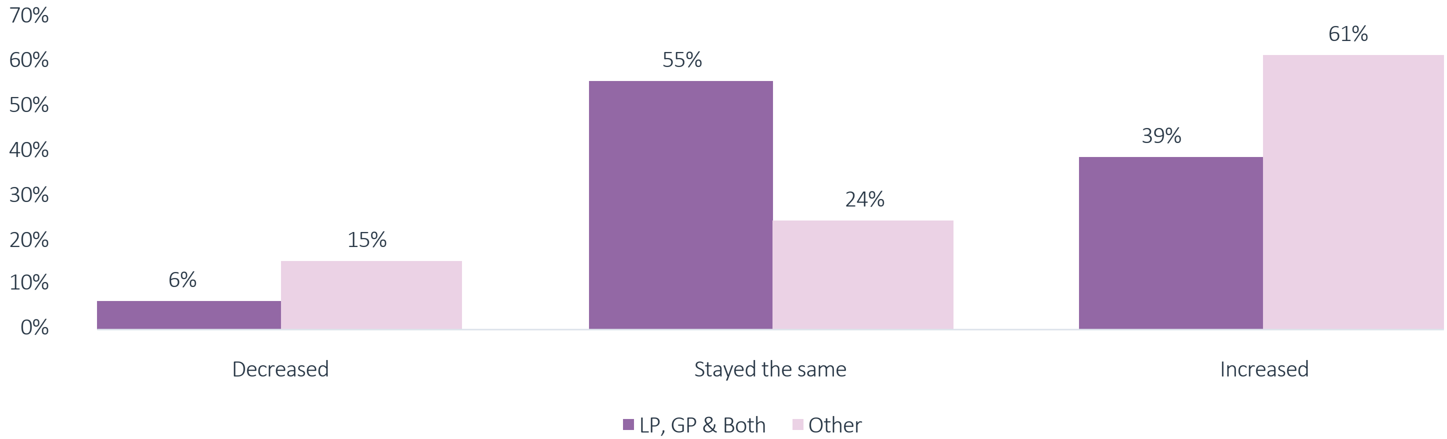
Social and political landscape

Change in industry focus on sustainability in 2020



Source: PitchBook | **Geography:** Global | **Respondents:** All
Questions 44 and 45

The COVID-19 pandemic came up a few different ways in this survey. When asked if their focus on sustainability has changed in 2020, only 6% of GPs and LPs felt it had "decreased temporarily due to the COVID-19 crisis." The GFC caused many industry participants to put sustainable investing initiatives on the back burner, but it appears that COVID-19 has potentially increased the urgency for some to consider the social construct around their investments.

Other service providers were more likely to say that the industry's focus may have declined because of COVID-19. On balance, given the likely bias in our survey toward firms and organizations highly committed to sustainable investing, this group's views might paint a more accurate view of the total investor landscape.

A number of respondents said in open comments that COVID-19 had led to an increased focus on sustainable investing. One participant that identified as an angel investor said that their focus on sustainability had increased in 2020 "due to COVID-19—now care more where future funds allocated." An individual that identified as an impact technology service provider said that they'd seen the industry's focus on sustainability increase because of COVID-19: "Clearly the old business practices are unsustainable. Covid simply brought it to light." One GP indicated that its focus on sustainability had increased in 2020 because "Covid has made risk factors come more into focus." One consultant said that "the pandemic has made some investors more purposeful."

As the survey went out after the 2020 Black Lives Matter protests had begun, some respondents indicated that an increased attention to sustainability was occurring for reasons related to racial inequity: "noticeable disparities in COVID-19-related deaths by race and poverty data" and "the politics, COVID-19 and the BLM movement" were the cause of increased focus on sustainability in 2020. One fund manager said that "Covid and the Black Lives Matter movement have shown that impact investing is more important and urgent than ever." Diversity was also called out by several as another reason for increased focus on sustainable investing in 2020.

A few other pandemic-related responses came out of the survey. When asked "What specific sustainable investing problems remain unsolved for you?" one fund manager said "Post-COVID-19 investor expected returns." It will definitely be a more difficult fundraising environment if returns during this crisis suffer as much as they did during the years of the GFC. In the highly opportunistic category, one fund manager indicated that more LPs are putting money toward pandemic solutions—and this fund manager had "pandemicimpactfund.com" as their email domain name. According to the PitchBook Platform, the Pandemic Impact Fund launched in July 2020.

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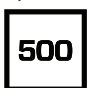
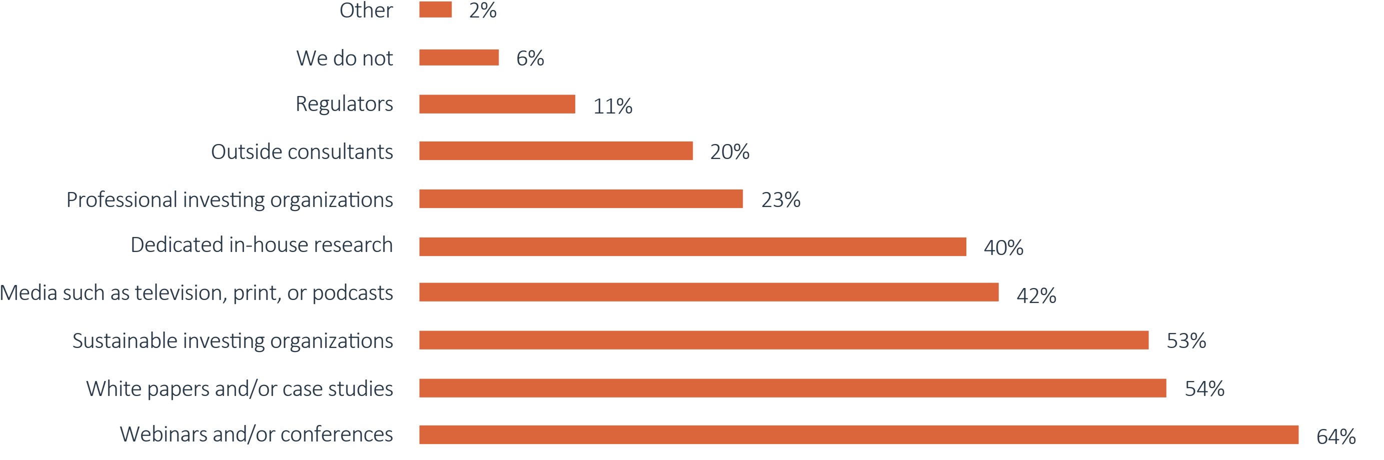


Staying informed

How survey participants stay abreast of ESG and sustainable investment developments

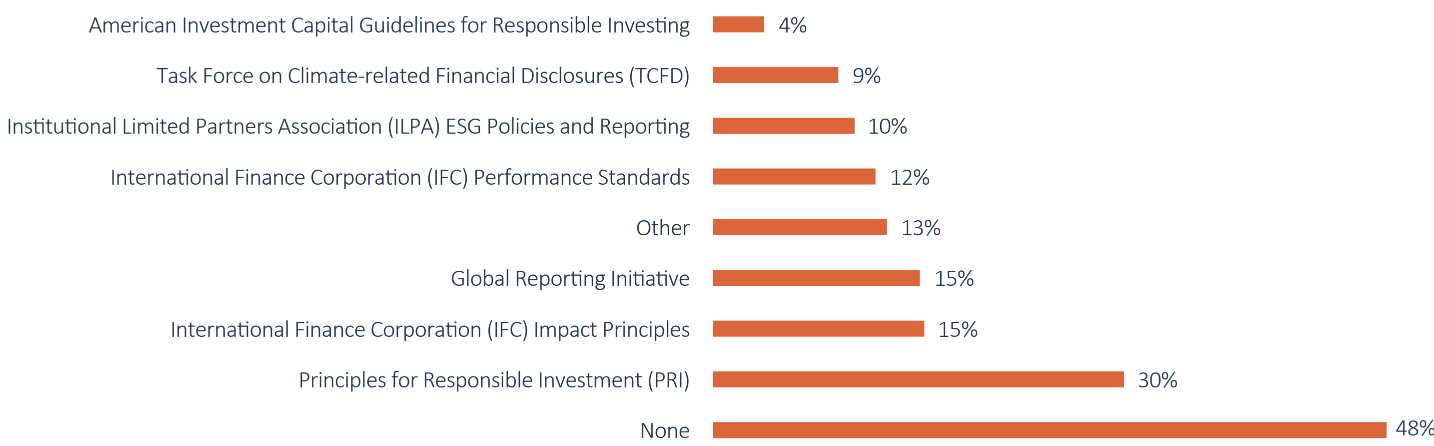


Source: PitchBook | **Geography:** Global | **Respondents:** All
Question 59

All respondents were asked how they stay abreast of developments in ESG and sustainable investing. Multiple answers were permitted. We found that webinars and conferences provided the most popular way for those interested in sustainable investing to gain knowledge and pass information. While sustainable investing is gaining more attention, experienced practitioners are some of the best sources of information, and they are most accessible at live events. Other top responses were white papers and/or case studies and sustainable investing organizations, such as PRI or GIIN. Much further behind were outside consultants or professional investing organizations such as the CFA Institute, CAIA Association, or CFP Board, all of which have initiatives to help educate investors in sustainable investing topics.

Most commonly, respondents answered “none” when asked which sustainability-related groups they belong to, endorse, or participate in. One European fund manager indicated that due their small size, cost was a barrier to signing on to certain principles, though they align their investments with the tenets of some.

Participation or endorsement of sustainability-related programs or groups



Source: PitchBook | **Geography:** Global | **Respondents:** All
Question 60

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POLICY RESEARCH

Corporate Sustainability Disclosures

An improving picture, but regulation would induce a more-complete and comparable baseline of material information for investors.

7 June 2021

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Executive Summary

Corporate disclosure of environmental, social, and governance information is trending upward, but progress will remain patchy and haphazard as long as it remains voluntary. Voluntary disclosures have another adverse impact, in the form of overstating progress owing to a bias to disclosing when something's being done well—if you look good, why not tell the world? If you look bad, don't shout about it.

Despite regulators' emphasis on climate disclosures, our research finds broadly similar rates of disclosures across the range of ESG topics, though they all suffer from the same lack of consistency. That said, the growing adoption of standards from the Task Force on Climate-Related Financial Disclosures is improving the consistency and completeness of climate indicators. The EU taxonomy[1] of sustainable activities will further help at the broader environmental level when companies start reporting in 2022.

While there is a growing rate of disclosure across all ESG categories, many companies fail to disclose key widely relevant indicators such as gender pay. Looking deeper and analyzing disclosures by sub-industry groups unearths low disclosure of industry-specific material indicators; for example, media companies with no formal editorial guidelines, or food companies without a formal policy on genetically modified organisms.

Although general rates of disclosure for the "E" and "S" indicators are similar, the social indicators related to employees generally see some of the poorest disclosure. Given the public interest in social indicators—particularly in the form of gender pay and broader diversity metrics—disclosure is

1 EU Taxonomy Regulation: https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance/eu-taxonomy-sustainable-activities_en

surprisingly low. It's only to a small extent explained by local data privacy rules constraining what and how this type of data can be gathered and reported.

Overall, European companies are setting the pace with disclosure rates approaching 75%; followed by the United States at around 67%; and Asian companies lagging, disclosing on average a little over half of the indicators. The headline numbers mask varying pictures when looking at specific topics and industries; for example, carbon and emissions data is most prevalent in Europe, while politics and lobbying information is most disclosed by U.S. companies. To some degree this reflects the existence of disclosure rules in specific areas.

However, even where rules do exist, and have had demonstrable impact, they often only apply to the largest companies, as, for example, the E.U. Non-Financial Reporting Directive.[2] Proportional extension of reporting requirements to the biggest private companies and small and medium enterprise public companies is needed if investors are to be able to evaluate investments equally. The April 2021 EU Corporate Sustainability Reporting proposals are heading down exactly this path. For their part, companies could get some easy wins by voluntarily disclosing information that will become public anyway via third-party sources, for example, opensecrets.org informing about companies' lobbying activities.

Key Takeaways

- Disclosure rates are improving, but we still find that companies only disclose on about two thirds of material topics.
- Regulatory mandates improve consistency, quality, and completeness of disclosures, and would not be placing a huge new burden on many companies, given the progress already made.
- Individual country regulators are helping, but most benefit will come from coordinated international disclosure rules.
- Investors will need to digest a hodgepodge of noncomparable data for as long as different countries apply different rules and companies can cherry-pick how to disclose nonfinancial metrics.
- Companies will disclose the good and hide the bad while disclosure remains voluntary.
- Materiality is key, to avoid so much data that investors can't see the forest for the trees, and to ensure the most important information is available for each industry.
- A small core set of consistent metrics—published by companies of any size, in any industry—would create the starting point for a level playing field for companies to be assessed by investors.

2 NFRD: https://ec.europa.eu/info/business-economy-euro/company-reporting-and-auditing/company-reporting/corporate-sustainability-reporting_en

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Background

Environmental, social, and governance factors are viewed as material by more and more investors and are now a "must have" in the investment process. The global sustainable funds universe attracted USD 185.3 billion[3] in net inflows in the first quarter of 2021, helping assets reach a record high of USD 1,984.5 billion as of the end of March.

Many asset managers consider ESG factors to some degree, but these products especially are coming under increasing pressure, and in some jurisdictions, regulatory requirements, to substantiate their objectives and their degree of success in meeting them. To do so, they are increasingly dependent on reliable and consistent data being available from their investee companies.

This reporting is critical for investors who need to manage not only climate and other environmental risks, but other ESG risks such as worker health and safety, product safety and recalls, or business ethics, which, if unmanaged, mismanaged, or not addressed, could damage a company's reputation and negatively affect its profits.

More and more companies are supplementing their financial disclosures with so-called nonfinancial data. In some segments this is a regulatory requirement and in others it's emerging as best practice. Either way, the increased transparency goes some way to meeting investor demand for ESG information, although producing a sustainability report is only an indicator of minimum practices. Best practice is an annual, integrated report that addresses material ESG issues which are clearly linked to core business drivers, giving investors more knowledge about if and how a firm is considering ESG issues in the running of its business.

Unfortunately, there is currently little to no consistency across these disclosures and information is not easy to consume, let alone compare across different businesses. Sustainability reports are often voluminous, non-standardized, not temporally aligned with financial disclosures, unaudited, and heavily textual. They frequently signpost readers to separate reports for different information—remuneration details may be found in the annual report and accounts; gender pay information may be in a separate gender pay report, and so on. Equity analysts must work hard to find the information they seek, plug gaps in data with estimates, and normalize the information across industries and geographies.

We believe that corporate reporting and disclosure will continue to be incomplete and inconsistent until there is a regulatory requirement to enhance ESG disclosures. Encouragingly, there are various moves toward more convergence between the existing work of independent standards bodies and local country and regional regulators. In 2020, five of the independent bodies announced their intent to jointly collaborate, and IOSCO, the global regulatory standards setter, established a board-level

3 Morningstar: Global Sustainable Fund Flows: Q1 2021 in Review: https://www.morningstar.com/lp/global-esg-flows

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task force which supports IFRS Foundation proposals to establish a Sustainability Standards Board, parallel to the International Accounting Standards Board.

Markets would benefit from establishing an ESG reporting and disclosure structure that adheres to the same principles as applied to financial accounting.

Analysis

Disclosure is trending in right direction but remains far from ideal. The current status is shown in Exhibit 1, where overall disclosure stands at 64%, as measured by the Sustainalytics company database, across the 160 indicators used in the ESG Risk Rating. And to be clear this is among an information set that has been selected for its financial materiality on an industry-specific basis; this does not include impact-focused metrics.

Exhibit 1 Disclosure Rates by Region and Type (%)

	Global	Asia/Pacific	Europe	U.S. & Canada	Africa/Middle East	Latin America/Caribbean
All Indicators	64	52	73	66	58	62
Environmental	65	53	76	66	55	66
Social	63	51	70	67	63	58
Governance	63	51	74	65	55	62

Source: Sustainalytics, a Morningstar Company. Data as of March 5, 2021.

As with any average, the numbers mask underlying nuances, with some measures seeing near comprehensive disclosure and others very low rates. For instance, 38 of these indicators see less than half of issuers disclose information. Ultimately, this patchy and inconsistent disclosure hinders investors from making well-informed investment decisions on the risks facing their investee companies.

The figures, though, do highlight that regulatory levers would not be placing a huge new burden on many companies but rather, in many cases, rounding out work that they are already undertaking.

The data that we track, though, does appear to belie the common narrative that environmental disclosures are more common than those relating to social indicators. In fact, this is true in all regions, with broadly consistent levels of disclosure across the different types of indicators and can be useful to regulators in seeing what is being disclosed. The information not being disclosed will be more pertinent for analysts and highlight areas where regulatory intervention can help. For example, 11 of the 16 indicators for which less than one third of companies disclose on are social indicators, highlighting a wider dispersion of disclosure levels. Exhibit 2 illustrates that the number of indicators

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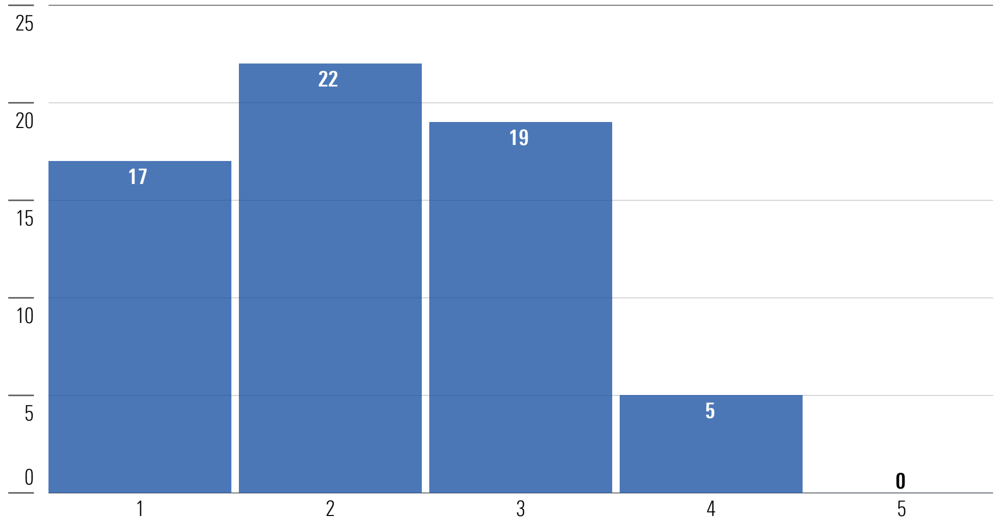
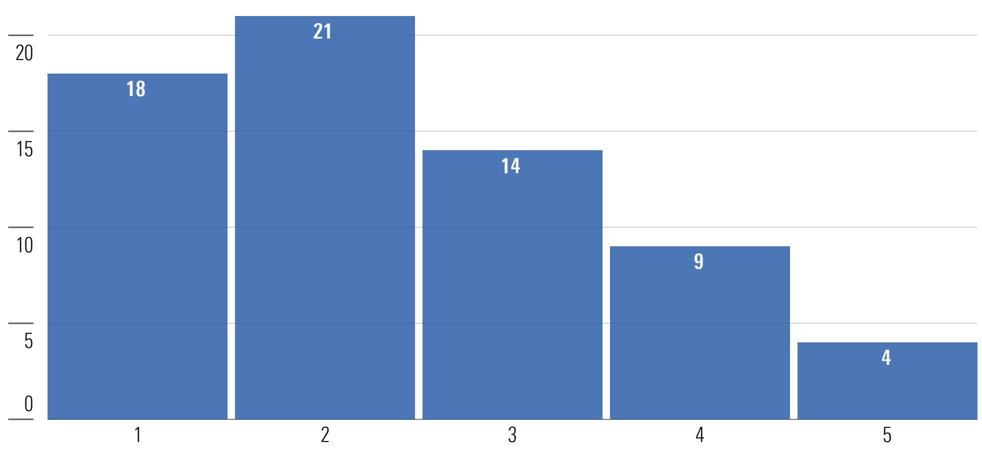
with medium to high levels of disclosure is very similar across environmental and social issues, but of the remainder, there are more social indicators with lower rates of disclosure.

Exhibit 2 Disclosure Rates by Quintile: Environmental versus Social





Source: Sustainalytics, a Morningstar Company. Data as of March 5, 2021.

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The Sustainalytics data framework categorizes the range of indicators into one of five types: Disclosure, compliance, and initiatives; Policy; Program and Management; Quantitative; and Signatories. We explore these more in the following sections where the social and governance indicators in particular see a broad split between indicators that are material to most companies and those that are specific to certain industry groups. Environmental indicators tend to be material by industry as opposed to across the spectrum.

For some indicators, we assume no disclosure is synonymous with no policy—if you had a policy, why wouldn't you tell your stakeholders? One example is a freedom of association policy, which on this basis sees disclosure at only 40%. Similar reasoning applies to certifications, such as health and safety certifications. There are perhaps a couple of contributory factors: One is the grey line between companies abiding by local laws and not expending extra effort on specifically disclosing what they consider to be a given; and this relates to the second factor of size, with smaller companies less likely to allocate budget to developing formal policies around elements they consider to be in their DNA.

For some longstanding issues, disclosure trends have improved. Taking a sample of data points, Exhibit 3 shows that over 90% of companies researched by Sustainalytics have some level of disclosure regarding bribery and corruption, and diversity and discrimination. However, even for these issues not all companies disclose adequately. For more-complex, newer ESG issues such as climate change the disclosure rates are much less satisfactory. For example, over one third of companies in sectors where climate change is a material issue are not disclosing their greenhouse gas emissions. Even amongst those that are reporting, there is considerable variance between disclosure of scope 1, 2, and/or 3 emissions. As a consequence, carbon-intensity-calculated metrics, which are dependent on issuers' scope of GHG reporting, see even lower rates of completeness.

Exhibit 3 Disclosure Rates for Bribery and Corruption; Carbon; and Diversity Indicators

Topic	Indicator Type	Indicator Name	Disclosure (%)
Bribery and Corruption	Program and Management System	Bribery and Corruption Programs	86.4
Bribery and Corruption	Policy	Bribery and Corruption Policy	91.9
Carbon	Quantitative Performance	Carbon Intensity Trend	56.9
Carbon	Quantitative Performance	Carbon Intensity	58.6
Carbon	Program and Management System	GHG Risk Management	63.5
Carbon	Disclosure, Compliance and Initiatives	Scope of GHG Reporting	64.9
Carbon	Quantitative Performance	Carbon Intensity of Generation	68.8
Carbon	Quantitative Performance	Carbon Intensity Trend of Generation	47.8
Carbon	Program and Management System	GHG Reduction Program	89.8
Diversity	Program and Management System	Diversity Programs	86.0
Diversity	Policy	Discrimination Policy	92.6

Source: Sustainalytics, a Morningstar Company. Data as of March 5, 2021.

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Environmental

The individual environmental indicators are predominantly relevant to specific sub-industries. Eight indicators, though, are material to over half of the firms covered by Sustainalytics, for which two have near universal disclosure: Environmental Policy (Policy) at 97% and Environmental Management System (Program) at 96.8%.

The other six of these indicators all see significantly lower disclosure rates as shown in Exhibit 4. Unsurprisingly, considering the EU's established Sustainable Finance Action Plan, Europe leads the way while Asia significantly lags in these areas.

Exhibit 4 Disclosure Rates of the Most Widely Applicable "E" Indicators

Indicator	Global	Asia/Pacific	Europe	U.S. & Canada	Africa/Middle East	Latin America/Caribbean
Scope of GHG Reporting	64.9	46.6	79.6	69.4	57.8	67.6
GHG Risk Management	63.5	43.2	72.4	75.5	59.6	63.6
Carbon Intensity	58.6	42.0	74.4	60.1	48.8	62.9
Carbon Intensity Trend	56.9	40.9	72.3	58.1	48.8	62.9
GHG Reduction Program	89.8	83.5	97.1	89.7	86.9	89.5
EMS Certification	65.9	63.2	81.3	54.3	75.5	65.9

Source: Sustainalytics, a Morningstar Company. Data as of March 5, 2021.

A further climate indicator, material to many sub-industries and around one fourth of Sustainalytics' company universe, is that of physical climate risk management. As seen in Exhibit 5, disclosure rates are generally even higher than the other climate-related indicators in Exhibit 4, aided by prior regulatory actions such as EU Guidelines on Reporting Climate-Related Information[4] and U.S. National Association of Insurance Commissioners Climate Change Initiatives Survey.[5] Growing numbers of countries imposing TCFD reporting requirements will improve things further.

4 EU's guidelines on reporting climate-related information.
https://ec.europa.eu/finance/docs/policy/190618-climate-related-information-reporting-guidelines_en.pdf

5 https://content.naic.org/sites/default/files/cipr_insights_climate_risk_data_disclosure.pdf

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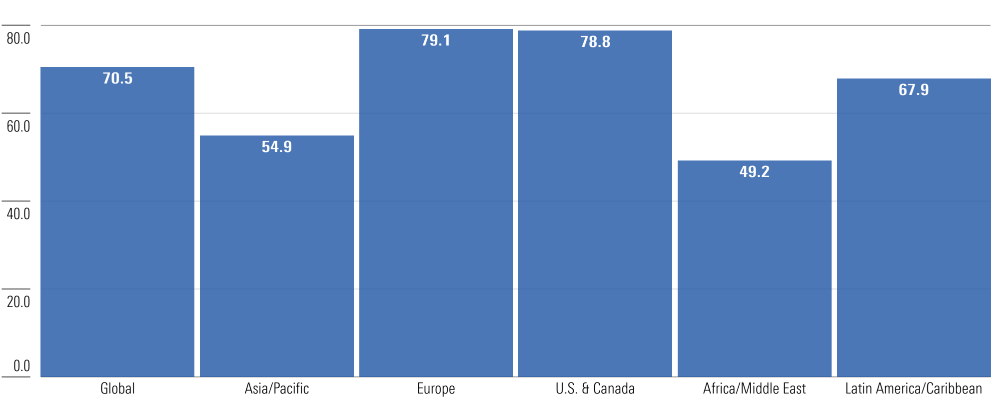
Exhibit 5 Disclosure of Physical Climate Risk Management (%)



Source: Sustainalytics, a Morningstar Company. Data as of March 5, 2021.

The importance of looking more closely at individual industries and the indicators that are most material to them is vital, and underscored by looking at a few selective examples, as in Exhibit 6.

Exhibit 6 Select Industry-Specific Environmental Indicators Disclosure (%)

Sub-industry	Indicator	Global	Asia/ Pacific	Europe	U.S. & Canada	Africa	Latin America/Caribbean
Chemicals	Hazardous Substances Management	48.2	36.4	72.2	58.3	0.0	20.0
Food	GMO Policy	27.7	14.9	49.4	20.5	41.7	27.8
Oil	Oil Spill Disclosure and Performance	41.5	27.7	43.4	55.0	0.0	26.8

Source: Sustainalytics, a Morningstar Company. Data as of March 5, 2021.

It’s perhaps surprising that growing consumer interest in food ingredients hasn’t yet spurred firms into having GMO policies. Equally surprising is the low disclosure around oil spills, which would seemingly be an easy win for such firms to demonstrate to investors that they are at least starting down the transition road.

Other contributory factors influence these numbers, like for example, the largest cohort of companies in the chemicals sector being based in Asia, the region that overall sees the lowest rates of disclosure currently.

Social

Social considerations broadly split into those focusing on a company’s own workforce and those related to wider societal issues. Of the former, six indicators are material to almost all companies, two of which—"Human Capital Development" and "Discrimination Policy"—see more than 90% of companies disclosing.

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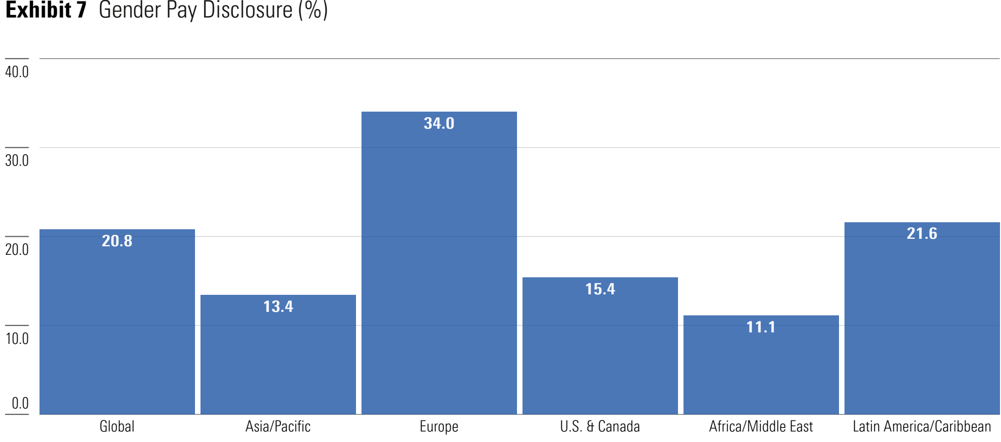
The third area in which a sizable majority (86%) of companies regularly disclose some data is workforce "Diversity Programs," in response to growing investor interest. For example, shareholders have submitted many resolutions over the past decade requesting information about board diversity, indicating their interest in using it to assess corporate governance. The reason for this interest is clear: A company with less board diversity than its peers may raise questions for investors. In his July 2020 post to the Harvard Law School Forum on Corporate Governance, Jared Landaw (COO and general counsel at Barington Capital Group LP.) commented that "[T]he most common corporate governance weaknesses we find at the underperforming companies we invest in are issues with the composition of their boards. Many of these companies have a board comprised of a homogeneous group of directors."[6]

The standout topic, material to over half of companies, with some of the universally worst disclosure, is gender pay, at only 20% globally. The firms with good disclosure are predominantly European, and by some distance, albeit at a lowly 34%. This is possibly indicative of existing regulatory requirements in individual countries, though is one area that is not the subject of an EU-level dictat, although it is under consideration.[7]

Exhibit 7 Gender Pay Disclosure (%)



Source: Sustainalytics, a Morningstar Company. Data as of March 5, 2021.

The power of a regulatory reporting requirement is evidenced when looking at a European country level, as in Exhibit 8. Two of the larger markets, with higher disclosure levels, Spain[8] and the U.K.[9], both have local country legislation that requires disclosure by companies with more than 50 and 250 employees, respectively. Even here, though, only up to half of the disclosures are considered by Sustainalytics analysts to be better than adequate.

6 See: https://corpgov.law.harvard.edu/2020/07/14/maximizing-the-benefits-of-board-diversity-lessons-learned-from-activist-investing/
7 https://ec.europa.eu/commission/presscorner/detail/en/qanda_21_961
8 https://www.mercer.com/our-thinking/law-and-policy-group/spain-publishes-gender-equality-pay-transparency-laws.html
9 https://www.gov.uk/guidance/who-needs-to-report-their-gender-pay-gap

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Exhibit 8 Gender Pay—European Country Disclosure

Country	Disclosure (%)	Total # Companies
Spain	78.3	46
Czech Republic	66.7	6
Hungary	50.0	4
Slovakia	50.0	2
United Kingdom	49.4	334
Italy	47.7	44
France	41.7	127
Russia	33.3	9
Norway	32.3	65
Finland	32.0	25
Luxembourg	28.8	66
Poland	26.1	23
Netherlands	25.2	127
Austria	24.0	25
Greece	22.2	9
Sweden	20.2	84
Iceland	20.0	5
Switzerland	20.0	70
Ireland	18.3	60
Germany	13.9	122
Belgium	12.5	32
Denmark	9.7	31

Source: Sustainalytics, a Morningstar Company. Data as of March 5, 2021.

Given the high international profile of the topic, we would have expected more firms to at least have a gender pay equality program, but even this only runs to 30% disclosure.

Another indicator of wide general interest, employee turnover rate, offers a prime example of the inconsistency of voluntary disclosure. It sees a low rate of disclosure of only 42%, but 319 of the firms that are reporting do not report on gender pay. Conversely, 1,274 firms that do report gender pay, don't disclose turnover. Outcomes like these reinforce the need for a mandatory set of minimum disclosures—to aid investors; to enhance ratings accuracy; and to avoid firms cherry-picking what they disclose.

As with the environmental indicators, analyzing social indicators material to specific industries also highlights some surprises. For example, in the media, software, and telecoms sectors we track the quality of editorial guidelines. Disclosure is only at 50%. Worse, looking at just the media sector alone, it is only 45%.

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Social and governance issues intersect when it comes to the board room. Some companies report their board composition using broad groupings, such as "minority" or "ethnically diverse," while a few report by specific racial or ethnic groups. For example, one disclosure from a large *Fortune* 500 company reads "At year-end 2018, 44 percent of the board's independent directors were female or an ethnic minority." Another peer company simply reports that "the company's Board of Directors is composed of exceptional leaders with diverse backgrounds who help ensure that the company's decisions and actions advance and respond to shareholders' interests."

These disclosures provide little actionable or decision-useful information for investors, but several established independent organizations have created voluntary frameworks companies may use to disclose such ESG factors. These are being joined by more regulatory disclosure requirements, such as Nasdaq's proposal to require statistical information in a suggested uniform format on a company's board of directors related to a director's self-identified gender; race; and other statuses such as LGBTQ+.

Regulatory initiatives such as California Consumer Privacy Act, the New York Privacy Act, and the EU's GDPR have also spurred an uptick in reporting of societal indicators. Data privacy and security policies are considered a material issue to approaching half of the companies in the Sustainalytics universe, and almost all U.S. and EU companies disclose such a policy, together with 84.9% of Asian-domiciled companies.

Governance

In the governance arena, there are more indicators that are material to substantially all companies, three of which are reported on by over 90% of companies—ESG governance, Bribery & Corruption Policy, and Whistleblower Programs at 97.5%, 91.9%, and 91.3%, respectively.

At the other end of the spectrum, the indicators in Exhibit 9 are disclosed by far fewer firms. The U.S. and Europe are where more companies disclose a political involvement policy. The lobbying and political expenses indicator highlights the proportion of companies which are making political donations and/or that actively lobby. It is most prevalent amongst U.S. companies, perhaps because of legal requirements to disclose lobbying activities as part of the Lobbying Disclosure Act, but these filings are separate from outside corporate reporting rules and apply to public and nonpublic companies. Interestingly, in the U.S., the SEC is barred from promulgating rules on lobbying, and state and local governments require different disclosures than those required by the federal government, so corporate disclosures may well be incomplete when they are available.

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Exhibit 9 Governance Disclosures (%)

Indicator	Global	Asia/Pacific	Europe	U.S. & Canada	Africa/	Latin America/Caribbean
Lobbying and Political Expenses (Quant)	30.9	7.7	33	54.1	9.0	15.3
Political Involvement Policy (Policy)	66.6	38.3	76.6	84.3	38.3	54.5

Source: Sustainalytics, a Morningstar Company. Data as of March 5, 2021.

The quantitative Lobbying metric provides an example of how distortions might occur without mandatory disclosure. In this case, the numbers reflect the proportion of companies that do not appear to have incurred expenses on the function, but does not differentiate between a positive disclosure of no expense versus no disclosure at all.

As with environmental and social indicators, the importance of analyzing governance indicators material to specific industries is evidenced. One such example is the animal testing policy area, which sees only 54% disclosure across firms in chemicals, healthcare, household products, pharmaceuticals, textiles, and apparel.

Conclusions and Recommendations

For some time now, many companies—Morningstar included—have called on regulators to standardize and mandate ESG disclosures to address the mismatch between investors' needs for clear, comparable, and material ESG data and the current state of ESG disclosures. This analysis reveals the specific areas on which regulators should focus. It also shows that in many areas, many companies have made major strides in disclosing ESG information to investors, and regulators have a tremendous opportunity to focus on gaps in disclosure or data consistency issues to meet investors' needs without creating an undue burden on issuers. Companies tend to do best disclosing plans and narratives (which are undoubtedly valuable), but lag on specific, quantitative metrics.

With regard to climate risk, we see the greatest levels of disclosure, particularly in Europe. This should be no surprise as the EU has led with requiring such disclosures, and is extending these requirements to even more companies[10] in the years ahead. Still, globally, somewhere between one third and one fourth of companies do not provide adequate disclosures around key metrics such as carbon intensity or scope 1 emissions, and material scope 2 and scope 3 emissions. Policymakers should maintain momentum and balance clear core metric disclosures for quantifiable climate risk disclosures with more-flexible requirements that leverage the work done by the TCFD and others for qualitative disclosures. These disclosures should account for industry-by-industry materiality, while also ensuring that key measures can be compared across companies.

10 EU Corporate Sustainability Reporting Directive: https://ec.europa.eu/finance/docs/law/210421-proposal-corporate-sustainability-reporting_en.pdf

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With regard to social disclosures, it is clear that investor demand has led to high levels of qualitative disclosures, but some of these may be self-serving or filtered, and they must be combined with other common metrics. For example, almost nine in 10 companies we cover worldwide disclose information on their diversity programs, but specific information on workforce relations such as turnover or gender pay differences is disclosed much less frequently.

Investors have long been interested in corporate governance and we see high levels of disclosure on bribery and corruption policies, whistleblower programs, and other safeguards. We see very low levels of disclosure on lobbying expenditures and performance targets that might align incentives for management with their stated ESG goals, which are gaps regulators might look to fill with mandates. Ironically, in the U.S., where current law bars the SEC from requiring political contribution disclosures, more than half of companies disclose at least some information on their lobbying, leading the world.

Worldwide, policymakers can continue to improve ESG investing by collaborating and working with expert groups to standardize key data, terminology, and disclosures. Investors need a concise subset of core decision-useful ESG metrics that are easy to consume, which companies can and should supplement with more company-specific disclosures about material ESG risk.

We support mandating ESG disclosures, but we do not believe that ESG mandates should be expected to lead to a consistency in ratings or assessments by analysts using these disclosures. In fact, such consistency would mean that the disclosures had failed to meaningfully inform investors. Different investors focus on different ESG disclosures. Investors have a variety of views on the weights that should be given to different ESG disclosures. Investors have different views of sustainability, where sustainability could on one hand focus on the impact corporations have on society and the planet, while on the other hand sustainability could focus on the risks that corporations are exposed to in these areas, which they need to manage. Just as it is true that traditional financial disclosures do not lead to consistent valuations, and investor opinions differ, nonfinancial disclosures should produce a similar dispersion in opinions.

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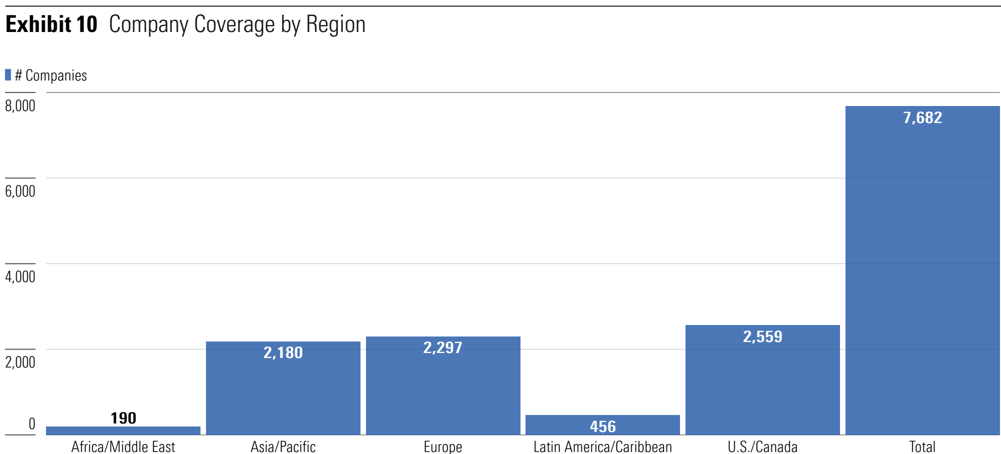
Appendix

The universe of companies on which our analysis is based comprises a broadly similar number of firms headquartered in Asia, Europe, and North America, though many of these are multinational businesses.

Exhibit 10 Company Coverage by Region



Source: Sustainalytics, a Morningstar Company. Data as of March 5, 2021.

Exhibit 11 Categories of Material ESG Issues

Access to Basic Services	Emissions, Effluents, and Waste
Bribery and Corruption	ESG Integration – Financials
Business Ethics	Human Capital
Carbon – Own Operations	Human Rights (Own and supply chain)
Carbon Products and Services	Land Use and Biodiversity (Own and supply chain)
Community Relations	Occupational Health and Safety
Corporate Governance	Product Governance
Data Privacy and Security	Resilience
E&S Impact of Products and Services	Resource Use (Own and supply chain)

Source: Sustainalytics, a Morningstar Company. Data as of March 5, 2021.

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