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Sustainability: The future of investing

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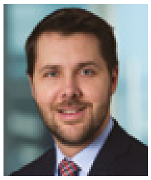
Introduction



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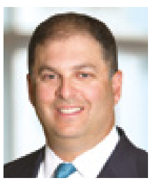

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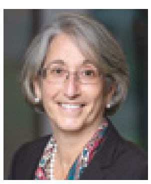

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For years, many investors saw sustainable investing as a trade-off. They viewed it as a sacrifice of value for "values." And to be fair, they were often right. But that is no longer the case. What has changed? More granular data, more sophisticated analysis, and deeper societal appreciation for and understanding of what sustainability means for people, companies and countries. There is increasing awareness that material sustainability-related factors – often characterized as environmental, social and governance, or ESG – can be tied to a company's long-term growth potential. This makes sustainable investing something investors can no longer afford to ignore.

We are seeing greater interest from our clients in sustainable investing. Investors want deeper knowledge about the field, more sustainable investing options, enhanced data and reporting on impact, and increased commitment from asset managers to integrate sustainability into investment processes. Millennials, in particular, look set to propel the future of sustainable investing. This group of future financial decision-makers is asking more of companies. And regulators are expanding their focus on incorporating sustainability into investment information and decision making.

BlackRock is increasing its focus on sustainability across the board – from our investment processes to the investment solutions we offer. There is growing recognition that the field presents a largely untapped source of information that can potentially identify investment risks and generate excess returns. At the same time, the data are imperfect, scoring methodologies differ, and investors need to gain greater clarity on the pitfalls of this emerging field. This paper discusses three key themes driving transformation in sustainable investing: the aim to create sustainable portfolios and strategies that do not compromise financial returns; the effort to use innovative research to go beyond headline ESG scores; and the integration of sustainability-related issues into traditional investment strategies. Our work fuels our conviction that the future of investing is sustainable.

CONTENTS

BIIM0219U-733437-2/20

Summary

- **Sustainable investing is no longer a niche area; it is going mainstream.** Assets in dedicated sustainable investing strategies have grown at a rapid pace in recent years. We are seeing a surge in clients' and portfolio managers' interest in incorporating sustainability-related insights into their investments. This demand looks poised to accelerate – driven by societal and demographic changes, increased regulation and government focus, and greater investment conviction.

- **Enhanced data and insights make it possible to create sustainable portfolios without compromising financial goals.** Our research, which relies on backtested data, shows how ESG-focused indexes have matched or exceeded returns of their standard counterparts, with comparable volatility. We find ESG has much in common with existing quality metrics such as strong balance sheets, suggesting ESG-friendly portfolios could be more resilient in downturns. These resilience properties deserve attention as market uncertainty increases. In other words: We have arrived at a "why not?" moment in sustainable investing.

- **Driving innovation in sustainable investing requires going beneath the headlines.** ESG data have evolved, but are still incomplete. We believe the most meaningful investment insights are found beneath the headline ESG scores. Alpha-seeking strategies focus on understanding and exploiting key performance indicators at the sector, industry and company level. New technologies and methodologies have allowed us to make great strides in improving sustainability data. This includes techniques to estimate missing data, and determine their materiality to investment performance.

- **Integration of sustainability considerations into investment processes is on the rise – and for good reason.** BlackRock's approach, outlined in our 2018 *ESG Investment Statement*, starts with making better research and data available to all our investment teams. The goal is to help them identify and implement investment process enhancements. Incorporating relevant sustainability insights can provide a more holistic view of investment risks and opportunities. There is no one-size-fits-all approach, but the opportunity to improve investment processes by integrating material sustainability considerations is real and growing. BlackRock also actively engages with companies to encourage business practices consistent with delivering sustainable long-term financial returns.

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BIIM0219U-733437-3/20

A "why not?" moment

We detail our framework for thinking about sustainable investing, and show how building sustainable portfolios need not mean giving up performance.

Growing up

The universe of dedicated sustainable investment funds is growing: A current combined total of roughly $760 billion in European and U.S. mutual funds and exchange-traded funds (ETFs) is up from $453 billion in 2013. See the *Sustainable swell* chart. Asset owners' increasing interest in this area is driving strong growth in new products and innovation. More than 100 new sustainable mutual funds and ETFs were launched in the U.S. alone from 2015 to 2017, according to ***Morningstar Research***.

We expect significant growth in mainstream sustainable investing options, and see demand for related funds growing at a double-digit pace through the next decade, as the chart shows. This growth will likely be driven by millennials (those born between the early-1980s and late-1990s), a generation that tends to be keenly focused on company values and is set to experience growth in net wealth as its members advance in the labor force and grow their incomes.

In addition, governments across most major geographies are increasing their regulatory focus on incorporating sustainability considerations into investments. The European Union and individual European countries are moving forward with specific directives. In Asia, an increased regulatory focus has come in response to environmental issues.

The U.S. stands apart – in particular, U.S. guidance for private-sector retirement plans stresses fiduciaries must not put ESG goals ahead of financial ones. Yet the U.S. regulatory regime does allow consideration of sustainability issues as a way to generate returns. The thrust of these global regulatory actions could herald greater capital allocation to sustainable companies and assets over time.

Definitions and data

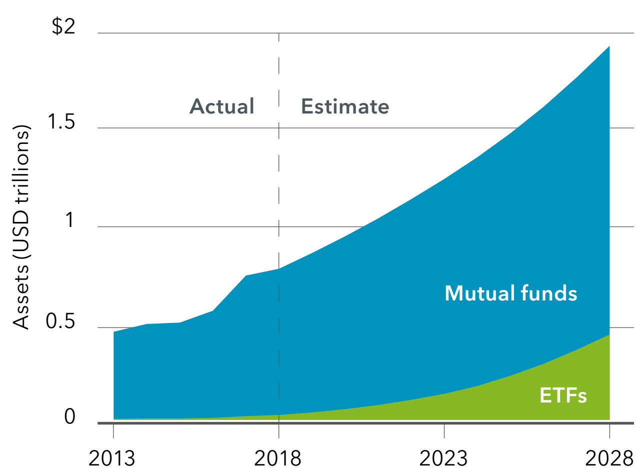
The concept of "sustainable investing" can mean many different things. Asset owners and asset managers often operate with multiple definitions, messages and motivations. BlackRock operates from a simple definition of sustainable investing: ***Combining traditional investing with sustainability-related insights in an effort to reduce risk and enhance long-term returns.***

Our view: Companies with strong performance on material sustainability issues have potential to outperform those with poor performance. This is in line with a growing body of academic evidence, including the 2016 Harvard Business School study ***Corporate Sustainability: First Evidence on Materiality***.

ESG is often conflated or used interchangeably with the term "sustainable investing." We see sustainable investing as the umbrella and ESG as a data toolkit for identifying and informing our solutions. Importantly, ESG *integration* (***page 14***) is just one aspect of ESG *investing*.

Sustainable swell

Assets of sustainable mutual funds and ETFs, 2013–2028



There's no guarantee that forward-looking estimates will come to pass.
Sources: BlackRock, with data from Broadridge/Simfund, June 2018. Notes: The chart shows the total assets under management in ESG mutual funds (MFs) and ETFs globally. The 2019 to 2028 figures are based on BlackRock estimates, assuming a 5% annual growth rate in the underlying markets. Other assumptions: MF asset growth starts at 5% in 2019 and declines by 0.5% annually through 2022, then at a zero-to-0.5% rate annually thereafter. ETF asset growth starts at 45% and decreases by 5% annually through 2022, with a zero-to-3% pace thereafter.

BIIM0219U-733437-4/20

Forming a framework

Starting from our simple definition, we then distill client motivations into a spectrum from Avoid to Advance. "Avoid" eliminates exposures to certain companies or sectors that pose reputational risks or violate the asset owner's values. "Advance" aligns capital with certain behaviors, activities and outcomes. This might include using ESG scores as an additional layer in the traditional investment process. Other ways to advance include thematic and impact investing, as detailed below. We use this framework to think about sustainable investing solutions (note that ESG integration is a separate process – see ***page 14*** for more).

ESG data is most often categorized as "non-accounting" information because it captures components important for valuations that are not traditionally reported. The valuation of companies has become more complex, with a growing portion tied up in intangible assets. ESG metrics provide insights into these intangibles, such as brand value and reputation, by measuring decisions taken by company management that affect operational efficiency and future strategic directions. At a high level:

- **Environmental (E)** covers themes such as climate risks, natural resources scarcity and pollution.
- **Social (S)** includes labor issues and product liability risks such as data security.
- **Governance (G)** encompasses items such as corporate board quality and effectiveness.

From "why" to "why not"

ESG research has come a long way. Information was once manually gathered from limited sources. Now, a growing industry provides robust data culled from the public sphere, gives ESG ratings and helps improve ESG reporting and disclosures. Gaps remain, but better quality and coverage in data and research give us more confidence in using ESG insights for both index and alpha-seeking investment strategies. See ***page 10***.

The challenge with ESG data is not just an issue of quality and consistency. Different definitions and approaches can lead ESG providers to differing conclusions on the same asset or security. It is important to understand which data sources asset managers are relying on, and how that data is being built into investment strategies. It's a key reason we advocate greater transparency in ESG data. See BlackRock's ***Exploring ESG: A practitioner's perspective***.

ESG-focused strategies carry risks like any other investments. Yet we see encouraging evidence that investors can make their portfolios more sustainable without compromising on traditional financial goals. We show how backtests of ESG indexes reveal risk/return metrics in line with conventional benchmarks in stocks and bonds (***page 6***), and how investors can combine the value factor and ESG exposures. We analyze ESG through a factor lens; show how ESG can add resilience to portfolios (***page 7***); and explore how enhanced data can help increase investment conviction in emerging markets (***page 13***).

Avoid and advance

Sustainable investing styles

	Avoid	Advance		
	Screened	ESG	Thematic	Impact
Objective	Remove specific companies/industries associated with objectionable activities	Invest in companies based on ESG scores/ rating systems	Focus on particular E, S or G issues	Target specific non-financial outcomes along with financial returns
Key considerations	Definition of and financial impact of screens	ESG data sources; active risk taken	Broad versus specific exposures	Report on progress toward outcomes
Examples	Screening out producers of weapons, fossil fuels and/or tobacco	Optimized ESG benchmarks; active strategies overweighting strong ESG performers	Environmental focus (low carbon or renewable energy); social focus (diversity)	Specific green bond or renewable power mandates

Sources: BlackRock Investment Institute and BlackRock Sustainable Investing, December 2018.

BIIM0219U-733437-5/20

ESG in equities

Our research suggests investors do not need to choose between the pursuit of returns and ESG excellence. ESG-focused indexes are still relatively young and performance histories include backtested data, but we see the evidence as promising. When looking at traditional indexes alongside MSCI's ESG-focused derivatives of them, annualized total returns since 2012 matched or exceeded the standard index in both developed and emerging markets (EMs), with comparable volatility. Valuation metrics were nearly identical. See the *An ESG lens for equities* table below.

Traditional sustainable indexes were designed to select top-rated ESG securities within a given sector or remove certain business involvement areas. They were based on an exclusions-focused approach, and performance and portfolio characteristics notably deviated from market-cap-weighted indexes. In contrast, optimized indexes can help improve a portfolio-level ESG rating while still tracking traditional benchmarks. They allow investors to invest in higher-rated ESG companies without taking on unintended risks such as sector concentration. The optimized approach can be tailored to achieve carbon-reduction goals, whether through a low-carbon strategy or a dual-objective (ESG + low carbon) strategy.

A proxy for quality in bonds

Results are similar in fixed income. Over the past decade, global high yield bonds from issuers with higher ESG ratings (A or AA on MSCI's rating scale) have generated stronger information ratios – a gauge of risk-adjusted returns – than bonds with lower ESG ratings, despite their lower yields. See BlackRock's ***Sustainable investing: a 'why not' moment*** for details. Notably, the global high yield issuers in our study without historical ESG rating coverage (almost half) generated lower risk-adjusted returns than rated issuers. Growing coverage should help provide more granular analysis over time.

In the investment grade market, we found an ESG-friendly version of the U.S. corporate index generated near-identical risk-adjusted performance to its parent index over the past decade. See page 9 of the paper cited above for details. This research underscores our view that ESG-friendly bond portfolios should generate total returns similar to traditional portfolios over a full market cycle – even if they sacrifice a little yield.

The argument for ESG becomes even more compelling over longer time horizons. This is because ESG-related risks tend to compound. Consider long-term infrastructure bonds where projects are exposed to flood risks that could intensify due to rising sea levels.

An ESG lens for equities

Comparison of traditional equity benchmarks and backtested ESG-focused counterparts by region, 2012–2018

	U.S.		World ex-U.S.		Emerging markets	
	Traditional	ESG Focus	Traditional	ESG Focus	Traditional	ESG Focus
Annualized return	14.4%	14.5%	7.7%	8.1%	4.3%	5.7%
Volatility	9.7%	9.8%	11.5%	11.5%	14.4%	14.4%
Sharpe ratio	1.42	1.42	0.62	0.64	0.25	0.35
Maximum monthly drawdown	-13.9%	-13.9%	-23.3%	-22.7%	-35.2%	-33.1%
Price-to-earnings	19.6	19.9	17.0	16.9	13.4	13.6
Dividend yield	2.0%	2.0%	3.2%	3.2%	2.7%	2.8%
Number of stocks	621	313	1,012	453	855	300
ESG score	5.4	6.5	6.6	7.8	4.4	6.1

Past performance is not a reliable indicator of current or future results. It is not possible to invest directly in an index. Sources: BlackRock Investment Institute, with data from MSCI, November 2018. Notes: The data cover May 31, 2012, to Nov. 30, 2018. Returns are annualized gross returns in U.S. dollar terms. Number of stocks, price-to-earnings ratio and dividend yield are monthly averages. Indexes used are the MSCI USA Index, MSCI World ex-U.S. Index, MSCI EM Index ("Traditional" columns) and MSCI's ESG-focused derivations of each (MSCI USA ESG Focus Index, MSCI World ex-U.S. Focus Index and MSCI Emerging Markets ESG Focus Index). The data shown prior to inception for each MSCI ESG Focus index (August 2016 for U.S.; March 2017 for World ex-U.S.; April 2016 for EM) are backtested. They are optimized to maximize ESG exposure within constraints (example: a tracking error of 50 basis points and maximum active weight of 2% for each index constituent for USA ESG Focus). Backtested performance is hypothetical, simulated and is not indicative of actual or future returns. Backtested performance is developed with the benefit of hindsight, has inherent limitations and invariably shows positive rates of return. ESG scores shown are average scores for each index based on MSCI data. See important notes on the back page.

BIIM0219U-733437-6/20

ESG, factors and resilience

Factor-based investing offers a different lens for viewing equity performance by isolating traits that are broad, persistent drivers of return. We analyzed the relationship between four style factors – quality, low-volatility, value and momentum – and ESG scores using Thomson Reuters ASSET4 data on 2,800 global stocks. We then built hypothetical factor exposures that stripped out the impact of broad market moves. Our findings: Low-volatility and quality embed a stronger tilt to high ESG scorers; the momentum factor showed modestly greater ties to lower ESG companies. See page 7 of ***Sustainable investing: a 'why not' moment*** for details.

We have not yet found reliable evidence to suggest ESG has been a factor itself. But the idea that companies with higher ESG scores exhibit quality and low-volatility characteristics is an important insight. It suggests an ESG tilt may add resilience to portfolios.

Resilience is a key consideration for long-term investors. Given enough time, periods of negative returns can rattle even the most experienced investors. And resilience is a particularly welcome characteristic at a time when the economic cycle is entering its latter stages. Quality companies with strong balance sheets and cash flows can provide a measure of resilience, we believe. They can extend a larger buffer against equity market downturns than weaker peers. See ***BlackRock's 2019 Investment Outlook*** and ***page 8*** for details.

We believe the same principle applies to companies that exhibit strong ESG characteristics. Strong ESG performers may be better at managing legal, reputational and financial risks. These findings are consistent with external research. Example: AQR finds that stocks with the worst ESG scores are 10% to 15% more volatile than those with the best scores – and that poor ESG performance points to future risks not captured in standard risk models. See AQR's 2017 paper ***Assessing Risk Through Environmental, Social and Governance Exposures***. Other research shows companies that provide greater transparency into their operations have outperformed others during equity market down drifts. See the 2017 academic study ***ESG Shareholder Engagement and Downside Risk***.

ESG with a value bent

Can investors incorporate ESG considerations into their portfolios while maintaining their desired factor exposures? We partnered with index provider FTSE Russell to find out. The goal: to develop a customized value index with an ESG tilt, based on the FTSE Developed Index of global developed market equities.

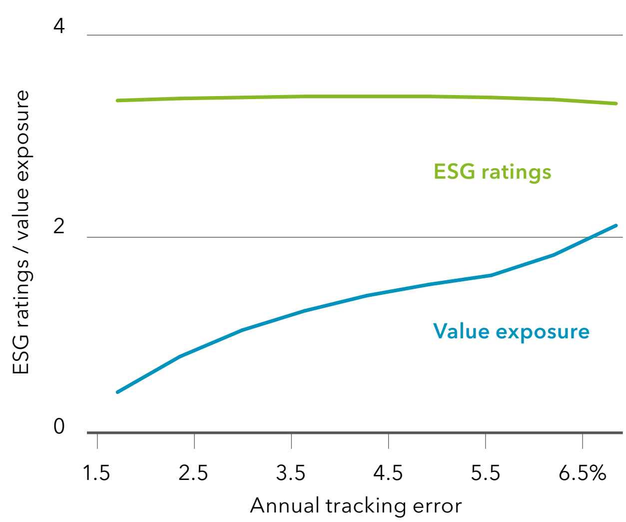
A key consideration was whether incorporating an ESG adjustment to the index design would result in unintended impacts to its value exposure – and vice versa. Security weights were tilted based on how well (or poorly) companies manage ESG risks according to FTSE Russell's ESG ratings data.

We started with the ESG-tilted FTSE Developed Index, with the trade-off of a greater tracking error from the market-cap-weighted parent index. Our finding: Increasing the value exposure did not result in a material decline in its average ESG score. See the blue and green lines in the *Best of both worlds* chart.

In short, we found investors could increase their exposure to the value factor while also maintaining a higher overall ESG score than the parent benchmark.

Best of both worlds

Value and ESG exposures of hypothetical global equity index



Past performance is not a reliable indicator of current or future results. It is not possible to invest directly in an index. Sources: BlackRock Sustainable Investing and BlackRock Investment Institute, with data from FTSE Russell as of January 2018. The chart shows the ESG and value exposures of a hypothetical optimized global equity index, based on the FTSE Developed Index. FTSE Russell applies an ESG tilt to the parent index; the chart shows its active value exposure for given levels of tracking error (active risk relative to the parent index). ESG ratings refer to FTSE Russell's ESG ratings, ranging from 0 (no disclosure) to 5 (best practice).

Beyond headline ESG scores

We explain how it is necessary to go deeper than headline ESG metrics to drive innovative research in sustainable investing and generate alpha insights.

Consensus is limited when it comes to which ESG issues and information are material. Universally accepted reporting standards are still lacking, despite the efforts of standard-setting organizations. Part of the problem: too many standard setters. Company-level ESG ratings from different rating agencies can vary greatly due to differences in methodologies. As a result, investors need to undertake their own due diligence to understand the ESG rating agency's process and methodology.

To be sure, ESG scores offer valuable insight about an issuer. Yet the top-line ESG score is an amalgamation of measures – think gender pay gap, pollution, board structure – that came together over time under the "ESG" label. A lot of granularity, and critical insight, can be hidden below.

The opportunity in sustainable investing is to recognize and exploit the utility of headline ESG scores for efforts like portfolio building blocks, while also going below the headline to explore the insights that more granular component data can provide. Progress on the "E" front illustrates this point:

Environmental risks are increasing in prominence and impact. Three of the top-five risks deemed most likely to occur over the next 10 years are environmental in nature, according to the ***World Economic Forum's Global Risks Report 2018***. Extreme weather events ranked first, natural disasters second, and failure of climate change mitigation and adaption came in fifth. Environmental risks also account for four of the five risks expected to have the biggest *impact* over the next 10 years, the World Economic Forum found.

Last year alone brought massive hurricane damage on the East Coast of the U.S. and wildfires on the West Coast; flooding and mudslides in Japan; and a 7.5 magnitude earthquake and coincident tsunami in Indonesia – to name just a few.

What does it mean for investors? Climate change has been shown to pose significant financial challenges, as well as potential opportunities. A study from The Economist Intelligence Unit (EIU) in 2015 pegged the average expected loss from climate change to the total global stock of manageable financial assets at $4.2 trillion through the end of the century – roughly equal to Japan's GDP. And a faster pace of global warming could significantly inflate the damage, especially when lower rates are used to discount future losses into present value. See the EIU's 2015 paper, ***The cost of inaction: recognizing the value at risk from climate change***.

We believe company disclosure on climate change strategy and performance can meaningfully impact the companies in which we invest, particularly those that face a material climate risk. See BlackRock's ***Adapting portfolios to climate change*** of 2016 for details.

The level of disclosure has been improving over the past few years, but there is still little scrutiny on the quality of the disclosure. Existing data providers do not yet offer a holistic assessment of this quality. BSI developed a proprietary climate risk disclosure indicator to fill the gap. The indicator provides a standardized disclosure score for North American and European energy and utility companies that BlackRock has engaged with since 2017. The score is based on a company's governance, strategy and targets in regard to climate risk disclosure.

We incorporated the indicator into a new low-carbon transition framework in an effort to:

1. gain forward-looking insights into a company's long-term performance;
2. leverage insights based on our engagements with the largest carbon emitters in our holdings; and
3. enhance our ongoing engagement with companies most exposed to climate-related risk.

We provide details of this framework on ***page 11***.

BIIM0219U-733437-8/20

Improving the data

With the growing interest in sustainable investing, data providers have increased their efforts in gathering and reporting varied ESG indicators. For example, MSCI, an ESG data provider, has boosted the number of companies under its coverage more than fourfold over the past decade – and today reports on more than twice as many key performance indicators (KPIs). See the *Broader coverage* chart.

However, the lack of accepted data-reporting standards means investors cannot readily compare or combine insights across providers. This limits the ability to fully harness the potential of ESG information. We view the remaining data deficiencies as an opportunity. We have created a customized database that combines data across many ESG sources, affording us expanded coverage across companies, a richer description of each company across KPIs, and a deeper history of ESG data. This allows us to develop and test investment ideas based on our own sustainable insights by building on the diverse KPI measures we believe are material.

The early history of ESG data providers has roots in small companies serving a limited investor base. Over time, these small firms have been acquired and resourced to grow beyond their modest origins to cover more companies and markets. The result is a historical database with good coverage of the present but patchy coverage in older periods, making historical analysis challenging.

This lack of historical data is an impediment, particularly the gaps in granular level data points such as renewable energy use, corruption management and labor management scores that aggregate to overall ESG scores. In looking through the historical data, we noticed the missing ESG data was not absent because companies did not report, but because the companies simply were not covered by the data providers. We approached this missing data challenge with the hypothesis that gaps in historical ESG data could be estimated given enough other data from similar companies. We apply a statistical method that estimates data missing from older ESG datasets in an effort to address the gaps.

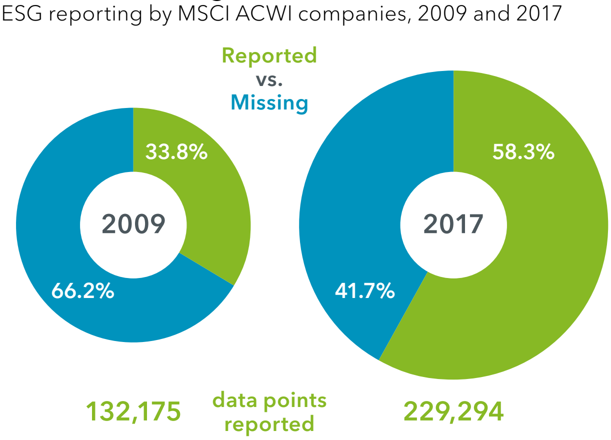
The challenge of estimating missing data cuts across industries. Consider the example of Netflix. The media-services provider started a competition in 2006 for any researcher that could develop an efficient approach to estimating missing data in the company's broad movie-rating dataset. Solutions to these types of challenges have become more popular (and robust) in recent years thanks to improvements in machine learning and big-data techniques. We draw on one such method, called generalized low rank modeling (GLRM), to help us estimate the missing data in big sets of ESG data.

This approach helped us discover patterns in ESG data that persisted through time. Why is this important? It gives us confidence in estimating missing data. We believe the ability to compare companies across a particular ESG metric is important in explaining relative performance. The estimation of missing ESG values with GLRM provides a richer set of historical ESG data that can be used to compare companies across the market – or to analyze the trends of a specific company over the course of time.

Other early research by BlackRock includes applying cutting-edge physical climate models to assess risks to assets in specific locations – from flooding, wildfires and other weather events. We plan to detail this work in an upcoming publication.

Broader coverage

ESG reporting by MSCI ACWI companies, 2009 and 2017



Sources: BlackRock Sustainable Investing and BlackRock Investment Institute, with data from MSCI, December 2018. Notes: We consider all 150 key metrics used by MSCI in its ESG corporate ratings system. A company reporting a given key metric at least once in a given year is considered one data point. The total number of potential data points are calculated by multiplying the number of companies in the MSCI ACWI Index (2,607 in 2009 and 2,622 in 2017) by 150. The green portion of each ring shows the share of those data points that were actually reported by companies.

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Putting data to work

An example of some of the deep work being done to go beyond headline ESG scores is seen in our analysis of companies' readiness to function in a low-carbon society.

The transition to a low-carbon economy refers to the global shift to a society that is more efficient in producing goods and services, and less reliant on carbon dioxide (CO2) emissions. We see this transition creating risks and opportunities for companies, and creating winners and losers in the process.

The BlackRock Sustainable Investing (BSI) team has performed a transition readiness analysis to help assess the potential financial impact. The approach looks at how well positioned companies are to both maximize the potential opportunities and minimize the risks associated with the transition to a low-carbon economy. We plan to provide further details on this approach in an upcoming academic paper.

The transition readiness of a company is based on its exposure and management to five financially material transition characteristics, or "investment pillars." The pillars are categorized by a company's core business involvement and natural resource management. See the *Transition ready* graphic below for descriptions of each pillar.

Differentiating insights

We assess companies across each of the five pillars by distilling over 200 individual key performance indicators – from both external and proprietary BlackRock data sources – into a single value. This process is based on a qualitative assessment of the data and quantitative testing to evaluate the robustness of our calculations.

Once pillar assessments are made for each company, they are combined into a single score based on the industry in which that company functions. The relative weighting of a company's performance across the five pillars will depend on what we believe to be most financially relevant for its industry. The framework draws from the ***Sustainability Accounting Standards Board*** (SASB) sector-specific standards and BlackRock's own analysis to determine which issues are most financially material for each industry. For example, health care companies are primarily evaluated relative to their energy, water and waste management, whereas transportation companies are evaluated on their greenhouse gas emissions and carbon-efficient technology exposure.

We looked at our transition readiness assessment versus environmental and headline ESG scores published by popular data providers and found a positive but low correlation to both. This implies it may be capturing new – and potentially differentiating – financial insights relative to existing data sources.

Transition ready

Five pillars of BlackRock's transition readiness assessment process

Core business involvement		Natural resource management		
Energy production:	**Carbon-efficient technology:**	**Energy management:**	**Water management:**	**Waste management:**
Historical direct emissions as well as their future potential emissions through fossil fuel reserves.	Research and development, current revenue and forward-looking strategy in solutions across renewable energy, energy efficiency, carbon-efficient transportation, green building and sustainable agriculture.	Historical indirect emissions through energy purchased as well as company strategy to manage future energy consumption.	Water efficiency as well as the projected stress and shortages in the company's water supply.	Waste production, including hazardous and non-hazardous waste, as well as the company's strategy to reduce operational and product-related waste.

Sources: BlackRock Sustainable Investing and BlackRock Investment Institute, December 2018.
Note: The table is for illustrative purposes only.

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Putting transition readiness to the test

The goal of a transition-ready investment approach: directing capital to companies best positioned to navigate the global transition to a low-carbon economy.

Can this help deliver competitive long-term financial returns relative to traditional benchmarks? We put our idea to the test within a hypothetical equity portfolio. The analysis used a portfolio invested in non-U.S. developed market stocks from 2010 to 2018. Going industry by industry, we increased exposure to companies with high transition readiness assessments versus their low-performing peers. This hypothetical portfolio had an annual tracking error of 100 basis points relative to the broad benchmark, the MSCI World ex-U.S. Index. The aim was to determine if a focus on transition readiness might have improved an investor's historical risk-adjusted return over that time period.

What we found: Overweighting companies with better transition readiness characteristics, and underweighting their less-prepared peers, resulted in outperformance of our hypothetical portfolio versus the benchmark index. An analysis using the MSCI USA Index yielded a similar result. Given our view that the trends driving the transition are only set to accelerate, we see reason to envision further upside potential in the future.

A win-win

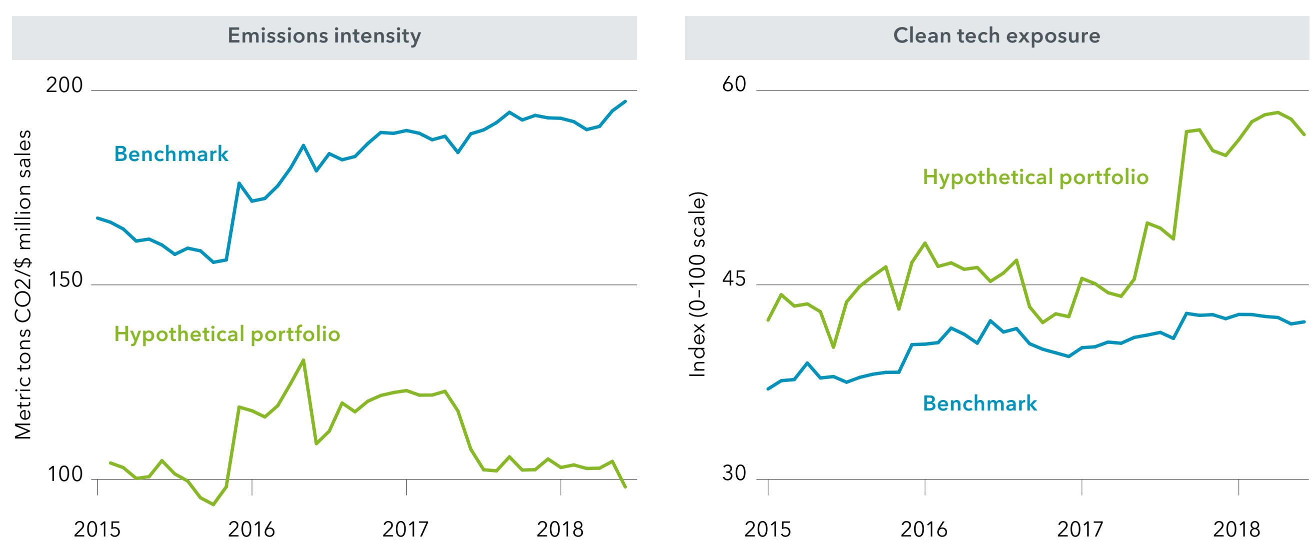
Regulatory action and technological innovation are the two primary drivers of the transition to a low-carbon economy. This is fueled in part by growing recognition of the risks posed by climate change.

On the regulatory front, the number of climate laws passed globally has doubled every five years since 1997, according to a ***2015 study*** from leading climate and governmental organizations that looked at legislation in 99 countries. The world has adopted clean energy far faster than experts expected, and countries have moved aggressively in the past few years to reach their targets. Within technological innovation, price reductions and efficiency improvements have accelerated the deployment of carbon-efficient technologies to replace existing carbon-emitting activities. We see these forces advancing the transition to a low-carbon economy.

The upshot: Beyond the potential financial uplift, a transition-ready approach is also designed to provide better environmental outcomes relative to standard benchmarks. Returning to our hypothetical equity portfolio, we find a focus on transition readiness showed a 50% reduction in emissions intensity and 30% increase in exposure to clean technology relative to the standard benchmark. See the *Environmental validation* chart.

Environmental validation

Environmental metrics of a hypothetical "transition ready" equity index, 2015–2018



Past performance is no guarantee of current or future results. It is not possible to invest directly in an index. Sources: BlackRock Sustainable Investing and BlackRock Investment Institute, with data from MSCI and Sustainalytics, December 2018. Notes: The chart shows the emissions intensity and exposure to clean technology of a hypothetical "transition ready" equity portfolio that is based on the MSCI World ex-U.S. Index. The hypothetical portfolio is designed to maximize BlackRock's "transition ready" signal while keeping within an annual tracking error of 100 basis points. Emissions intensity refers to MSCI-defined direct (Scope 1) and indirect (Scope 2) greenhouse gas emissions normalized by annual sales. Clean tech exposure is represented by exposure to clean tech revenue as assessed by Sustainalytics, on a 0-100 scale (from the worst to the best).

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Governance insights in Japan

We believe there are important links between "G" issues and company performance. And yet governance issues are notoriously hard to measure in a tangible way – both because disclosure is imperfect and because governance issues are often regionally dependent. This underscores the importance of having boots on the ground with local expertise.

We highlight Japan as an example. Many existing strategies that aim to use "G" to mitigate risks and/or improve performance invest primarily in smaller firms. They tend to take a "hands-on" approach by having portfolio managers play an active engagement role with a company's management committee or through consultation. Headline ESG ratings do not provide a holistic view of these companies given a lack of standardization and the idiosyncracies of local business environments.

We see an opportunity to focus on large Japanese firms with strong governance and long-term corporate strategies. We believe such companies have the potential to prevail over business cycles, a trend that could positively accrue to long-run performance.

BlackRock's Investment Stewardship team in Japan started internally scoring companies based on their engagement outcomes. The goal is to make more informed voting decisions and enhance the effectiveness of ongoing engagement work. These scores provide a gauge of each company's commitment to its long-term corporate strategy, its quality of management, capital allocation efficiency, sound KPI procedures, and stakeholder relationships. We draw on these insights in the portfolio construction process. Read more on stewardship on ***page 15***.

"The external data was patchy, often outdated and based on global versus local dynamics material to Japan. We wanted a means to measure a company's leadership at the board and management levels – and to capture our own unique perspective."

Akitsugu Era – Head of BlackRock's Investment Stewardship team in Japan

Deep roots in ESG

Role of E, S and G in the mining industry

Environmental	Impact assessment – site clearance, water courses, road diversions
	Monitoring
	Rehabilitation
Social	Relocation
	Social licenses
	Relations – governments, ministers, community
	Mining code – fiscal stability, sharing profits (tax, royalty)
	Permitting
Governance	Sustainability
	Health and safety
	Security
	Employee training

Source: BlackRock Investment Institute, December 2018. Notes: The table shows the three ESG pillars and relevance and application in the mining industry.

ESG in the mining industry

Mining is a business known to create noise pollution and physical disruption, making responsible practices all the more critical. The mining industry touches every aspect of ESG, as shown in the *Deep roots in ESG* chart, and is important to us as investors in the sector. Yet ESG-related metrics on miners can be highly subjective and hard to quantify.

An ESG working group within our natural resources investment team looks into data alternatives, including an in-house effort to develop more reliable information. We are also tracking initiatives to better align mining companies with sustainable outcomes and integrate financial and non-financial reporting in areas like ESG.

In the meantime, company managements are acutely aware that little is made of a job well done in mining, but any missteps receive intense scrutiny and can have catastrophic results. This brings heightened attention to best practices and makes a focus on all aspects of ESG critical.

Social license and government partnerships are crucial to avoiding blow-ups, and it's imperative that investors have robust means to assess and monitor companies on these and all dimensions of ESG.

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ESG in EM

ESG is becoming a critical input in the EM investment process, helping to identify risks that tend to be more prevalent than in developed economies. BlackRock's May 2018 paper ***Sustainable investing: a 'why not' moment*** offers details. For example, shareholder protections tend to be weaker, issuers have a poorer track record of paying down debt, environmental standards tend to be more lax, and corruption more prevalent.

These markets were once plagued by inconsistent standards and disclosure of data, but the quality and coverage of reported EM data have vastly improved over the years. In particular, new sources of high-frequency data – such as ESG data provider RepRisk's data on controversies – can fill gaps and help enhance traditional ESG metrics. This helps address the issue of timing lag – one of the perennial challenges in ESG investing. And new computational techniques can help make up for data deficiencies. We have been exploring the use of algorithms that analyze and score the content of sustainability-related media in real time – and multiple languages.

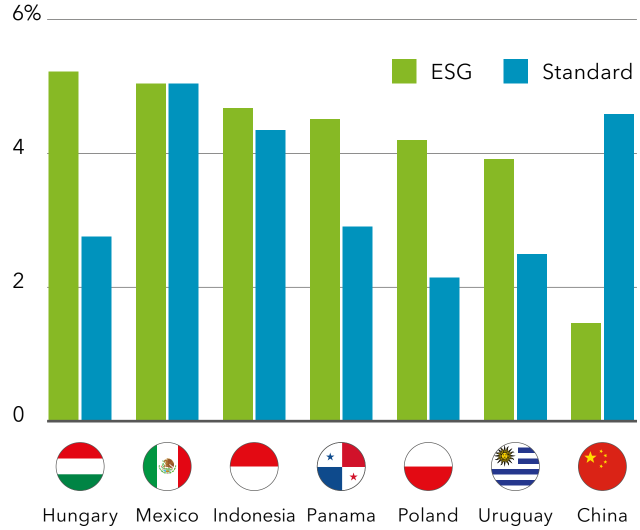
We have partnered with J.P. Morgan to support the launch of a suite of new ESG EM debt indexes to help fill a void of ESG EM debt benchmarks in the market. Key characteristics of the new indexes include:

- Country exposures are reweighted based on ESG scores.
- The bottom ESG quintile of issuers is excluded.
- Green bonds receive an outsized index weight.
- Issuers deriving any revenues from weapons, thermal coal or tobacco are excluded.

These new indexes combine information from multiple sources, including Sustainalytics, RepRisk and the Climate Bond Initiative. The *Sustainable sovereigns* chart shows country weights in the new JESG EMBI Global Index versus its standard counterpart.

Sustainable sovereigns

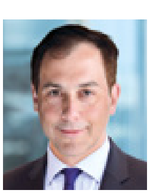
Country weights: ESG vs. standard EMD benchmark, 2018



Sources: BlackRock Investment Institute, with data from J.P. Morgan, December 2018. Notes: The chart shows country weights in the JESG EMBI Global Index versus its standard counterpart: the JPMorgan EMBI Global Diversified Index, as of December 20, 2018. The countries with the six largest weights in the JESG EMBI Global are shown, plus China, the country with the largest weighting difference between the two indexes.

The ESG tilt results in some meaningful changes in country weights relative to standard EM debt benchmarks. The most notable poor ESG performer – China – sees its index weight reduced by roughly two-thirds. Leading issuers such as Hungary and Poland see big uplifts in their index weight thanks to relatively strong ESG performance. The new index (JESG EMBI Global) carries a slightly lower yield than its parent but is designed to deliver similar risk-adjusted returns. See page 11 of the ***May 2018 paper*** for details.

The new ESG indexes also show higher credit quality than their baseline indexes. J.P. Morgan estimates a single-notch rating upgrade to just 20% of the JESG EMBI would take it into investment grade (IG) territory. By contrast, 80% of the parent index constituents would need to be upgraded for it to become IG. Caveats apply: Future performance may differ. The quality bias of ESG indexes means they may underperform in risk-on periods. Yet this quality can help provide insulation in downturns.



"ESG information has been our primary tool for evaluating qualitative risk when appraising the standard credit rating of a company. Our inclusion of material ESG metrics in the investment process has evolved throughout the years as more data metrics and indicators of their materiality have surfaced."

Jack Deino – Head of BlackRock's Emerging Markets Corporate Debt Team

ESG integration

There is no one-size-fits-all approach to ESG integration. We see it as using research, data and insights to drive potential process enhancements across all investment activities.

More and more investors are looking to integrate sustainability-related insights and data into their traditional investment processes. A 2018 ***BlackRock study*** of global insurance companies with almost $8 trillion in assets under management pointed to the increasing relevance of ESG in how they invest. A hefty majority (83%) of insurers indicated that an ESG investment policy was important to their firm, with 80% already having one in place or planning to adopt one within the next year.

A separate annual survey by BlackRock, conducted in late 2018, found that increasing emphasis on ESG or impact investing was the most significant focus for institutional asset owners in the EMEA region (Europe, Middle East and Africa) as they looked to rebalance their equity portfolios heading into the new year.

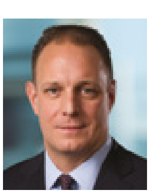
Similarly, a ***2018 State Street Global Advisors survey*** of 475 global institutional investors in the U.S., Europe and Asia Pacific found that 44% were moving toward deeper integration of ESG into research and security selection. Of those investors, 14% said they had fully integrated ESG into their investment processes.

The challenge: The industry faces a lot of questions about what ESG integration means in practice for asset owners, insurers and asset managers. There is no one standard definition or approach. Some define ESG integration as adding ESG metrics to investment analysis; others claim ESG integration occurs at the strategy level and boils down to the number of sustainable strategies they offer. The breadth of industry definitions is stoking confusion.

We draw a clear distinction between dedicated sustainable investing *products* and the *process* of integrating sustainability-related data or insights into existing investment processes. ESG integration is about making research, data and insights available to all of our portfolio managers, and working with them to identify potential process enhancements across all investment activities. Our view is that material ESG insights have the potential to augment traditional investment processes, regardless of whether or not a strategy has a sustainable mandate.

What this means: ESG integration centers on material sustainability-related information as part of the total mix of economic and financial indicators associated with an investment – whether used in the research and due diligence phase, or in actively monitoring portfolios later in their lifecycle. ESG integration is not only about increasing the quantity of information sources available to portfolio managers, but also identifying information that is additive to the investment process, whether those insights are intended to mitigate risks or contribute to long-term outperformance. The ESG considerations that are material will vary by investment style, sector/industry, market trends, and client objectives. (Read more on ESG data progress and improvements on ***page 10***.)

The quality of data is critical in this process. This is why we see today's data deficiencies as an opportunity, rather than a limitation. Our efforts to go beyond headline scores and dig deeper into ESG data (***pages 9–13***) help propel our integration efforts. We believe more granular insights can help identify market mispricings and potentially enhance risk-adjusted returns over time.



"Integrating ESG metrics into a cash portfolio can be additive over the long run, despite our highly restrictive investment universe and the relatively short maturities of cash investments. Companies that incorporate sustainable practices into their business tend to have lower capital costs, and can be less susceptible to operational risks. This can ultimately help improve the return profile of an investment."

Rich Mejzak – Head of Global Portfolio Management for BlackRock's Cash Management Group

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A purposeful approach

The core elements of BlackRock's approach to ESG integration are:

1. driving research and insights to understand how fast-improving ESG data influence investment performance; and
2. integrating this effectively across our firm-wide investment processes to help achieve better financial outcomes.

ESG integration is not about imposing values on investment teams, nor does it mean simply applying an ESG label to existing products. We see it as a holistic process that can help all of our teams become better investors. See the *Demystifying ESG integration* graphic for our view of what ESG integration is – and is not.

Our approach is governed by senior leadership and executed by the professionals responsible for investment decision-making. BlackRock published an ***ESG Investment Statement*** in July 2018. The goal: to be transparent about how we define responsibilities and establish governance for this process. We believe ESG integration applies to all styles of portfolio management. In alpha-seeking disciplines, it is about facilitating investment process enhancements owned by portfolio management teams. In the case of indexing, ESG-related matters are typically considered during engagements with portfolio companies.

Stewards of capital

Those engagements are managed by our global Investment Stewardship team and seen as a key component of our mission to create better financial futures for our clients. BlackRock believes in using its voice as an investor, through direct engagement and proxy voting. Companies should be encouraged to adopt sound business practices consistent with delivering sustainable long-term financial returns.

BlackRock's Investment Stewardship team engages with some 1,500 companies a year on material ESG issues we believe affect our clients' long-term economic interests. When companies demonstrate poor management of material ESG issues, we engage constructively and privately to provide feedback and discuss how the company's approach may affect its long-term performance.

Triggers for such discussions may include company events that could affect shareholder value (e.g., a data breach) or a concern around company performance or governance (e.g., lack of board accountability).

Engagement aims to establish an open dialogue to develop mutual understanding of governance matters. It helps Investment Stewardship assess the merits of a company's approach to its governance and provide feedback on any company's practices that, in our assessment, fall short of operational excellence. See BlackRock's ***The Investment Stewardship Ecosystem***.

Demystifying ESG integration

BlackRock's approach to ESG integration

ESG integration is:	... and is NOT:
Arming portfolio managers with tools and information to identify risks and opportunities within portfolios	A values-based exercise
Enhancing the investment process and implementing this across all our portfolios	Simply developing ESG versions of existing products while leaving processes unchanged
Making investment decisions that take financially material ESG information into account	Addressing stakeholder concerns by applying exclusionary screens based on immaterial ESG information

Sources: BlackRock Sustainable Investing and BlackRock Investment Institute, December 2018.
Note: The table is for illustrative purposes only.

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Team by team

Each of BlackRock's active investment teams is responsible for implementing ESG approaches in line with its investment mandate. BSI acts as a partner to help ensure consistency across the firm, providing resources, guidance and best practices. This often takes what is implicit and makes it explicit, formalizing what many teams have been doing for years. Each investment team is required to have a formal ESG integration statement to underpin its respective approach.

Complementing this team-by-team approach is an internal benchmarking process designed to measure and monitor progress firm-wide. Each of BlackRock's 73 investment teams had been "baselined" as of late 2018. This includes the status on ESG integration as well as for the resources, opportunities and challenges associated with their ESG integration work. This process will be updated regularly to provide a diagnostic tool for measuring, managing and reporting the state of ESG integration across teams to the firm's senior investment leadership.

BSI arranges "deep dives" with specific investment teams to explore more ambitious investment process improvements based on ESG insights or data. Each series of deep dives culminates with an internal symposium, where colleagues present on their key accomplishments in ESG integration, how new tools have improved their traditional investment processes, and highlight and share best practices.

In most cases, these deep dives result in investment teams creating and integrating proprietary mechanisms to score securities or assets – measures that extend well beyond headline ESG scores.

"In 2018 BlackRock Real Assets developed and implemented a proprietary ESG Investment Questionnaire, required for all new acquisitions across our platforms. This provides a framework to help identify and collate information on material ESG risks and opportunities."

Teresa O'Flynn – Global Head of BlackRock Real Assets Sustainable Investing

One size does not fit all

We recognize there is no one-size-fits-all approach to ESG integration. The availability and quality of ESG data used by investment teams depends on factors such as geography (greater coverage in developed versus emerging markets), holding period and investing time horizon. Physical climate risks such as coastal flooding, for example, tend to compound over time and are more material for longer-dated real assets than for short-term assets such as cash.

Processes also vary greatly depending on the type of investment solution. Case in point: A private equity team may need to build a template to gather ESG information on its investments, given the lack of third-party ESG data on private companies and external fund managers. Third-party ESG data is more readily available in EM debt, for example, and could be incorporated into a team's credit scorecards and used to complement internal fundamental analysis.

Ultimately, this diversity of investment approaches presents an opportunity: We can use it to surface the best ESG integration practices across a variety of dimensions and share them across the firm to further our collective efforts.

We have developed a matrix to help us identify common characteristics across teams and pinpoint best practices used to overcome challenges associated with each. This allows for a deeper understanding of where BSI can focus its efforts to advance practices that can be shared firm-wide.

We recognize that, just as with credit ratings, the highest levels of integration may involve creating proprietary measures that extend beyond headline ESG scores. The most effective way to accomplish this is in the context of the specific investment process and approach.

Ultimately, we see ESG integration as a way of enhancing the investment process, not a box-ticking exercise. There is no one-size-fits-all approach. We believe it needs to be a rigorous, yet flexible process to reflect the diversity of different investment styles and teams.

Lessons and reflections

BlackRock has dedicated significant resources in a firm-wide effort to deepen the integration of sustainability-related insights and data into investment processes globally. Several initial lessons have emerged. We share them in an effort to advance the conversation industry-wide as we improve, test and calibrate our approach:

Setting internal goals and reporting on milestones is key in helping push forward what is an evolving process. Producing a clear and transparent diagnostic for senior investment leaders helps to manage progress. It is also valuable in identifying areas of strength within certain teams, so more advanced teams can help others and collaboratively address common challenges. Finally, it helps guard against a siloed approach and outcome whereby all teams work on challenges of ESG integration independently and at different speeds. Following the initial baselining, we found many teams faced similar challenges and opportunities in augmenting their investment processes with material ESG insights.

ESG integration must be viewed as a journey, not a box-ticking exercise. Training our portfolio managers in how to make sense of fast-improving ESG data and insights is an important goal. The alternative of parachuting ESG "specialists" into investment teams generates less durable progress. Our teams' approaches are dynamic, defined by adaptation and innovation as new sustainable investing insights and tools arise.

Data and technology tools are crucial. Portfolio managers need the right data and technology tools to measure and manage sustainability-related exposures effectively. BlackRock has been building issuer-level ESG information into Aladdin, the firm's investment and risk-management system, since 2015. Our own portfolio managers and some clients can use Aladdin to monitor portfolio risks and help inform investment decisions based on ESG metrics.

We leverage our technology platform to drive four objectives of ESG integration: increasing transparency, mapping exposures, uncovering value and implementation. We are investing in improving these data and analytic tools.

BLACKROCK AND SUSTAINABILITY

Sustainability at BlackRock focuses not only on our investment processes, sustainable investment solutions and our stewardship of our clients' assets. It also involves the operations of BlackRock itself. As an asset management firm, our objective is to secure better financial futures for our clients and those they serve. To achieve this goal, we must ensure the long-term sustainability of our own firm. We published our ***mission statement on sustainability*** in 2018, outlining our approach to be an industry leader in how we incorporate sustainability across the firm.

Governance and board

Our corporate governance framework is governed by BlackRock's board of directors and an accountable lead independent director. Our board regularly reviews our strategic framework for long-term value creation and challenges management in executing on it. We believe our board's diversity of background and perspective plays a significant role in its ability to evaluate BlackRock's management and operations.

Human impact

As an asset manager, the long-term sustainability of our firm is heavily dependent on our people. We focus on fostering a unifying culture; encouraging innovation; ensuring that we are developing, retaining and recruiting the best talent; aligning employee incentives and risk-taking with those of the firm; and incorporating inclusion and diversity into all levels of our business.

Environmental sustainability

BlackRock's business model is not carbon intensive, yet we are committed to managing our impact on the environment. We approach sustainability in a way that decouples our growth from our environmental impact. Our path to sustainability includes measurement and management of carbon emissions and energy-efficiency goals; consideration of renewable and alternative energy sources; and disclosure of risks and opportunities around climate change.

Read more about ***BlackRock's approach to sustainability***.

RELATED RESOURCES FROM BLACKROCK

Adapting portfolios to climate change, September 2016
https://www.blackrock.com/corporate/literature/whitepaper/bii-climate-change-2016-us.pdf

BlackRock ESG Investment Statement, July 2018
https://www.blackrock.com/corporate/literature/publication/blk-esg-investment-statement-web.pdf

BlackRock Mission Statement on Sustainability, 2018
https://www.blackrock.com/corporate/literature/publication/blk-sustainability-mission-statement-web.pdf

BlackRock's Approach to Sustainability, 2018
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Exploring ESG: A practitioner's perspective, June 2016
https://www.blackrock.com/investing/literature/whitepaper/viewpoint-exploring-esg-a-practitioners-perspective-june-2016.pdf

Global Investment Outlook 2019, December 2018
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Sustainable investing: a "why not" moment, May 2018
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The Investment Stewardship Ecosystem, July 2018
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State Street Global Advisors (2018). ***ESG Institutional Investor Survey,*** "Performing for the Future: ESG's place in investment portfolios. Today and tomorrow."

The Economist Intelligence Unit (2015), "***The cost of inaction: Recognising the value at risk from climate change.***"

World Economic Forum (2018). ***The Global Risks Report 2018, 13th Edition.***

Important notes: Unless otherwise noted, index returns do not reflect any management fees, transaction costs or expenses. Indexes are unmanaged and one cannot invest directly in an index. Data for time periods prior to the index inception date is hypothetical and is provided for informational purposes only to indicate historical performance had the index been available over the relevant time period. Hypothetical data results are based on criteria applied retroactively with the benefit of hindsight and knowledge of factors that may have positively affected its performance, and cannot account for risk factors that may affect the actual portfolio performance. The index sponsor may make methodology changes from time to time based on its own policies and procedures. Index methodology is available upon request. Back-tested data is calculated by individual index providers and used in analysis until live index data is available. This analysis uses back-tested data from MSCI and Thomson Reuters.

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