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Sustainable investing: a 'why not' moment

Environmental, social and governance investing insights

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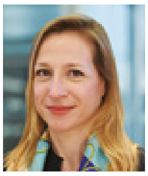

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Sustainable investing is much more than a catch phrase. It is the combination of traditional investment approaches with environmental, social and governance (ESG) insights. Drawing on the insights of BlackRock's investment professionals, we show why we believe it is feasible to create sustainable portfolios that do not compromise return goals and may even enhance risk-adjusted returns in the long run.

Strong ESG performers tend to exhibit operational excellence – and are more resilient to perils ranging from ethical lapses to climate risks. ESG data are still incomplete, largely self-reported and not always comparable – and we advocate for greater consistency and transparency. Yet breadth and quality have improved enough to make ESG analysis an integral part of the investment process. We have moved from a 'why?' to a 'why not?' moment in sustainable investing.

Summary

We find ESG can be implemented across most asset classes without giving up risk-adjusted returns. ESG and existing quality metrics such as strong balance sheets have a lot in common. This implies ESG-friendly portfolios could underperform in 'risk-on' periods – but be more resilient in downturns. They could even outperform in the long run as flows into sustainable investment products increase and climate risks compound.

New benchmarks and products are making ESG investing more accessible across asset classes and regions. Data are improving, but still patchy. This means it is critical to go beyond headline ESG scores for insights. Understanding how and why individual score components can affect returns is key. This can differ across regions, industries and companies. Our confidence in ESG as a potential source of alpha is rising, but there is still work to be done.

Early evidence suggests that focusing on ESG may pay the greatest dividends in emerging markets (EMs). Issues such as shareholder protections, natural resources management and labour relations can be important performance differentiators in the emerging world. A new suite of ESG-friendly EM debt indices could help steer more capital into ESG leaders over time – and incentivise laggards to lift their game.

BlackRock is engaging with companies on sustainability issues, not to impose our own values, but to advocate for ESG excellence on behalf of clients. We also advocate for more consistent, frequent and standardised reporting of ESG-related metrics with data providers, companies and regulators.

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Introduction

We break down the key pillars of ESG scoring, flag deficiencies in the existing data, and illustrate the rising popularity of ESG investing strategies as reflected in fund inflows.

Sustainable investing is going mainstream. The term often is applied to a range of strategies and labels – exclusionary screens (removing companies in controversial industries such as weapons), ESG, thematic and impact investing, to name a few. The number of related indices has exploded. And sustainable investing is coming to asset classes previously lacking in sustainable options, such as EM debt. ESG scores are tools for sustainable investing. They help identify related risks and opportunities in portfolios – and companies' ability to manage them. The three pillars are:

Environmental (E) covers themes such as climate risks and natural resources scarcity.

Social (S) includes labour issues and product liability risks such as data security.

Governance (G) encompasses items such as business ethics and executive pay.

See the *Breaking down ESG* graphic for a summary of the key inputs to each pillar. ESG data providers generally aggregate these inputs to generate individual E, S and G scores, then blend those together to produce a headline ESG score. Aggregate scores are often translated into an overall rating on an AAA to CCC scale, where companies (or countries) are marked relative to their own peers. Distilling disparate themes into a single score or rating provides a tool to compare across companies, but also has its drawbacks. See ***page 4*** for details.

ESG investing is not just about doing good. A growing body of research points to a link with asset performance. Companies that manage sustainability risks and opportunities well tend to have stronger cash flows, lower borrowing costs and higher valuations. See MSCI's ***Foundations of ESG Investing*** of November 2017. Another study suggests US firms with strong track records on key sustainability metrics have significantly outperformed those with poor report cards. See the 2015 Harvard Business School study ***Corporate Sustainability: First Evidence on Materiality***.

Can ESG investing enhance returns? The answer comes in shades of grey, as we illustrate in this publication. But this we can say with growing confidence: we believe investors can build ESG into many traditional portfolios with little, if any, sacrifice in performance.

The following chapters offer evidence in equities, fixed income and real assets – across developed and emerging markets. ESG-related risks are only likely to intensify in coming years. Consider the physical effects of rising sea levels on coastal real estate – or the broad impact of regulations aiming to curb carbon emissions, discussed in our 2016 ***Adapting portfolios to climate change***. And it's not just the 'E' that matters: think of recent data privacy scandals engulfing social media companies ('S') and the increasing focus on diversity of corporate boards ('G').

We believe ESG-friendly portfolios should be more resilient over time by helping mitigate the impact of such risks. The key question then is not necessarily when or why to implement ESG, but how.

Breaking down ESG

Pillars and key inputs to ESG rating systems

Pillars	Key inputs
Environmental	Climate change risks
	Raw materials and water scarcity
	Pollution and waste
	Innovation, clean tech, renewable energy
Social	Labour policies and relations
	Product liability, including cyber security
	Controversial sourcing
	Social impact reporting
Governance	Shareholder rights, diversity
	Business ethics, transparency

Sources: BlackRock Investment Institute, April 2018. Notes: the table shows the three key pillars and inputs that underpin the ESG rating process across major providers.

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Implementing ESG

ESG investing takes many forms and need not be an all-or-nothing decision. See BlackRock's 2016 paper ***Exploring ESG*** for a primer. We believe combining environmental, social and governance insights with traditional investment approaches can potentially pay dividends. ESG implementation can be tailored to the investor's motivations and goals, and falls into two broad categories:

1. **Avoid:** eliminate exposures to companies or sectors that pose certain risks or violate the investor's values (examples may be tobacco, munitions or fossil fuels).
2. **Advance:** align capital with certain desired ESG outcomes while pursuing financial returns.

There are many ways to *advance*. This includes using ESG scores as an additional layer in the traditional investment process, primarily to identify ESG-related risks. Next is thematic investing with a focus on capturing specific opportunities in areas such as low-carbon energy or electric vehicles. Then there is impact investing, where investors seek tangible non-financial outcomes, such as promoting energy or water savings, in addition to returns. This can include specific mandates such as green bonds. See the *Avoid and advance* display below.

The challenge: ESG-related data are improving, but still inconsistent. Some subcomponents of ESG ratings are more useful than others. Aggregating them into simple headline scores can mask nuances below the surface.

Data deficiencies

Existing ESG data have several drawbacks:

- **Quality:** the data are largely self-reported, with the resulting pitfalls of reliability and consistency. Raising the bar for company disclosure and establishing enhanced reporting frameworks is key.
- **Coverage:** most ESG data have only been around for a decade – and in many asset classes, much less. Large-cap companies tend to report more comprehensive ESG metrics than smaller companies, so dominate indices. Coverage is particularly patchy in areas such as EMs and high yield debt.
- **Consistency:** individual ESG metrics are weighted differently across data providers. This means ESG scores from different providers have a low correlation with one another, unlike credit ratings, for example.
- **Frequency:** many ESG metrics are only updated annually. This makes it hard to find timely insights to manage risk or enhance returns. And indices are periodically backfilled with new data, rewriting history.

Bottom line: data deficiencies mean there is a need to go beyond headline scores for ESG insights that may enhance returns. Understanding how and why individual score components can impact returns is key, and this can differ across industries. Example: cyber security risks (covered under the 'S') are a growing concern for financials. Carbon efficiency and water usage (under 'E') are critical considerations in the natural resources industry.

Avoid and advance

ESG 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 towards outcomes
Examples	Screening out producers of weapons, fossil fuels and/or tobacco	Optimised 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, April 2018.

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Talking ESG

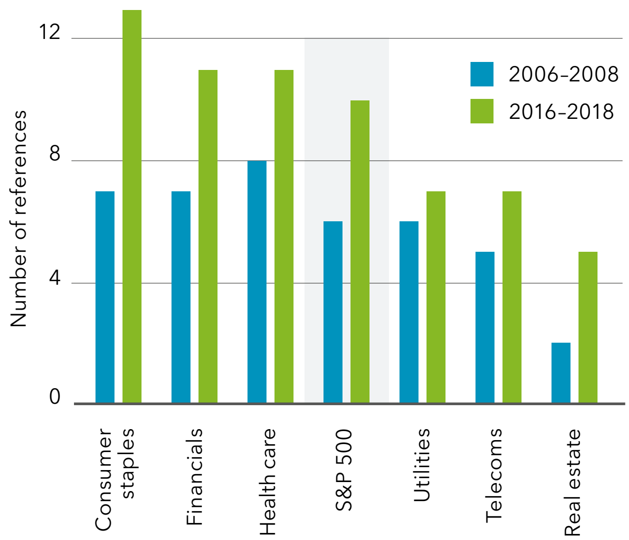
Sustainable strategies are gaining in popularity. Investors' desire to do good, mitigate risk or access niche market opportunities are clear catalysts. Regulations, such as those around renewable energy targets, are another. Companies are talking about ESG more, too. The average S&P 500 firm cites related terms 10 times per conference call today, up from six a decade ago, our text analysis of earnings call transcripts shows. Consumer staples companies generate the most mentions. See the *ESG chatter* chart. We find early evidence such ESG chatter may be linked to equity performance. See ***page 14*** for details.

Regulation is a key driver of ESG adoption, particularly in Europe. One example: a French law requiring large investors to disclose the carbon footprint of their assets. Yet the global regulatory landscape is uneven. New US guidance stresses that private-sector retirement plan fiduciaries must not put ESG goals ahead of financial ones.

Challenges remain: one is sifting through the glut of ESG data to separate the signal from the noise. A 2015 ***study*** by Harvard Business School concluded just 20% of the items in its sustainability dataset could be deemed 'financially material.' Digging beyond headline data can help show which ESG metrics matter most.

ESG chatter

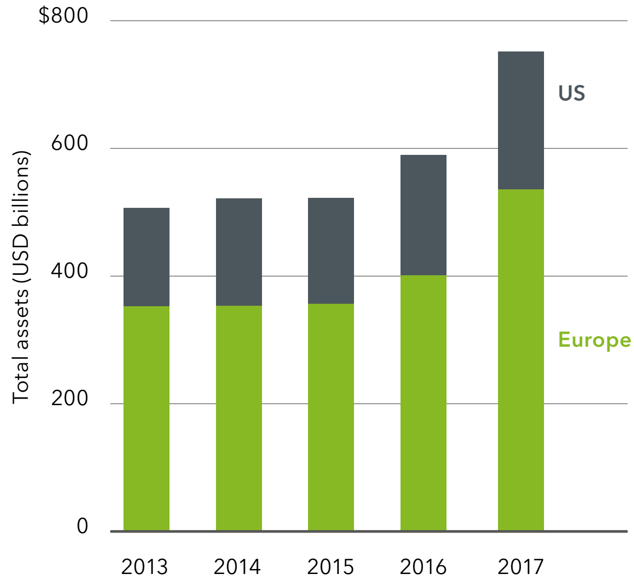
ESG-related terms in US corporate earnings calls, 2006–2018



Sources: BlackRock Investment Institute, with data from FactSet., April 2018. Notes: the bars show the average number of mentions of ESG-related terms in earnings calls of S&P 500 companies, based on our analysis of call transcripts. We search for a list of 40 key terms such as 'environment,' 'social' and 'sustainable.' The top-three and bottom-three sectors for 2016-2018 mentions are displayed, plus the S&P 500. The 2018 figures are year-to-date.

Growing up

US and European ESG fund assets, 2013–2017



Sources: BlackRock Investment Institute, with data from Cerulli Associates, April 2018. Notes: the bars show total US and European assets in ESG mutual funds and exchange traded funds by calendar year. Figures are in US dollar terms.

Follow the money

ESG investing has already arrived, by some measures. The universe of ESG-dedicated investment funds is growing: roughly $750 billion in European and US mutual funds and exchange traded funds combined. See the *Growing up* chart. Europe makes up 71% of the total. When strategies using exclusionary screens are included – the broadest possible definition of sustainable investing – assets under management amount to some $23 trillion, the ***Global Sustainable Investment Alliance*** says.

Can investors pursue these sustainable strategies without compromising on traditional financial goals? We believe the evidence is encouraging, notwithstanding the short history of available track records. We start with equities – and show how selected ESG indices have delivered risk/return characteristics in line with conventional benchmarks. See ***pages 6–7***. We then delve into fixed income (***pages 8–10***), examining ESG integration across global high yield, US investment grade – and taking a deep dive into green bonds. We highlight the arrival of ESG-friendly indices to emerging markets and detail how ESG is an integral part of real assets investing (***pages 11–12***). We conclude with thoughts on how to go beyond headline ESG screens in the search for excess returns and look into the role of corporate engagement (***pages 13–15***).

Equities

Sustainable investors need not give up risk-adjusted returns, the short history of indices in the space suggests. We also detail a link between ESG and the quality style factor.

Much of the focus in ESG investing has been in equities. The inevitable question: do investors need to choose between returns and ESG? Our answer: no.

We looked at traditional indices alongside ESG-focused derivatives of them. Highlights are outlined in the *No sacrifice required?* table. The ESG indices had no exclusionary screens and were optimised to hew closely to their traditional counterparts. Annualised total returns since 2012 matched or exceeded the standard index in both developed and emerging markets, with comparable volatility. EMs were the standout (see ***page 11*** for more). The ESG indices also carried no premium price tag – valuation metrics were nearly identical.

To ensure consistency across regions, we show only a six-year period as ESG data are limited for EMs. Where longer datasets were available, results were similar. For example, annual US ESG index returns were 9.94% versus 9.86% for the standard index since 1994. We believe time is an investor's friend, with ESG implementation likely to bear more fruit over longer horizons.

Our study further found that a focus on ESG may offer some cushion on the downside. Average volatility measures were similar, but the ESG-focused indices had modestly lower maximum monthly drawdowns, with the greatest difference seen in EM equities. See the fourth row of the table. Companies with higher ESG scores also showed lower residual volatility (the company-specific risks that cannot be explained away by broad market forces).

Good governance translates to lower corporate risk, we believe, and in turn, a lower cost of doing business. Findings are similar for environmental and social risk management, as outlined in the 2015 paper ***From the stockholder to the stakeholder***. Environmental risk management practices and disclosures can potentially lower a firm's cost of equity, as can strong employee relations and product safety. It pays to run a tight ship on all dimensions.

Bottom line: sustainable equity portfolios feature companies that offer some buffer against ESG-related risks and the potential of outperforming the broader market over longer time periods.

No sacrifice required?

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

	US		World ex-US		Emerging markets	
	Traditional	ESG Focus	Traditional	ESG Focus	Traditional	ESG Focus
Annualised return	15.8%	15.8%	10.5%	11.1%	7.8%	9.1%
Volatility	9.5%	9.6%	11.4%	11.6%	14.4%	14.3%
Sharpe ratio	1.62	1.60	0.88	0.92	0.51	0.61
Maximum monthly drawdown	-13.9%	-13.8%	-23.3%	-22.6%	-35.2%	-33.0%
Price-to-earnings	19.4	19.5	17.2	17.1	13.3	13.7
Dividend yield	2.1%	2.1%	3.2%	3.2%	2.7%	2.8%
Number of stocks	620	293	1,011	419	831	288
ESG score	5.2	6.6	6.5	7.9	4.4	6.2

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, April 2018. Notes: the data cover the period from 31 May 2012, to 28 Feb. 2018. Returns are annualised gross returns in US dollar terms. Number of stocks, price-to-earnings ratio and dividend yield are monthly averages. Indices used are the MSCI USA Index, MSCI World ex-US Index, MSCI EM Index ('Traditional' columns) and MSCI's ESG-focused derivations of each (example: MSCI USA ESG Focus Index). The MSCI ESG Focus indices use back-tested data. They are optimised to maximise ESG exposure within certain constraints (example: a tracking error of 50 basis points and maximum active weight of 2% for each index constituent in the case of the USA ESG Focus). See important notes on the back page.

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The score on ESG scores

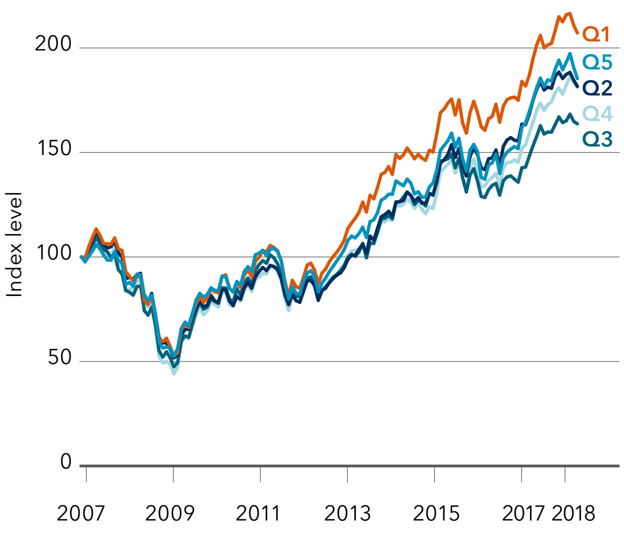
A deeper look reveals the majority of active returns and risk in our analysis was related to company-specific variables. This tells us a company's ESG score matters.

We tested the theory by parsing equity performance based on ESG quintiles, using Europe as an example. Our observation: companies in the top quintile of MSCI's ESG scores outperformed since 2007. See the *Making the grade* chart. The first quintile (top 20%) outperformed fairly consistently, while results for the remaining quintiles were more dispersed. Companies that didn't report ESG metrics were fairly reliable laggards, we also found.

Top ESG scorers led the pack in a similar analysis of US equities. Yet ESG leaders did not outperform in the US when measuring from the end of the 2008 financial crisis to now. This jibes with other research that suggests ESG portfolio returns may lag in risk-on periods, like other 'quality' and defence-oriented investments. In general, the link between ESG scores and stock performance appeared to be more consistent in Europe than in the US. Why? One theory is that European companies are ahead in ESG reporting, partly driven by regulations, and generate more meaningful metrics as a result. Yet there is still work to be done to fully understand the linkages.

Making the grade

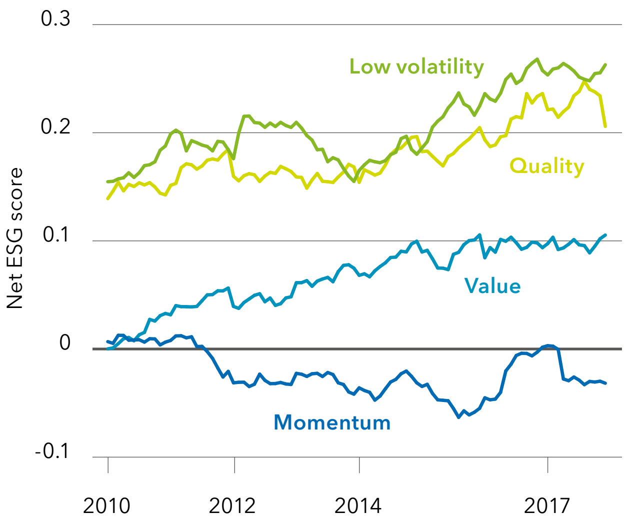
Performance of European stocks by ESG quintiles, 2007–2018



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, April 2018. Notes: European stocks are represented by the STOXX 600. Quintile 1 is the 20% of STOXX stocks with the highest MSCI ESG scores, followed by quintiles 2 through 5. ESG scores are lagged by one month. Returns are cumulative from 31 Jan. 2007, to 31 March 2018. Data were rebased to 100 at 31 Jan 2007.

Baked in the cake?

ESG exposure of key equity style factors, 2010–2017



Sources: BlackRock Investment Institute, with data from Thomson Reuters, April 2018. Notes: the style factors are represented by hypothetical portfolios based on the 2,800 global companies in the Thomson Reuters Asset4 Database. They are long/short portfolios designed to isolate exposure to a style factor while remaining market-neutral. Example: the hypothetical momentum portfolio is long the highest momentum stocks and short those with the lowest. The ESG scores are from Asset4 and normalised on a 0-1 scale. We show the net score for each style factor. Positive figures reflect an overweight in ESG relative to the Asset4 universe and negative reflect an underweight . The hypothetical model portfolios are rebalanced monthly. For illustrative purposes only and not representative of any actual account.

Is ESG already 'factored' in?

Factor-based investing offers a different lens through which to view equity performance. How? By isolating traits that are broad, persistent drivers of return. We explored whether ESG and its components were factors themselves or already factored in.

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 both embed a stronger tilt to high ESG scorers; momentum showed modestly greater ties to lower ESG companies. See the *Baked in the cake?* chart. A positive score means the factor favors companies with high ESG scores. A negative reading indicates the opposite. The value factor's ESG tie is modest, but has been rising over time.

We have found little 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 important insight. It suggests that adding ESG strategies can make a portfolio more defensive than intended, and may require investors to source risk exposures elsewhere.

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Fixed income

We shine a light on ESG-focused corporate bond portfolios, detail how 'willingness to pay' is a key ESG driver in sovereign debt, and highlight the fast-growing green bond market.

How to build ESG-aware fixed income portfolios? The answer seems straightforward: screen out the issuers with the lowest ESG scores. Reality is not so simple. Unlike in the equity world, many bond issuers still lack coverage. ESG bond indices are only a few years young – and still non-existent in areas such as high yield.

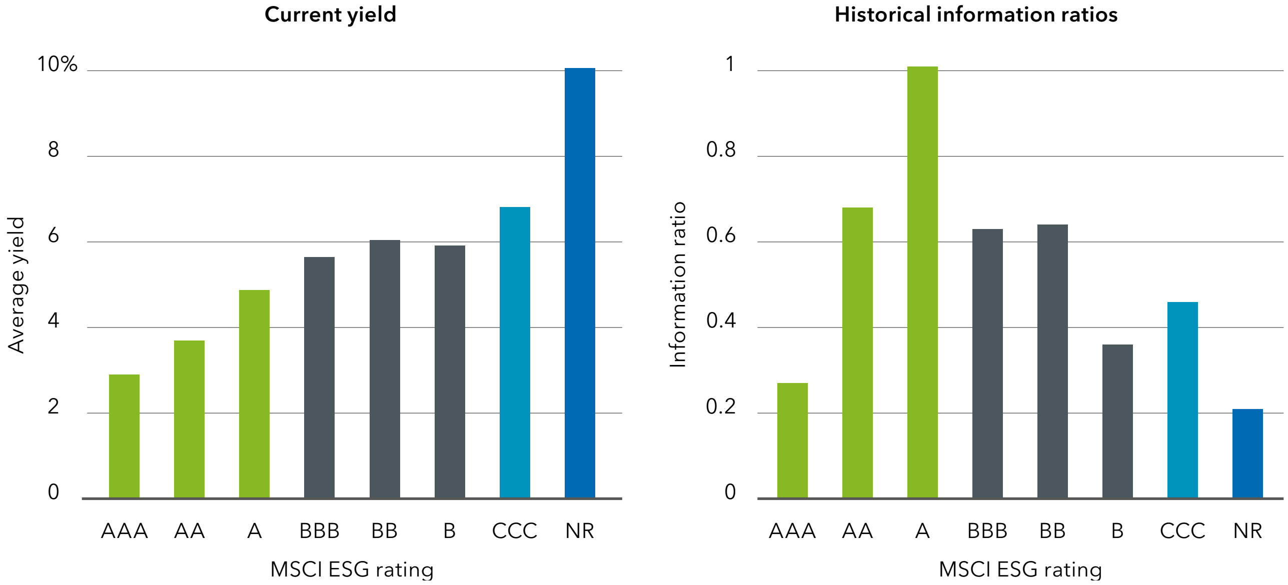
The other challenge: credit investors typically need to sacrifice some yield to make their portfolios ESG-focused. This is because companies that score the lowest on ESG metrics tend to carry the highest yields. What does the tradeoff look like in practice? We illustrate with a snapshot of global high yield in ESG terms. See the *Finding the sweet spot* chart. Issuers ranked lowest in MSCI's ESG ratings bucket (CCC) carried yields more than twice as high as the top ESG scorers as at year-end 2017. Roughly one-quarter of the global high yield universe is made up of bonds with ESG ratings of BB or below. Excluding or underweighting these in a global high yield portfolio could significantly drag down its average yield.

But time is an investor's friend. In the past decade, bonds with higher ESG ratings have typically generated stronger information ratios – a gauge of *risk-adjusted* returns – despite their lower yields, we found. See the chart on the bottom right. The sweet spot: an ESG rating of A from MSCI. Our analysis suggests higher ESG ratings correspond to higher quality, just as they do in equities. Like companies with the highest credit ratings, ESG winners tend to lag the market in rallies but benefit in flights to quality. See ***page 9*** for more. We believe an ESG-friendly portfolio should keep pace with traditional portfolios over a full market cycle – even if it sacrifices a little yield in the short run.

The patchiness of ESG data means these types of analyses have limitations. Almost half the global high yield issuers in our study were not covered by MSCI's ESG ratings. These names generated lower risk-adjusted returns than any ESG ratings bucket, we found. Greater ESG coverage of issuers should help to provide more granular analysis over time.

Finding the sweet spot

Global high yield bonds: average current yield and historical information ratios per ESG ratings bucket, 2007–2017



Sources: BlackRock Investment Institute, with data from MSCI and Bank of America Merrill Lynch, April 2018. Notes: global high yield is represented by the BoAML Global High Yield Constrained Index. Current yields are the average for each MSCI ESG ratings bucket as at year-end 2017. Historical information ratios, which are a measure of risk-adjusted returns, are for the period January 2007 through March 2017. NR refers to non-rated issuers or those not covered by MSCI ESG ratings over the period of analysis.

Investigating IG

ESG-related data challenges are less acute in the investment grade space, where coverage is broadest. We crunched the available data to analyse a hypothetical US credit portfolio, represented by the Bloomberg Barclays Investment Grade Corporate Index. The results:

- An ESG-friendly version of the corporate index (screening out all issuers with MSCI ESG ratings below BB) generated near-identical performance to its parent index over the past decade. Its Sharpe ratio was identical. See the table below. A more stringent approach (excluding ESG scores of BBB and below) resulted in a modest performance give-up.
- This was true even though the ESG-friendly 'BB or better' portfolio carried a slightly lower yield (3.16% versus 3.25%) – and excluded more than one-quarter of the 700-plus issuers in its parent index. The ESG-focused portfolio still offered attractive diversification across industries, we found.
- The ESG-friendly portfolios had slightly higher maximum monthly drawdowns. But they significantly outperformed in risk-off periods such as 2008 and underperformed in years when credit spreads were tightening (such as 2009), we found. This underscores our view that ESG can be viewed as a proxy for quality.

Sustainable credit

US credit benchmark vs. hypothetical ESG portfolios, 2007–2017

	Standard	ESG (BB or better)	ESG (BBB or better)
Annualised return	5.55%	5.53%	5.38%
Volatility	5.82%	5.79%	5.87%
Sharpe ratio	0.24	0.24	0.23
Tracking error (bps)	0	39	60
Maximum monthly drawdown	-7.77%	-8.26%	-8.77%
Yield	3.25%	3.16%	3.14%
No. of issuers	726	516	377
ESG score	4.9	5.7	6.5

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 Bloomberg, April 2018. Notes: US credit uses the Bloomberg Barclays US Investment Grade Corporate Index. The hypothetical ESG credit portfolios screen out US credit issuers with MSCI ESG ratings below BB or BBB, respectively.

From storms to sovereigns

The argument for ESG screening becomes even more compelling over longer time horizons, we believe. This is because ESG-related risks tend to compound. Consider assets such as 30- or 40-year bonds tied to infrastructure projects that may be exposed to catastrophic storm risks or threatened by rising sea levels over time. Sustainable investing may pay dividends over time by reducing exposure to such risks, in our view.

What about sovereign debt? Institutional integrity is critical here. This is intuitive – countries with weak institutions are more likely to disrespect human rights, abuse the environment and suffer political unrest. Checks and balances on power feed into all three.

We find the key driver of moves in traditional ESG country indices has a strong correlation with the *willingness to pay* component of our ***BlackRock Sovereign Risk Index***, which covers 60 countries. Relative country rankings on this metric are typically priced in, we find, yet changes to it often are not – and can potentially give an early read on market movements. Measures of institutional integrity such as *willingness to pay* are updated more frequently than other ESG metrics (often annually). This suggests they can be used as early warning signals of ESG deterioration.

Certain ESG subcomponents may be more relevant for some sovereigns than others. Example: environmental risk management and resource usage indicators can be particularly important for frontier markets, we find. Higher rankings on these scores may serve as a proxy for countries' ability to manage natural disasters without jeopardising their willingness to pay. See ***page 11***.

Bottom line: we believe it is possible to build ESG-focused IG bond portfolios with results comparable to traditional ones. A small yield give-up in the short term may help guard against big long-term risks. Just as in other asset classes, we believe such portfolios may even outperform in the future as such ESG-related risks crystalise – and regulatory carrots and sticks reward ESG outperformers while penalising laggards. ESG portfolios can also address the needs of investors who are broadening their view of returns beyond basis points. For some asset owners, promoting sustainability through asset allocation choices may be an important goal in itself.

Growing greenness

How to go greener in fixed income? Adopting ESG-friendly benchmarks is one option. Adding an allocation to green bonds can provide an extra kick. Green bonds are fixed income instruments that dedicate their proceeds to financing new or existing 'green projects.' Think clean transportation or renewable energy capacity.

The fledgling market is growing rapidly, with a record \$137 billion of green bonds issued in 2017 according to Bloomberg, bringing the total market size to \$315 billion by our estimates. There are now five indices tracking green bonds. The primary holders: buy-and-hold investors such as insurers and pension funds. Green bonds allow such investors to fund green projects without the credit or illiquidity risks of direct investments in private markets.

What about performance? Our analysis jibes with the findings of a ***2017 study*** by the Climate Bonds Initiative: green bonds perform in line with traditional counterparts. Performance drivers are no different: interest rate swings and the issuer's credit rating, among others. We find some evidence that green bonds outperform in the short period after issuance, partly due to a lack of supply. This also points to a drawback of green bonds: liquidity is generally poorer than in comparable standard bonds.

Checking on impact

How can investors be sure a green bond delivers on its promise? Detailed and transparent reporting is needed to show whether the funded project actually delivers the intended environmental benefits. We illustrate the latest trend in impact reporting with a hypothetical portfolio that tracks the Bloomberg Barclays MSCI Green Bond Index. BlackRock provides such reporting for both index and customised green bond portfolios. The *Green report card* display summarises key metrics such as the amount of renewable energy generated, energy or water saved and emissions avoided per \$100 million invested.

Criteria for defining a green bond vary. BlackRock has helped devise the ***Green Bond Principles***, process guidelines that aim to foster transparency and integrity in the development of the market. We ensure new issues are aligned with these principles, and have occasionally rejected self-labelled green bonds because of limited transparency on the intended proceeds or a lack of conviction the projects would have a material environmental benefit.

Bottom line: green finance is maturing. We see green bonds as key tools that can help investors marry their investment and ESG-related objectives.

Green report card

Environmental impact of a hypothetical \$100 million investment in the Bloomberg Barclays MSCI Green Bond Index, July 2017

205,681 tCO_2
of avoided emissions/year
Equivalent to taking 43,447 cars off the road

8,851 million litres
of water saved/year
Equivalent to more than 3,500 Olympic-sized swimming pools

111,764 MWh
of renewable energy generated/year

541,882 MWh
of energy savings/year
Equivalent to the annual electricity use of 67,833 homes

175,946 m^3
of water or waste collected and disposed or treated/year
Equivalent to the volume of waste generated by NYC in 1 year

2,155 hectares
of land area re/afforested or preserved
Equivalent to more than 3,000 football fields

Sources: BlackRock Investment Institute, with data from the US Environmental Protection Agency (EPA), April 2018. Notes: the analysis is based on a hypothetical \$100 million invested in the Bloomberg Barclays MSCI Green Bond Index, as at July 2017. The environmental impact figures are based on self-reported data from green bond issuers aggregated by BlackRock. The analysis uses the US EPA's Greenhouse Gas Equivalences Calculator for CO_2 and energy measures. Other assumptions are: 1 Olympic-sized pool = 2.5 million litres of water; 1 soccer field = 7,000 square metres; 1 cubic metre of waste = 200 kilograms. For illustrative purposes only.

Other assets

We explain why ESG-focused EM stocks have outperformed, show how new ESG-friendly EM indices fill a gap in EM debt investing and explore a 'green premium' in real assets.

ESG comes to EM

ESG is a critical input in the EM investment process – and a useful tool to identify risks that tend to be more prevalent than in developed economies. Shareholder protections tend to be weaker in EMs. Issuers have a poorer track record of paying down debt, environmental standards tend to be more lax, and corruption more prevalent.

Limited data make such analysis tricky, but this is starting to change. Standardised ESG reporting has arrived in countries such as South Africa. MSCI data show ESG-focused equity benchmarks have outperformed standard counterparts in their six-year history. See the table on ***page 6***. This is driven mostly by security selection; our performance attribution analysis shows this is more important than either country or industry selection in driving returns. We see this as tentative evidence ESG can add value in EM investing. One theory why: the gap between ESG champions and laggards is large in the EM world.

New ESG indices in EM debt – a collaboration between J.P. Morgan and BlackRock – could incentivise greater capital allocation to more ESG-friendly issuers over time, we believe. The *Sustainable sovereigns* chart shows country weights in the new JESG EMBI Global Index versus its standard counterpart. Gaps in ESG performance across countries lead to meaningful shifts in index weights – and perhaps investment flows. A large drop in China's country weight could lead to selling of its bonds as investors adopt the new index; Poland is an example of the opposite.

Key characteristics of the new indices, which come in both hard- and local-currency flavours:

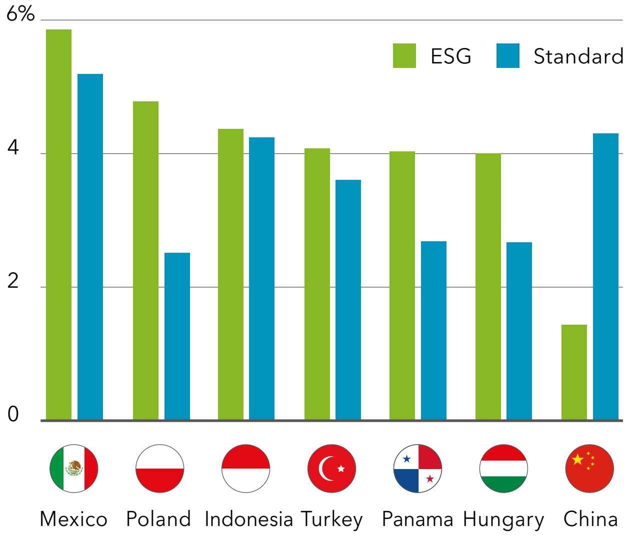
- Country exposures in the underlying indices are reweighted based on their ESG scores.
- The bottom ESG quintile of issuers is excluded.
- Green bonds receive an outsized index weight.
- Issuers deriving any revenues from weapons, thermal coal or tobacco are excluded.

The new ESG benchmarks would have produced risk-adjusted returns in line with their traditional counterparts over the past five years, according to J.P. Morgan analysis that relies on back-tested data. Example: an annualised return over the period of 4% for the JESG EMBI Global, identical to that of the JPMorgan EMBI Global Diversified Index. This was despite the new index having a yield 20 basis points lower than its parent. The ESG index also had slightly lower volatility (6% versus 6.1%).

Another key result: the new JESG indices have higher credit quality than their baseline indices. J.P. Morgan estimates that a single-notch credit rating upgrade to just 20% of the JESG EMBI would haul it into investment grade territory. By contrast, 80% of the parent index constituents would need to be upgraded for it to become IG status. The usual caveats apply: future performance may differ. The quality bias of ESG indices means they may underperform in risk-on periods. Yet we believe this quality will provide a measure of insulation in downturns.

Sustainable sovereigns

Country weights: ESG vs. standard EMD benchmark, 2018



Sources: BlackRock Investment Institute, with data from J.P. Morgan, April 2018. Notes: the chart shows country weights in the JESG EMBI Global Index versus its standard counterpart: the JPMorgan EMBI Global Diversified Index, as at 19 April 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 indices.

New index, new implications

It pays to go beyond headline ESG scores when scouring for relative value opportunities in EMs.

Sovereign issuers with the weakest budget transparency, for example, tend to have the lowest ESG scores – and a high likelihood of landing on the JESG EMBI Global Index's exclusions list, we find.

The International Budget Partnership's ***Open Budget Index*** (OBI), which covers over 100 countries with a zero-to-100 point transparency score, can be a useful tracker on this front. An issuer's trajectory in the OBI may give an early indication of its potential for ESG index inclusion or exclusion, in our view.

We focus on the 'E' in many frontier markets. Scores in environmental risk management and resource usage can help reveal vulnerabilities (or resilience) to natural disasters that could jeopardise these sovereign issuers' willingness to pay. The quality of governance is key for countries embarking on structural reforms with the support of an international financial institution, as well as for corporates. We see a corporate issuer's governance score as an effective tool for monitoring risks, and assessing management style and priorities.

Bottom line: we expect more capital to track ESG-friendly EM indices over time, providing an incentive for sovereign and corporate issuers in the region to lift their game on ESG performance.

REAL ASSETS

We see ESG considerations as essential for investing in real assets. Why? These are long-duration and physical assets with direct exposure to the risks and opportunities posed by global challenges such as climate risks, resource constraints and population growth. Buildings are big carbon producers. Smart and even small changes can have far-reaching perks.

Performance benefits may be most apparent in real estate, where we see sustainability – and a 'green premium' – taking hold. Rental rates for certified 'green' buildings have commanded premiums of up to 17% over the past five years, as shown in the World Green Building Council's 2013 paper, ***The Business Case for Green Building***. Occupancy rates and retention also tend to be higher. Corporate tenants see green features boosting productivity and appealing to talent, while also supporting their own sustainability objectives.

The sustainable features of a property can help lower borrowing costs, we find, with loans getting discounts after specific green covenants are agreed. The inclusion of green loans in portfolios of commercial mortgage-backed securities has also been shown to add value. Green buildings pose 34% less default risk, according to research in ***Green Buildings in Commercial Mortgage-Backed Securities***. This again points to the 'quality' premium embedded in green strategies.

Brown discount

The benefits don't come free. Costs will vary by property type, region and design, but data from the ***World Green Building Council*** suggest making a building sustainable can add as much as 12% to the price tag. Costs to retrofit buildings also can be high. The up-front investments are likely worth it over time as green standards lead to higher rent and sale prices. And we see costs falling as sustainable design becomes the norm. The flip side of the green premium as more buildings enter the field: a 'brown discount.' Properties seen as 'dirty' may garner lower prices and rents, with less interest from potential buyers. Late-comers to the green scene may be forced to retrofit their properties to maintain rents and guarantee sales.

The focus of the green drive is quickly spreading from sustainability to long-term resilience. How buildings and infrastructure assets can resist extreme weather events, and swiftly recover in the aftermath, is a growing area of interest. Recent hurricanes, mudslides and wildfires elevate this timely topic. New York City has taken steps to pursue these efforts in the aftermath of 2012's Superstorm Sandy. What's next? We see better tools to measure the current and future climate-related risks down to the zip code and individual structure level. This, we believe, will allow investors to discern who is prepared – or not – and to more effectively price assets.

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Beyond the ESG headlines

We highlight a new system that classifies companies on ESG metrics; show how it pays to look beyond headline ESG data; and detail the importance of corporate engagement.

Standardised ESG disclosure is still in its infancy. Metrics vary from company to company, compliance is spotty, and data are largely self-reported. The first step towards improvement? A set of industry-specific standards that are granular enough to be meaningful and broad enough to be comparable across companies. The US ***Sustainability Accounting Standards Board (SASB)*** is launching a Sustainable Industry Classification System (SICS). The main difference with the General Industry Classification System (GICS): it groups companies based on the similarity of their sustainability challenges (and innovation opportunities), rather than by financial drivers or business models.

SICS has 10 thematic sectors divided into 35 subindustries and 79 industries. Key sectoral differences and similarities with the GICS are shown below. Some of the highlights: SICS creates new sectors (example: infrastructure) and merges others (tech and telecoms). It also introduces new industries (wind energy) and buckets some in different sectors (autos and airlines wrap into transport).

Does SICS make sense? We applied it to the Russell 1000 Index to find out, using only stocks that have been in the index for at least two years. Our conclusion: SICS has some advantages over the traditional classification system. Highlights of our analysis that spanned eight years of data:

- SICS, like GICS, grouped together similarly behaving stocks. Daily pairwise correlations of excess returns of individual stocks *within* sectors were comparable to that of GICS – and much higher than a random sample.
- Each SICS sector is distinctly different. Pairwise correlations *between* sectoral returns were lower than GICS. The highest correlation between sectors in the SICS stood at 26% versus 46% for the GICS.

There are early indications that the SASB framework can enhance investment decision-making. Firms with strong performance on the sustainability metrics identified as material by SASB have outperformed, according to the Harvard Business School study cited on ***page 3***.

Sustainable sectors

SICS vs. GICS sector breakdown for US equities, 2018

SICS sectors	GICS sectors: Financials	Information technology	Health care	Real estate	Industrials	Consumer discretionary	Energy	Consumer staples	Utilities	Materials	Telecom services	Total	
Financials	133	16	–	–	2	–	–	–	–	–	–	151	17%
Tech & communications	–	108	3	–	1	3	–	–	–	–	8	123	25%
Health care	–	–	93	–	–	–	–	–	–	–	–	93	12%
Infrastructure	–	–	–	83	8	6	–	–	38	–	–	135	6%
Resource transformation	–	6	–	–	74	–	–	–	–	39	–	119	9%
Services	6	3	–	1	12	61	–	–	–	1	–	84	7%
Consumption	–	1	–	–	8	57	–	55	–	1	–	122	15%
Non-renewable resources	–	–	–	–	4	1	56	–	1	13	–	75	6%
Transportation	–	–	–	–	23	14	–	–	–	–	–	37	3%
Renewable resources	–	1	–	2	–	–	–	–	–	1	–	4	
Total	139	135	96	86	132	142	56	55	39	55	8		
	15%	26%	12%	3%	10%	13%	5%	8%	3%	3%	2%		

Sources: BlackRock Investment Institute, with data from SASB and Bloomberg, April 2018. Notes: the analysis is based on the 943 companies in the Russell 1000 Index that have also been assigned sectors by SASB. The bars show the number of companies that belong to the same sector under both SICS and GICS. Example: the new SICS sector 'resource transformation' contains 119 companies, of which 74 are classified as industrials under GICS. The percentages in the bottom row and far-right column show the share of the total market capitalisation taken up by each sector.

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Under the hood

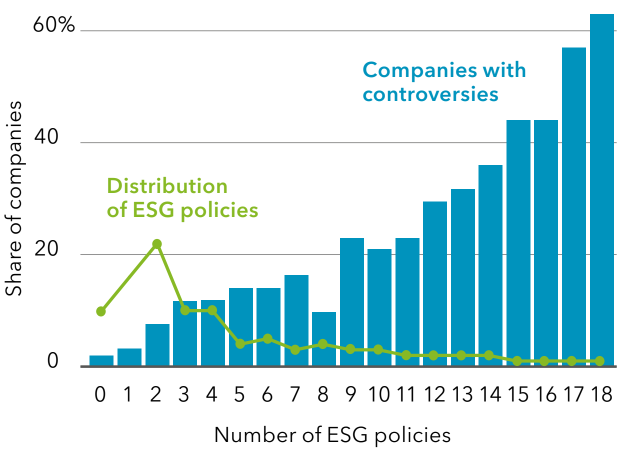
Companies that disclose more ESG policies should have fewer business controversies. Or so we thought. Yet after crunching over a decade's worth of data in MSCI's global database we found a counterintuitive result: firms that boast the most elaborate ESG policies were the worst actors. They were more likely to be ensnared in lawsuits and regulatory actions over controversies such as hiring discrimination, price fixing or tax fraud. By contrast, companies that disclosed the *fewest* ESG policies were the most trouble-free. See the *Serial offenders* chart.

We find three metrics count the most when it comes to predicting whether a company gets entangled in an ESG controversy in the next year: size (large companies get into trouble the most), existing controversies and number of policies. Controversies typically spur more policies but no noticeable change in behaviour, we find. Business controversies are not just unpleasant. They have a measurable drag on returns as well, we found. See our 2016 paper ***A pitfall in ethical investing*** for more.

Does this mean ESG scores don't matter? We don't think so. The number of ESG policies is just one of many inputs into ESG ratings, and we expect data to improve and become more meaningful over time. But the results do suggest investors should dig beneath the headline scores.

Serial offenders

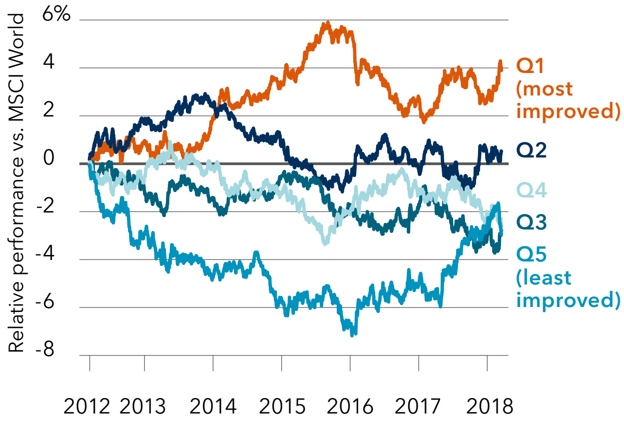
Corporate ESG policies and controversies, 2003–2014



Sources: BlackRock Systematic Active Equity and BlackRock Investment Institute, with data from Thomson Reuters. April 2018. Notes: the blue bars show the relationship between the number of ESG policies in a given year and the occurrence of a controversy in the following year. The green line shows the distribution of ESG policies. Example: the far right bar shows that 63% of companies with 18 ESG policies in one year had a controversy the next year. Only about 1% of companies had 18 ESG policies in any given year, the green line shows. The analysis is based on a sample of all global companies in the Thomson Reuters Asset4 database from 2003 to 2014, with a total of 15,579 annual observations.

Carbon efficiency

Equity performance by carbon intensity, 2012–2018



Past performance is no guarantee of current or future results. It is not possible to invest directly in an index. Sources: BlackRock Investment Institute, ASSET4 and MSCI, April 2018. Notes: the analysis above calculates the carbon intensity of global companies in the Asset4 database by dividing their annual carbon emissions by annual sales. Companies are ranked and bucketed in five quintiles based on their year-over-year change in carbon intensity. We then analyse each quintile's stock price performance versus the MSCI World Index. Most improved means the 20% of companies that posted the greatest annual decline in carbon intensity. Data are from March 2012 through March 2018. The example is for illustrative purposes only.

Most improved

Subsets of ESG metrics can similarly point to trends that are not immediately obvious. Take self-reported Scope 1 and 2 carbon emissions (direct emissions and those generated by use of purchased energy). These clearly have an impact on the environment. But they are also material in other ways: companies that find ways to make more with less tend to be more efficient. We find global companies that have reduced their carbon footprints (annual carbon emissions divided by sales) the most every year have outperformed the carbon laggards. See the orange line in the *Carbon efficiency* chart. This result held even outside of the carbon-intensive energy and utilities industries. The relative performance and rate of change in emissions matter most for future earnings and financial performance, we find, not *absolute* emissions levels.

This is more evidence that momentum matters. Tracking change can be a challenge given the infrequency of ESG data. Our early work with more timely indicators such as ESG chatter in earnings calls (see ***page 5***) shows promise. We found some evidence that over the past three years the market has rewarded companies that are talking more about their ESG efforts. Our overall conclusion: it may pay to focus on companies improving their game the most – even if they happen to be within polluting industries.

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Examining engagement

What to do with poor ESG performers? One option is to avoid such companies. Another is to encourage the laggards to lift their game. This can have a big impact since many companies with low ESG scores have hefty weights in benchmark indices. We believe sustainability-related issues can have real financial implications, so companies stand to gain from improving on them. Large and long-horizon investors are well positioned to engage with companies in an effort to influence their behaviour.

We believe ESG excellence is intimately connected to long-term financial performance. Yet our commitment goes well beyond financial metrics. As our clients demand more from their investments, we are advocating for more from companies. BlackRock CEO Larry Fink shared this view in his ***annual letter to CEOs***.

Our Investment Stewardship team engages with more than 1,000 companies a year on ESG issues we believe affect our clients' long-term economic interests. The broadest form of engagement is voting on shareholder meeting proposals. BlackRock has steadily increased its voting on such proposals to 163,000 in 2017. We have not shied away from voting against company management, usually when engagement has failed. We opposed 9% of management recommendations last year. We have also increased our resources dedicated to engagement.

It is precisely because we believe ESG practices are essential to long-run financial profitability that we are committed to positive and productive engagement on material issues, regardless of whether or not we hold shares (or debt) on behalf of clients in ESG-labelled products or mandates. Engagement helps build mutual understanding on any issues where we are concerned that a company's practices fall short of operational excellence. The overarching goal: encourage companies to deliver long-term, sustainable growth and returns for our clients.

As an asset *manager*, not an asset *owner*, it is not our place to impose our values on companies. Nor do we tell a company's management team how to run its business to address our concerns. Where we seek a change in approach, we aim to be constructive, patient and persistent. By keeping the details of our engagement private, we seek to build trust and mutual understanding.

Time to engage

Triggers for BlackRock's engagement process

How we identify engagement candidates

Team identifies concerns with company performance and governance.

EXAMPLE: Lack of board accountability, diversity.

Clarification is needed during the governance analysis and voting process.

EXAMPLE: Unclear long-term vision.

Company event that has or may affect shareholder value.

EXAMPLE: Oil spill or leak of customer data.

Sector governance issue that could affect shareholder value.

EXAMPLE: Workplace safety in construction industry.

Sources: BlackRock Investment Institute and BlackRock Investment Stewardship team, April 2018. Note: the chart shows drivers and examples for how BlackRock identifies engagement candidates.

Setting goals

Governance tops our ***engagement priorities*** – followed by strategy, compensation, climate risks and human capital.

How to identify companies for engagement? Our starting point is assessing a company's financial and governance performance. Business controversies can affect long-term value and can trigger engagement as a result. See the *Time to engage* chart. We support company boards in their oversight on shareholders' behalf. But if companies are not responsive to our efforts to protect our clients' interests, we vote against management recommendations.

One example: most companies provide investors with insufficient information to assess the effect of material climate-related risks on business results. We have asked the CEOs of 120 carbon-intensive companies to consider reporting in alignment with the framework of the ***Task Force on Climate-related Financial Disclosures***. In general, we advocate for more consistent and transparent ESG reporting with companies, regulators and data providers.

Bottom line: we see engagement with companies as crucial for large asset owners and managers serving as fiduciaries for their clients' assets. Sound governance is key to managing environmental and social factors, we believe, and this in turn helps enhance long-term financial returns.

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The ***BlackRock Investment Institute (BII)*** provides connectivity between BlackRock's portfolio managers, originates market research and publishes insights. Our goals are to help our fund managers become better investors and to produce thought-provoking content for clients and policymakers.

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