

# The case for sustainable bond investing strengthens

In an expanded research study, Barclays finds more evidence of the positive effect of responsible investing on credit portfolios in different regions and sectors

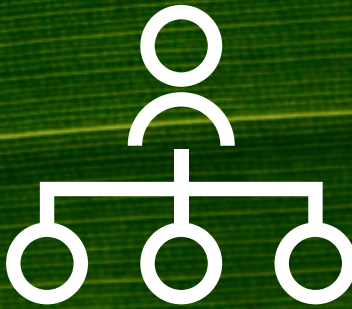




Environmental



Social



Governance

# Foreword

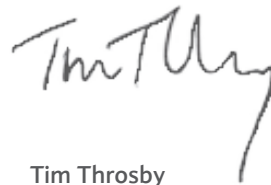
Welcome to the fourth report in our Impact Series. In this study we find further evidence of the positive effects of environmental, social and governance (ESG) investing in the credit markets.

October 22, 2018

Two years ago, our Research team released a groundbreaking report on the relationship between ESG tilt and performance of US investment grade bond portfolios.<sup>1</sup> That original report, *Sustainable investing and bond returns*, made a significant contribution to the conversation on ESG investing in credit markets and was well received by clients and other stakeholders.

Environmental, social and governance considerations have continued to rise in importance globally over the past two years. There is no doubt that the challenges society faces in these areas are global in nature, substantial, and require action from all contributors, including investors.

With this report, we are pleased to meet ongoing client and stakeholder demand for broader and deeper analysis of this topic. It expands on the markets and geographies studied in 2016 to include euro-denominated corporate bonds and US High Yield. It also provides further data-driven evidence that sustainable investing over the past few years has led to incremental financial returns in broad credit markets. We hope it will support the decision-making processes of the growing population of investors who wish to incorporate sustainable investing strategies in their portfolios.



**Tim Throsby**  
President, Barclays Bank PLC and Chief Executive  
Officer, Barclays International

---

<sup>1</sup> Barclays Research (2016). Sustainable investing and bond returns. Retrieved from <https://www.investmentbank.barclays.com/our-insights/esg-sustainable-investing-and-bond-returns.html>

# ESG investing in credit: A broader and deeper look

Investors weighing the merits of incorporating environment, social and governance (ESG) criteria into their portfolios often ask the same critical question: how does this affect performance?

Many studies have examined the effect of sustainable investing on portfolio performance, focusing mostly on equity markets. Two years ago, we published a report on sustainable investing and bond returns, addressing this question from the perspective of US dollar investment-grade (IG) bond investors.

That report included a broad overview of sustainable investing and the use of ESG ratings in managing bond portfolios.

It is clear that investor interest in responsible investing is gaining momentum, which strengthens the need for objective, quantitative analysis of the effect of ESG on portfolio performance. Following requests from clients and other stakeholders, we have expanded our research to investigate the effect of ESG not only on US IG corporate bonds, but also their euro counterparts, as well as US high-yield (HY) bonds.

This report also investigates whether the effects of ESG investing differ according to the industry to which the bond issuer belongs. Taking a data-driven approach, we sourced issuer-level ESG scores from two prominent providers – MSCI ESG Research and Sustainalytics – and combined them with bond-level data from Bloomberg Barclays bond indices.

## What we cover in this report

First, we discuss some key characteristics of the ESG scores used in our analysis and ask the following questions: What do they represent and how are they calculated? How stable have they been? How closely correlated are they? Do they exhibit distinct geographical patterns? We then illustrate how a naïve ESG bias can induce unwanted risk exposures in a portfolio.

The following section investigates the relationship between ESG rating and bond valuation. Do investors need to pay a premium for bonds with higher ESG scores? Has this effect changed over time? Does it vary across markets?

Then we address the key question of performance by comparing a bond portfolio with high ESG scores to one with low scores to measure their relative performance. We do this exercise separately for the US and European IG bond markets, followed by US HY bonds.

“It is clear that investor interest in responsible investing is gaining momentum, which strengthens the need for objective, quantitative analysis of the effect of ESG on portfolio performance.”



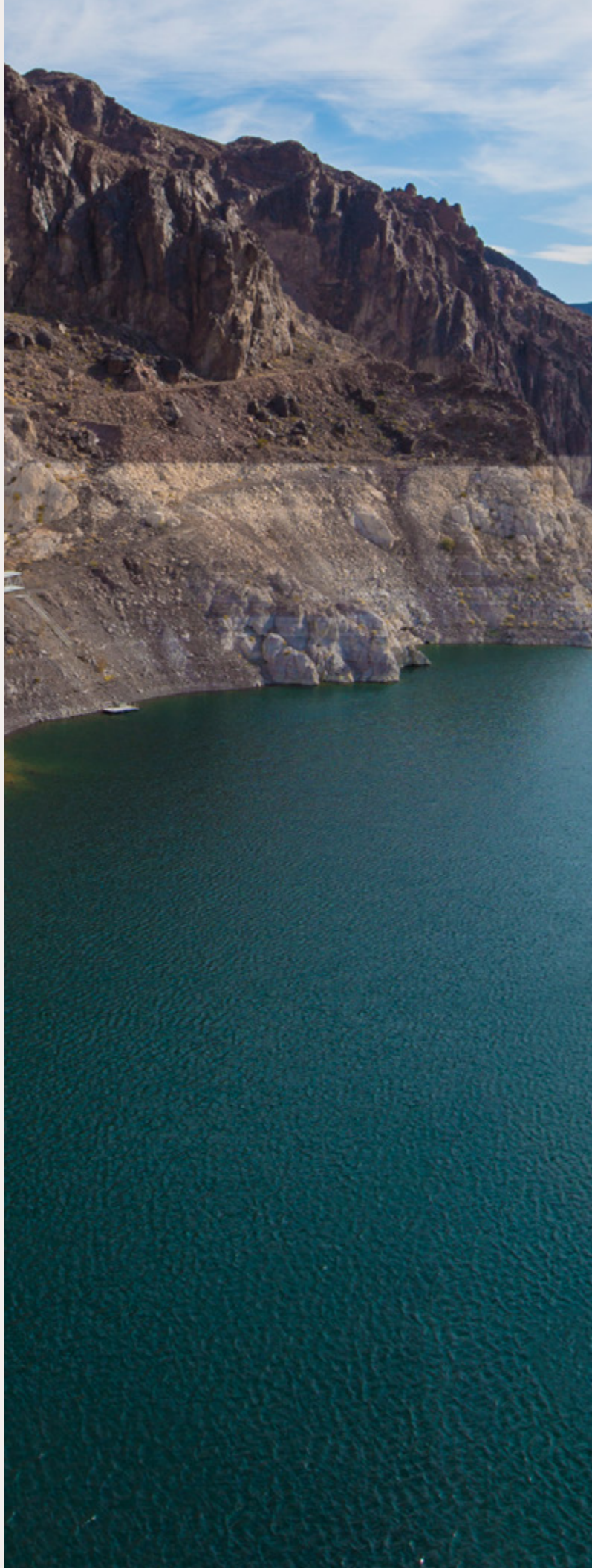
## Original report findings

In 2016, we researched the effect of ESG on US IG bond returns. We found:

- ESG is not an “equity-only” phenomenon and can be applied to credit markets without being detrimental to bondholders’ returns.
- A positive ESG tilt in bond portfolios resulted in a small but steady performance advantage.
- No evidence of a negative performance effect.
- ESG attributes did not significantly affect the price of corporate bonds, and no evidence was found that the performance advantage was due to a change in relative valuation over the study period.
- When applying separate tilts to E, S and G scores, the positive effect was strongest for a positive tilt towards the Governance factor and weakest for Social scores.
- Issuers with high Governance scores experienced lower incidence of downgrades by credit rating agencies.
- Broadly similar results were observed using ratings from the two ESG providers considered in the report, despite the significant differences between their methodologies.

## The findings of our expanded study

- We confirm our 2016 findings that tilting a credit portfolio in favour of high-ESG bonds, while keeping all other risk characteristics unchanged, tends to lead to higher performance in all three markets considered.
- While the Governance rating was previously most closely associated with performance, Environment has had the strongest effect in the past two years in the US and over nine years in Europe.
- The link between E, S and G scores and performance varies across sectors. Governance is important in the banking sector, while Environment is significant in most others.
- The euro credit market prices ESG attributes differently than the US market: high-ESG bonds trade at persistently tighter spreads than low-ESG peers in Europe, but not in the US. European issuers also tend to have higher ESG ratings than US issuers.



# A brief note on the data we used in our study

We used data from three sources: Bloomberg Barclays Bond Indices for bond characteristics and returns, and MSCI ESG Research and Sustainalytics for ESG scores.<sup>2</sup>

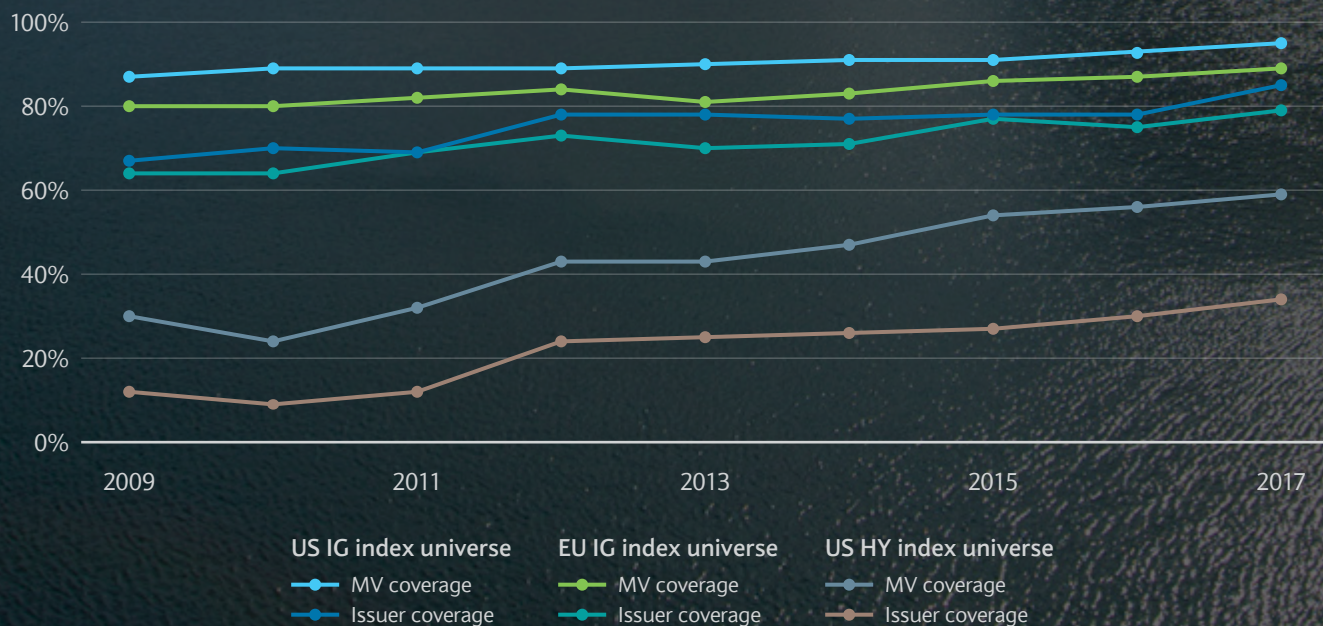
We analysed data only of those bonds for which we have ratings from both ESG providers. Most recently, this dataset covers about 90% of both the US and European IG corporate index universes by value. However, as ESG ratings are a relatively new phenomenon, coverage is less extensive further back in time. Figure 1 shows how both the number and market value of bond issuers covered by MSCI and Sustainalytics have grown over the past few years. From August 2009 to April 2018 – the period of our analysis – at least 80% of index market value and 63% of the issuers in each IG market had ESG ratings. The discrepancy between the two metrics implies that the issuers that are not covered tend

to be relatively small. We also saw a marked rise in the number of US issuers covered in 2012.

By contrast, the US HY bond market has a much lower joint coverage by ESG providers. This is in part because many HY bond issuers are private companies and also because HY issuers are usually smaller than IG ones. This means that covering them can be a less immediate priority for investors and ESG providers alike. These coverage considerations led us to start our data sample at different points for our studies of the IG (from August 2009) and HY (from October 2012) markets.

Note also that the total number of companies covered by either of the two ESG providers can be larger than the number of companies in our intersection dataset.

FIGURE 1:  
ESG ratings universe is growing: Market value and issuers covered by both MSCI and Sustainalytics



Source: Bloomberg Barclays Indices, MSCI ESG Research, Sustainalytics

<sup>2</sup> Any MSCI data cited herein is ©2017 MSCI ESG Research LLC, reproduced by permission.





# The characteristics of ESG scores

## ESG scoring methodologies are complex and vary across providers

ESG scoring is a complex process spanning a wide range of business practices, with each of the three main pillar scores calculated based on a large number of component inputs. Within the Environment score, for example, different ESG providers give a different focus to criteria such as a company's energy usage, its contribution to air and water pollution, or the extent of its recycling efforts. This covers non-financial information that can be material to the long-term sustainability of the company. But despite efforts to standardise ratings,<sup>3</sup> there is no industry-wide consensus on which detailed environmental and socially related criteria should be used to evaluate a corporation and how they should be weighted.

There are several providers of ESG ratings, and each has a comprehensive system for gathering a large, multidimensional dataset on companies' ESG records. They collect dozens of indicators within each of the three pillars and vary the weight given to individual indicators when forming the scores, depending on the industry. Once aggregated, top-level scores are normalised by sector, such that the most relevant comparison is between the scores of two companies in the same industry.

We have chosen to use ESG scores from MSCI ESG Research and Sustainalytics. This does not imply that we have deemed these to be superior to others; these are the only firms whose scores we have studied.

---

<sup>3</sup> The Sustainability Accounting Standards Board (SASB) and the Global Reporting Initiative (GRI) have both made efforts at standardisation, but as yet there is been no universal adoption of one set of standards.

## ESG scores from different providers do not measure exactly the same thing

Given the lack of standardisation in methodologies for compiling ESG scores, it is not surprising that scores from different providers do not always agree. To test this, we ranked the full universe of companies by scores from the two providers and measured the correlation between the two sets of rankings. Our data show that the ESG scores from the two providers exhibit positive but low correlations as a consequence of the differences in their methodologies.

The correlations between the Governance scores from MSCI and Sustainalytics have been persistently lower than for the other pillars. MSCI's G score measures the quality of corporate governance, focussing on issues such as the composition of the board and executive compensation. That from Sustainalytics<sup>4</sup> includes some of these issues, but also gives a large weight to the company's governance of environmental and social issues.

## ESG scores have been stable

Understanding the dynamics of ESG ratings is important to bond portfolio managers because systematically favouring high-ESG bonds might require incremental portfolio turnover and therefore entail high transaction costs if the ratings change often. At the same time, one would expect some ESG scores to change over time for a variety of reasons, including the effects of management decisions to mitigate ESG risk.

---

<sup>4</sup> Sustainalytics also publishes corporate governance scores, but these were not included in our analysis.

We combined the ESG scores from the three bond markets (US IG, US HY, and European IG) and sorted them into low-, medium- and high-ESG tiers. We then measured how often they changed tier on a one-year horizon and found that both sets of ESG scores have been relatively stable over time. For example, an issuer with a top-tier ESG score at the beginning of a year had a 79% probability of remaining top tier a year later according to MSCI and 88% according to Sustainalytics. For each of Environment, Social and Governance individually, we found similar transition patterns, with Governance slightly less stable than Social and Environment, and MSCI ESG scores slightly less stable than those of Sustainalytics.

## An ESG tilt can bias a portfolio

A strategy that systematically favours high-ESG bonds over low ones may bring unintended exposures. For example, Figure 2 shows the three equal-sized ESG tiers in the US and euro IG markets. The top tier is associated with substantially lower spreads than the bottom tier in all four cases, with the difference in spread between high- and low-ESG buckets being 15-36bp. The spread difference is associated with a small difference in credit rating. Repeating this analysis for individual ESG pillars shows that Environment has the strongest association with credit rating and spreads, and Governance the weakest in the US market. In other words, a systematic portfolio tilt in favour of issuers that score well on Environment is more likely to result in an unintended conservative, low yield bias.

In the credit markets, spread is taken as a measure of expected return over government bonds and is closely associated with credit risk. A strategy that systematically favours high-ESG bonds without controlling for portfolio risk characteristics can easily underperform simply because of its systematic bias towards higher-quality, lower-spread issuers.

Figure 2 also implies that corporations with strong credit quality tend to score higher in terms of ESG.

Of course, correlation does not explain causation. Have high-Environment companies earned higher credit ratings in recognition of their better handling of environmental risks? Or is it just that companies with higher credit ratings are in better financial condition and are, thus, better able to invest in their ESG reporting and oversight capabilities? While credit rating agencies have started to incorporate ESG factors into their process, we suspect that the latter explanation has been the dominant one.

We also found that ESG ratings can vary according to the country of domicile of the issuer. US-domiciled issuers score lower, on average, than their European counterparts on all reported ESG metrics, especially Social. Governance scores are relatively more stable across regions.

This might be explained by the joint effect of differences in reporting requirements by region and of the treatment of disclosure by ESG rating agencies. As lack of disclosure can be penalised with lower ESG ratings, companies based in Europe can find it easier to obtain a high ESG rating because they must often follow stricter disclosure rules for non-financial metrics. In addition, local interest in responsible investing and associated demand for high ESG-rated securities can encourage corporate issuers to conform to high standards of sustainability. We find some evidence in investor surveys that the proportion of Socially Responsible Investing (SRI) relative to total managed assets is higher in Europe than in other parts of the world.<sup>5</sup>

As it is clear that a naïve ESG tilt can come with various unintended biases, it is important to control portfolio risk exposures carefully to ensure that any analysis of the effect of ESG on valuation or performance is done “everything else equal.” Regional variations in ESG scores also point to the need to analyse the effect of ESG investing in the US and Europe separately.

---

<sup>5</sup> See, for example, Global Sustainable Investment Review, GSIA 2016, [http://www.gsi-alliance.org/wp-content/uploads/2017/03/GSIR\\_Review2016.F.pdf](http://www.gsi-alliance.org/wp-content/uploads/2017/03/GSIR_Review2016.F.pdf)

FIGURE 2

Average differences in characteristics between high and low ESG portfolios (2009-18)

### US IG index universe

#### MSCI

	Low	Medium	High	H-L
Avg ESG score	2.5	4.9	7.6	5
Spread over Treasury bonds (bp)	162	146	126	-36
Rating quality	A3	A3	A2	

#### Sustainalytics

	Low	Medium	High	H-L
Avg ESG score	51	61	70	18
Spread over Treasury bonds (bp)	162	147	131	-31
Rating quality	Baa1	A3	A2	

### Euro IG index universe

#### MSCI

	Low	Medium	High	H-L
Avg ESG score	3.8	6.3	8.6	5
Spread over Treasury bonds (bp)	166	144	143	-22
Rating quality	A3	A3	A3	

#### Sustainalytics

	Low	Medium	High	H-L
Avg ESG score	59	69	77	18
Spread over Treasury bonds (bp)	162	146	147	-15
Rating quality	A3	A3	A3	

Note: MSCI scores are on a scale of 10, and Sustainalytics 100.

Source: Bloomberg Barclays Indices, MSCI ESG Research, Sustainalytics, Barclays Research

“As it is clear that a naïve ESG tilt can come with various unintended biases, it is important to carefully control portfolio risk exposures to ensure that any analysis of the effect of ESG on valuation or on performance is done ‘everything else equal’.”

# The effect of ESG on bond valuation

An important consideration for many investors is whether sustainable investment will have an effect on the value of their bond portfolios. We have already seen that ESG characteristics can be associated with differences in spread and credit ratings, where higher-rated bond issuers tend to have better ESG scores. To what extent does this ESG “premium” have the potential to make corporate bonds more expensive?

## How does ESG affect spread?

A key valuation indicator for corporate bonds is the spread: the incremental yield over comparable government bonds. Higher-quality bonds typically have lower spreads, which over time lead to lower income returns. To find out whether ESG ratings affect the valuation of corporate bonds, we estimated the ESG spread premium - the difference in spread between high- and low-ESG bonds - while making sure that all other factors that could influence the price are controlled. These factors include credit rating, industry sector, duration and, in Europe, geography.<sup>6</sup>

If the spread difference between high- and low-ESG bonds (the ESG spread premium) is negative, it means that high-ESG bonds are expensive relative to low-ESG ones. In that case, investors will likely favour high-ESG bonds and be prepared to receive a lower income for owning bonds from corporations rated highly in terms of ESG.

If the ESG spread premium decreases over time, high-ESG bonds are likely to provide higher returns than low-ESG ones. This can happen if there is a change in investor appetite, with high-ESG bonds becoming more sought after. But such change can last for only a limited time before relative valuation stabilises at a new level or reverts.

Although the ESG spread premium has fluctuated, we do not observe a downward trend in the US or Europe. In fact, it has been broadly stable in Europe and has increased in the US. So any outperformance of high- over low-ESG bonds cannot be explained by a systematic richening of high-ESG bonds over the period considered.

---

<sup>6</sup> In the European market, we took account of geography because issuers from peripheral Europe – countries such as Greece and Italy – are likely to have been affected by the high volatility of government bond spreads in 2010 and 2011.

## What do the data show?

### Price

One might have expected increased interest in sustainable investing to have driven up the prices (thus, reducing the spreads) of high-ESG bonds. This is not, however, borne out by the data, and we do not see a downward trend in ESG-related spreads in IG markets; if anything, they seem to have increased.

### Differences between ESG providers

In the US market, there are some differences between the ESG spread premia that we calculated based on ESG scores from MSCI and Sustainalytics; in Europe, this is less marked. The US data did not show a statistically significant premium in most months. We found that US bonds rated high-ESG by MSCI traded at slightly tighter spreads, on average, than their low-ESG peers, although the data show that this is significant for only a few months in the early part of the data sample. This is not the case when using Sustainalytics data.

### Differences between European and US markets

In contrast, European high-ESG bonds trade at lower spreads than their low-ESG peers, irrespective of the provider. The magnitude of the spread factor in recent years is small but significant. This could point to different attitudes to responsible investing in the two markets: European investors might be more prepared to give up some income in favour of desirable ESG characteristics, and they might also have stricter responsible investment guidelines.

*Figures 3 and 4 show the results for the ESG factor in the US IG corporate bond market and Figures 5 and 6 for its European counterpart. A negative result means that high-ESG bonds trade at tighter spreads than their low-ESG peers.*

FIGURE 3

Historical ESG spread premium in the US IG market (MSCI) (bp per 1 standard deviation in ESG score)

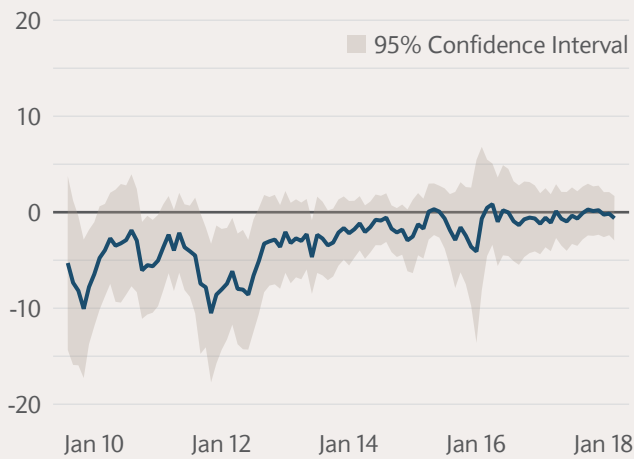


FIGURE 4

Historical ESG spread premium in the US IG market (Sustainalytics) (bp per 1 standard deviation in ESG score)

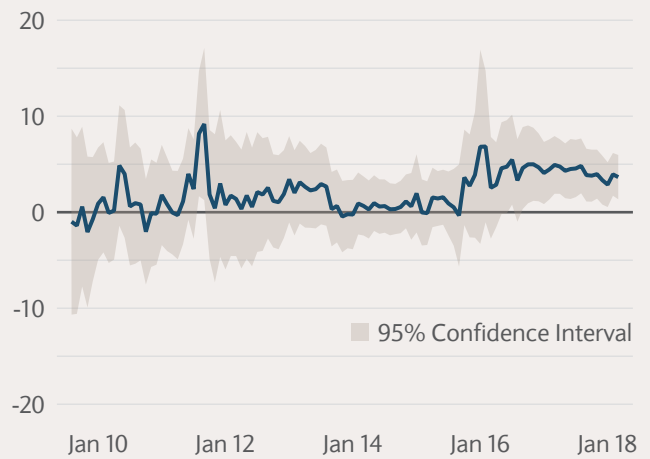


FIGURE 5

Historical ESG spread premium in the euro IG market (MSCI)

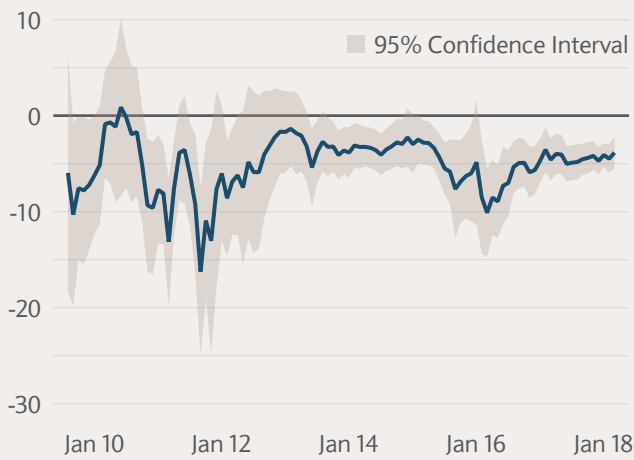
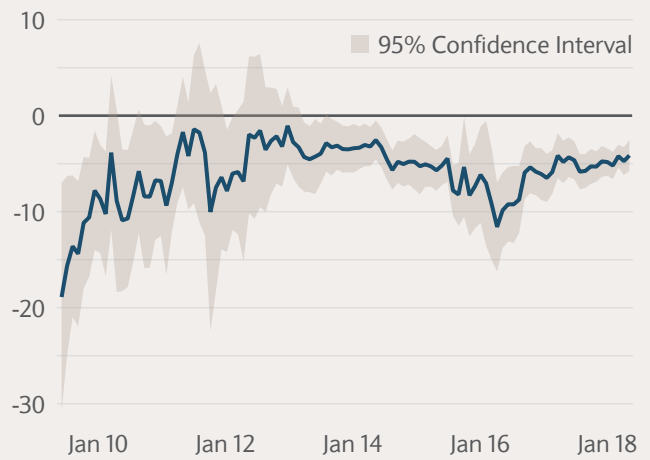


FIGURE 6

Historical ESG spread premium in the euro IG market (Sustainalytics)



Source: Bloomberg Barclays Indices, MSCI ESG Research, Sustainalytics, Barclays Research

# Effect of ESG investing in investment-grade markets

Apart from the cost, many investors are keen to know whether favouring bonds with high-ESG scores helps or hinders the performance of their portfolios.

When we investigated this issue in 2016, we found a small but steady performance advantage to investing in high-ESG bonds. Now we want to know if the same would be true for our expanded research universe, which includes the US and euro IG markets.

To answer this, we analysed the historical performance of diversified portfolios that match all major index exposures except for a positive or negative ESG tilt. The difference in return between high- and low-ESG portfolios illustrates the performance effect of the ESG factor in the period considered.

The key question is whether substantial differences would arise between the average returns of the high- and low-ESG portfolios.<sup>7</sup>

The difference between the two portfolios can be interpreted as an ESG return factor: the return contribution associated with systematically favouring high-ESG corporate bonds over low-ESG ones while keeping everything else equal. This approach does not automatically exclude any issuer or any industry sector, no matter how controversial they might be.

We also investigated which of the Environment, Social and Governance factors has the largest effect on performance.

---

<sup>7</sup> Throughout our study, the performance measure used is excess return over duration-matched Treasuries. This is to ensure that the performance difference between the two portfolios is not due to different sensitivities to interest rates.

## How we constructed high- and low-ESG portfolios

To measure the effect of ESG investing on credit portfolio performance in an objective manner, we constructed pairs of portfolios that differ substantially in their ESG scores, but whose characteristics are otherwise identical. By isolating the ESG effect from other sources of risk, we captured the difference in performance between these portfolios that is attributed to the ESG tilt. We then monitored the performance of these portfolios over time.

### How we did it for the US market

We built well-diversified portfolios of bonds tracking the Bloomberg Barclays US Corporate Investment Grade Index.<sup>8</sup> We constrained them to remain neutral to the benchmark,

ensuring that all other risks to portfolio returns remain equal. Specifically, they are constrained to match the average spread and duration of the index, while we also controlled for allocation across industry, maturity and quality subsets of the index. By applying these and other rules, our tracking portfolios remained highly diversified, with close to 180 bonds, on average.

### And for Europe

We followed a similar approach, but instead of matching exposures of the Bloomberg Barclays Euro IG Corporate Index, we tracked the subset of the index that includes bonds covered by both MSCI and Sustainalytics. This ensures that portfolio construction is not biased as a consequence of some index bonds being unavailable in the investment universe. We also took into account bond issuers' country of origin.

---

<sup>8</sup> To ensure consistency, the universe of bonds considered for portfolio construction is not the entire index, but limited to those for which ESG ratings were available from both MSCI and Sustainalytics.

“The data shows that high-ESG bond portfolios continue to perform better than low-ESG ones.”

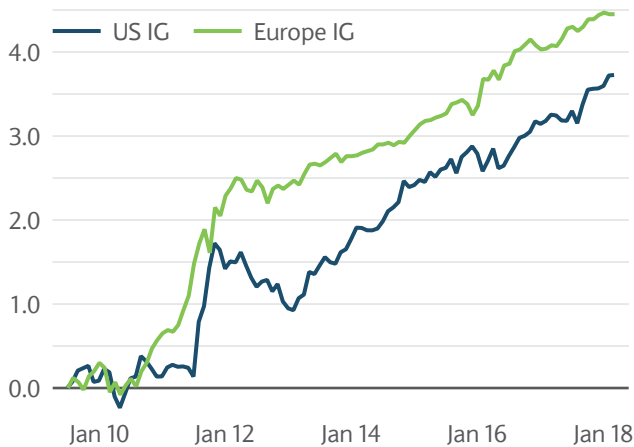


The data from both providers show that high-ESG bond portfolios continue to perform better than low-ESG ones (Figures 7 and 8). In both cases, the performance has been positive and trending upwards over the past nine years, with the period up to 2012 being more volatile than more recent years.

This confirms our previous research, which indicated that an ESG tilt helped improve performance in the US market for the period August 2009 to April 2016, with Governance having the strongest link to returns.

FIGURE 7

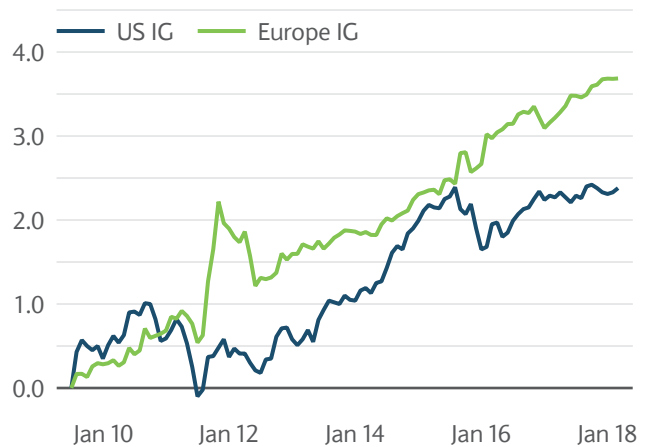
Cumulative performance (%) of a high-ESG portfolio over a low-ESG portfolio using MSCI ESG data



Source: Bloomberg Barclays Indices, MSCI ESG Research, Barclays Research

FIGURE 8

Cumulative performance (%) of a high-ESG portfolio over a low-ESG one using Sustainalytics ESG data



Source: Bloomberg Barclays Indices, Sustainalytics, Barclays Research



## What about the effect of E, S and G individually?

We also broke down the results to gauge the effect of the individual E, S and G components on performance.

### **The US IG results**

With the benefit of two additional years of data, our update of ESG factor performance in the US IG market does not produce any major surprises: the outperformance of high-ESG portfolios over low-ESG ones through April 2018 looks about the same as it does through 2016. Maximising overall ESG scores from both providers produces small but steady outperformance, with the best single-pillar results coming from Governance. However, for the past two years only, the component most closely related to outperformance is Environment.

### **The euro IG results**

Our study of the euro market confirms our US results, with similar performance numbers. High-ESG portfolios have outperformed low-ESG ones over the past nine years, both overall and for the three component scores. However, the euro IG results show less variation among the individual pillars: all three have positive performance, with the most significant effect coming from the Environment score. The Social score seems to be the least important factor in both markets. There is a small negative spread premium in the euro market, but it does not seem to have affected the performance of our simulated ESG strategy. The annualised outperformance of high-ESG over low-ESG portfolios was 43bp or 51bp per year, depending on which ESG data source is used.

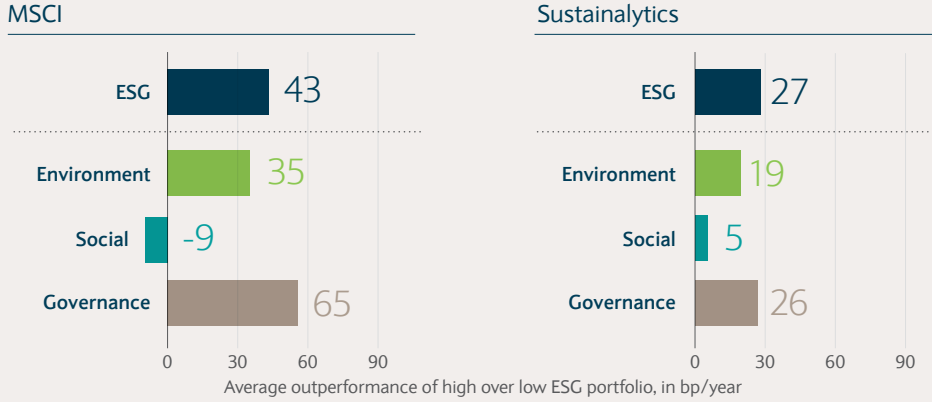


FIGURE 9

Portfolios of high-ESG issuers have outperformed low-ESG portfolios in the euro and US IG markets

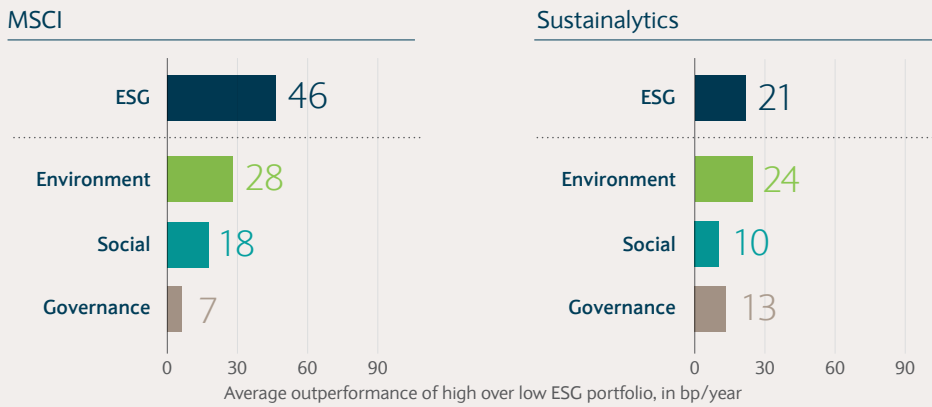
US IG market

Full period: August 2009 to April 2018 — IG index excess return over Treasuries: 204 Avg bp/yr



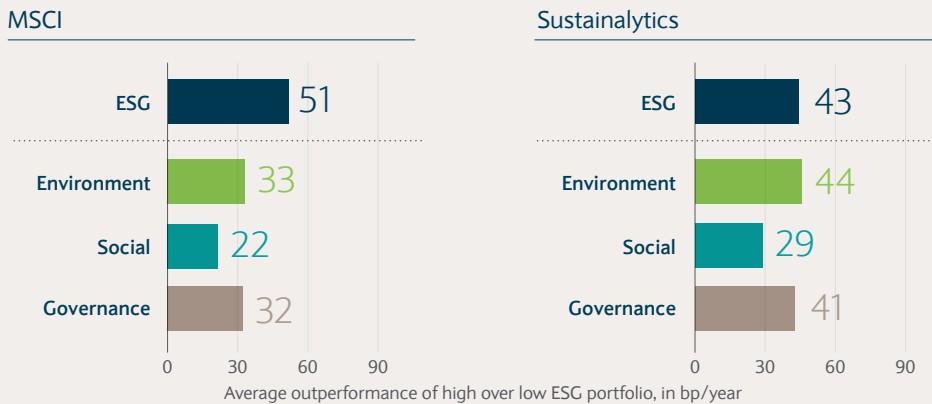
US IG market

Update period: May 2016 to April 2018 — IG index excess return over Treasuries: 303 Avg bp/yr



Euro IG market

Full period: August 2009 to April 2018 — IG index excess return over Treasuries: 196 Avg bp/yr



Note: Sustainalytics' Governance pillar measures governance of sustainability issues. It has a separate corporate governance rating that is not represented in this study.

Source: Bloomberg Barclays Indices, MSCI ESG Research, Sustainalytics, Barclays Research

# Breaking down ESG performance by industry

Our next investigation focussed on how the ESG factor performs in major industry sectors in the US and euro IG markets. Has an ESG tilt had a positive return contribution across all sectors? And are E, S and G contributions similar at sector level to the results we have seen for the entire market?

## How we tested the ESG effect by sector

To address these questions, we repeat our portfolio analysis for eight major sectors in the US market and five in the euro market. Here, too, we rebalanced the industry-specific high- and low-ESG portfolios every month to ensure that they have the same risk characteristics while being broadly diversified. In practice, the average number of bonds in each such portfolio varies by industry, ranging from 65 (Cyclical) to over 110 (Banks and Brokerages) in the US market and from 50 (Utility) to over 110 (for an enlarged Cyclical sector) in the euro market.

## Our findings for the US IG market

As with the overall results, the average returns of ESG-tilted portfolios in the US IG market are positive in most cases. Figure 10 highlights our findings for three sectors of the US IG market. Within these three sectors, results are consistent between the two ratings providers, despite their differing methodologies, as well as statistically significant. As intuition suggests, Governance is the most significant factor in Banking & Brokerage, while the Environment effect is always positive, especially in Non-Cyclicals and Transportation & Energy. The effect of Social is highly variable, and sometimes negative. The sector with the most significant relationship to ESG is Non-Cyclical consumer goods.

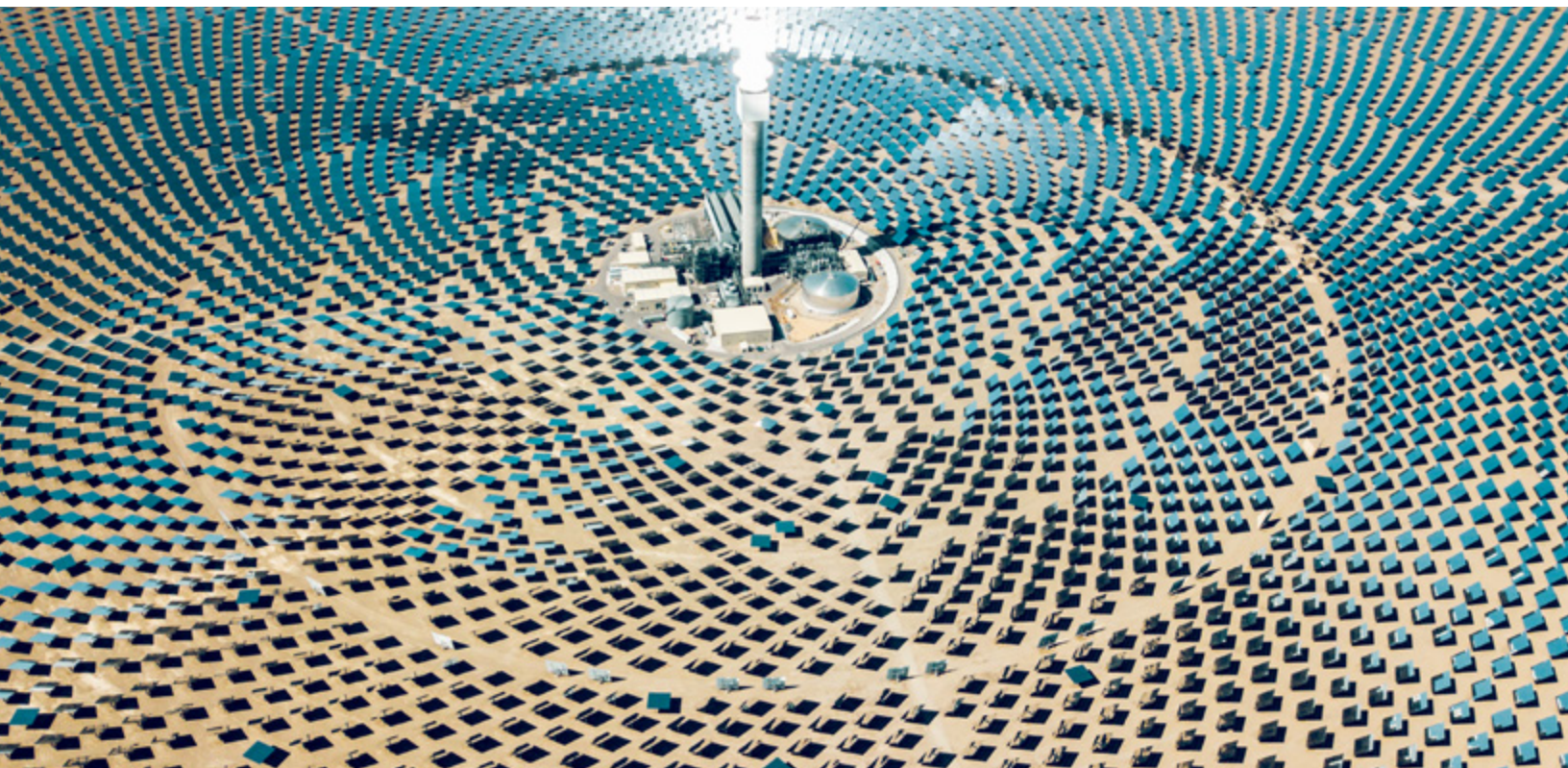
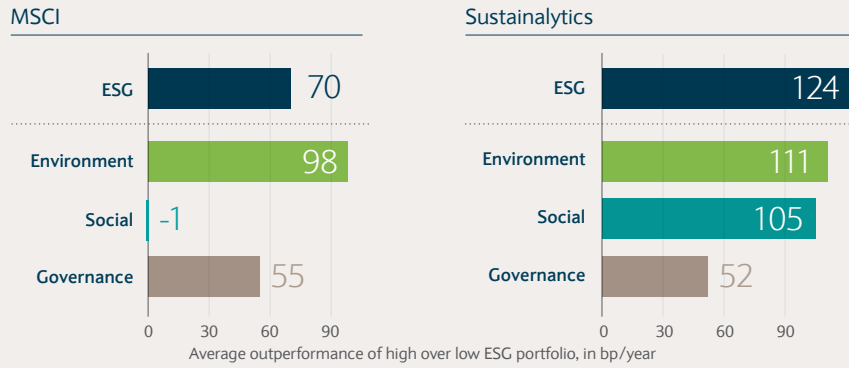


FIGURE 10

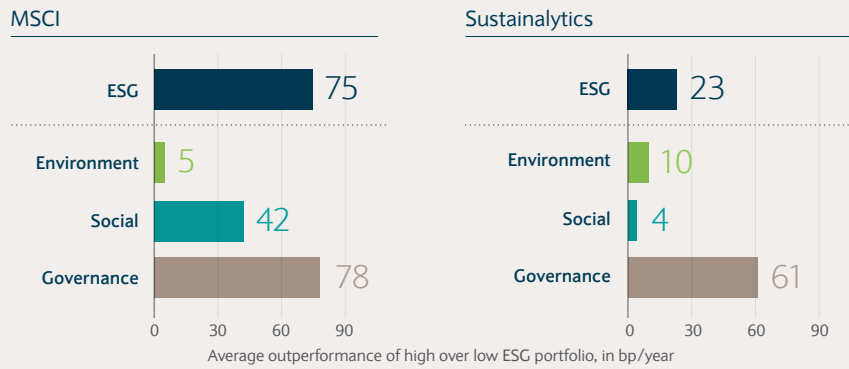
Return difference (in bp/year) between portfolios with high-ESG scores over similar risk portfolios with low-ESG scores (2009-18) in various sectors of the US IG market



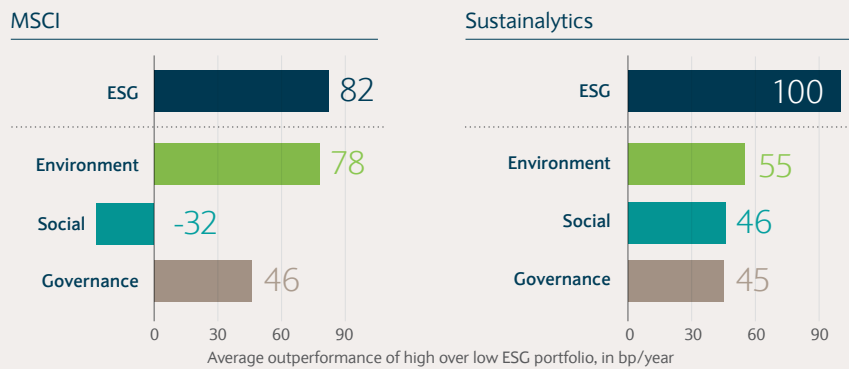
### Non-cyclical consumer goods



### Banking & brokerage



### Transport & energy



Note: Sustainalytics' Governance pillar measures governance of sustainability issues. It has a separate corporate governance rating that is not represented in this study.

Source: Bloomberg Barclays Indices, MSCI ESG Research, Sustainalytics, Barclays Research



## Our findings for the euro IG market

Broken down by sector, the effect of ESG in the European IG market is more variable (Figure 11). Banking and Brokerage and Non-Cyclical Consumer Goods are the ones for which the link between ESG and performance is most visible; for the less diversified Utility portfolios, the high-ESG portfolio has underperformed the low-ESG one. As in the US market, high-low portfolio pairs exhibit similar behaviour for the two ESG providers in most sectors.

## What do the results mean for investors?

Our wider findings confirm our previous ones: ESG tilts have been broadly associated with positive portfolio performance, with Environment and Governance the strongest contributors. This can help reassure investors that favouring high-ESG bonds has not been detrimental to returns.

In individual sectors, as for the market-wide results, one should be cautious not to over-interpret these results. The economic effects illustrated in portfolio simulation could be specific to the data sample. We should also caution against forming views on ESG providers on the basis of such data.

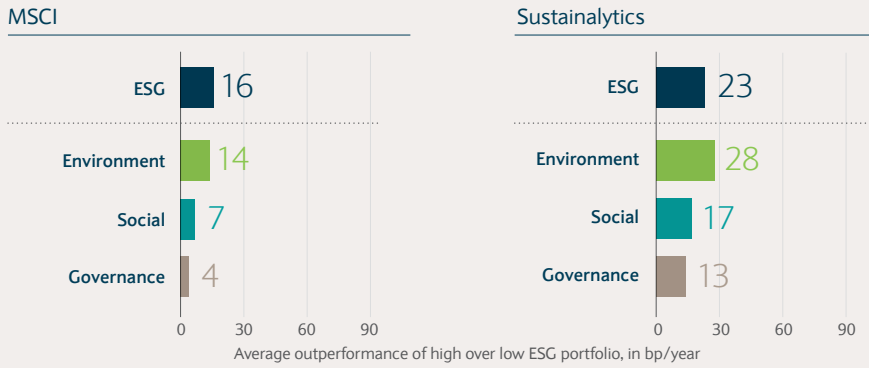
An ESG tilt is seldom the only active bias in a portfolio, but more often part of a set of active strategies that can be fundamental or quantitative. ESG integration into the portfolio management process can be implemented in different ways. For example, an ESG filter can help screen out securities with weak ESG attributes, at the risk of reducing the investment universe and, hence, the potential for generating returns. On the other hand, portfolios can be constructed with the aim of achieving a high average ESG score without excluding any securities (as we did in our simulation) and at the same time choosing securities that have desirable characteristics such as relative value or momentum. In that case, it could be acceptable to an investor to find a low-ESG issuer in a portfolio, considering the trade-off between ESG and purely financial characteristics.

FIGURE 11

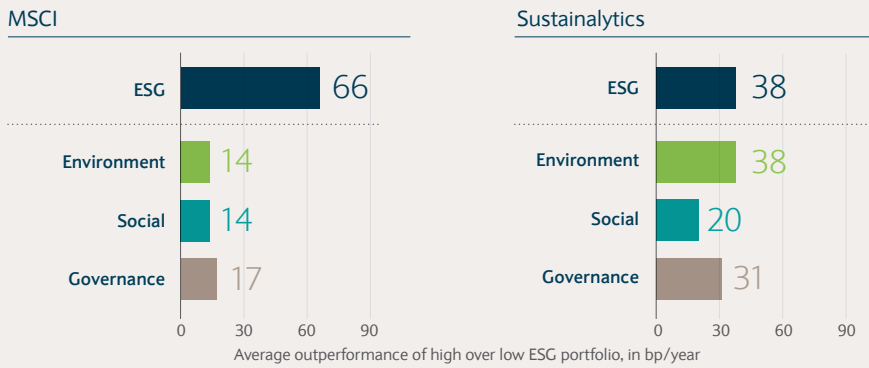
Return difference (in bp/year) between portfolios with high-ESG scores over similar risk portfolios with low-ESG scores (2009-18) in various sectors of the euro IG market



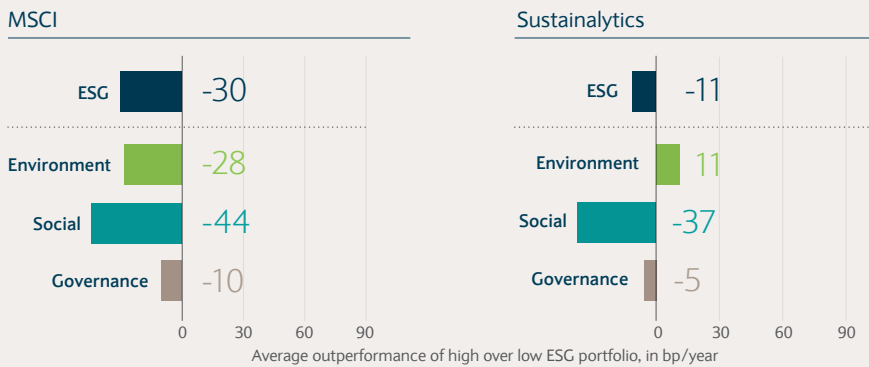
Non-cyclical consumer goods



Banking & brokerage



Utility



Note: Sustainalytics' Governance pillar measures governance of sustainability issues. Sustainalytics has a separate corporate governance rating that is not represented in this study.

Source: Bloomberg Barclays Indices, MSCI ESG Research, Sustainalytics, Barclays Research

# The effect of ESG on downgrade rates

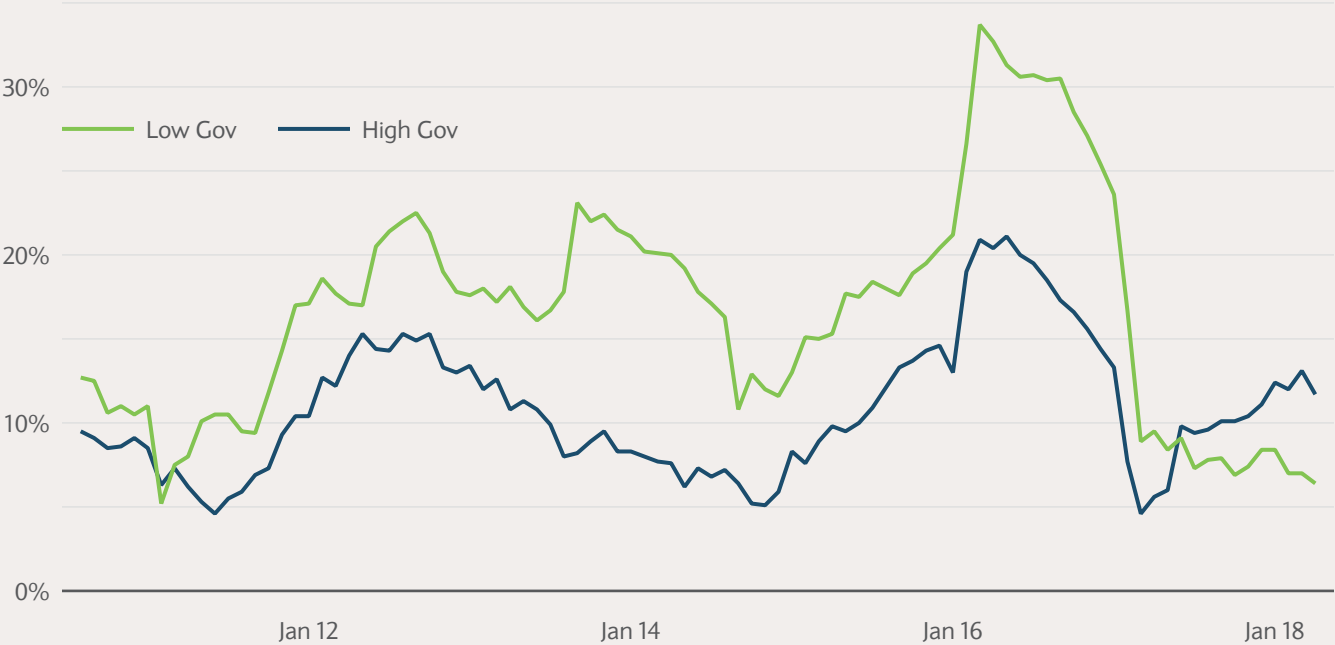
We also tested whether high ESG scores are associated with less frequent or milder downgrades in credit ratings. Our previous research in the US IG market showed that companies with above-median corporate governance scores had a lower rate of downgrades than those with below-median governance.

To establish whether this is still the case, we partition our bond universe into above- and below-median Governance scores and observe the number and magnitude of downgrades for each subset (Figure 12).

Our updated results for US IG issuers show that for most of the period of the study, high Governance scores have come with a lower rate of downgrades than low Governance scores, but not for the most recent year, when downgrade risk was generally milder than in earlier years.

The other ESG metrics exhibited a similar pattern, but none was statistically significant, in the US or Europe.

FIGURE 12  
Rolling average number of downgrade notches per issuer and per year (US IG market)



Source: Bloomberg Barclays Indices, MSCI ESG Research, Barclays Research

# Focus on the US high-yield market

ESG investing poses different challenges in HY than in IG. Many HY issuers are private companies; therefore far fewer of them have ESG ratings than in the IG market. Building diversified portfolios of bonds may therefore be more challenging. But even though difficult to achieve, portfolio diversification is even more important in HY than in IG, given that HY bonds have a higher risk of default and their prices are more volatile.

As of the end of 2017, only about a third of HY index issuers had an ESG rating from both MSCI and Sustainalytics, although they represented close to 60% of the index market value. The number of HY issuers with ESG ratings was low prior to 2012. For this reason, we started our study of the US HY market in October 2012.

## The ESG characteristics of high-yield portfolios

As in IG markets, a naïve allocation to high-ESG issuers may bring unintentional exposures. Figure 13 shows the differences in characteristics between high- and low-ESG bonds. It shows the average ESG scores (on a scale of 10 for MSCI and 100 for Sustainalytics) in each bucket, as well as the differences between them. Unlike the IG markets, spreads do not necessarily decrease as ESG ratings improve. When using Sustainalytics data, the opposite is true: high-ESG bonds have, on average, provided higher spreads than lower-rated ones. This is related to the longer duration that these high-rated bonds also happen to exhibit over that of low-rated ones. As before, any analysis of the effect of ESG must carefully control for differences in systematic risk.

FIGURE 13

Average differences in characteristics between high- and low-ESG portfolios (2012-18)

### US HY index universe

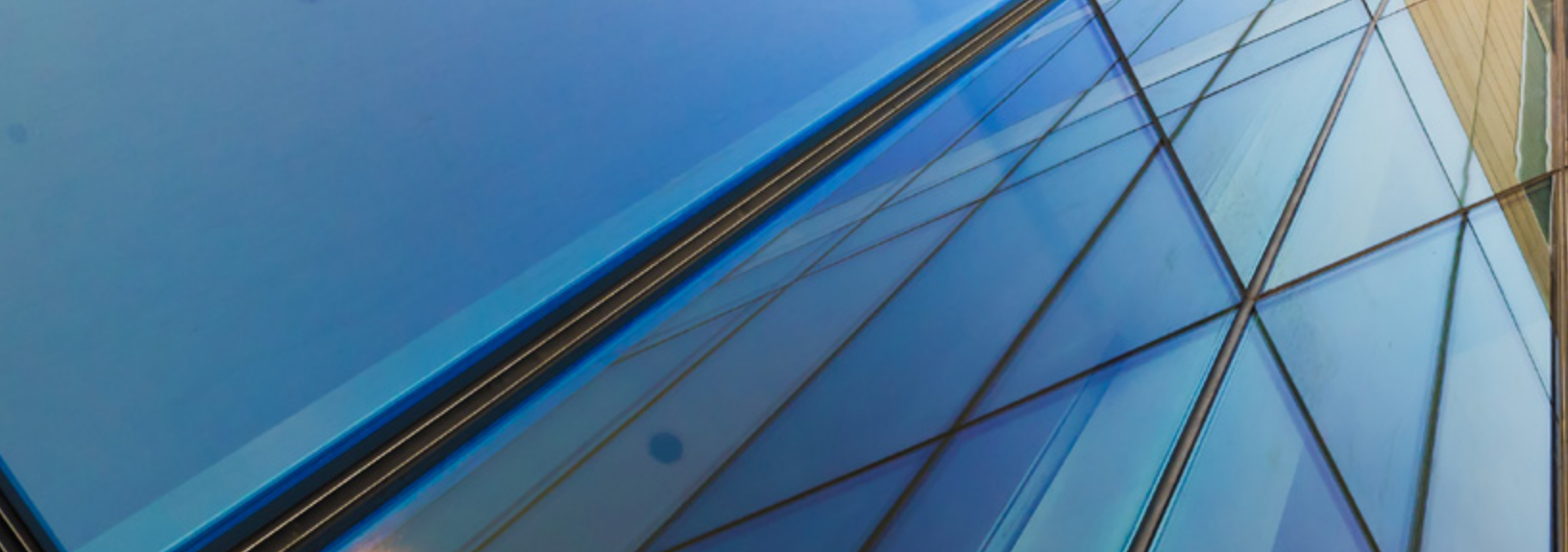
#### MSCI

	Low	Medium	High	H-L
Avg ESG score	2.0	3.8	6.1	4.1
Spread over Treasury bonds (bp)	407	385	377	-30
Rating quality	B1	B1	Ba3	

#### Sustainalytics

	Low	Medium	High	H-L
Avg ESG score	47	55	68	21
Spread over Treasury bonds (bp)	359	363	379	20
Rating quality	Ba3	Ba3	Ba3	

Source: Bloomberg Barclays Indices, MSCI ESG Research, Sustainalytics, Barclays Research

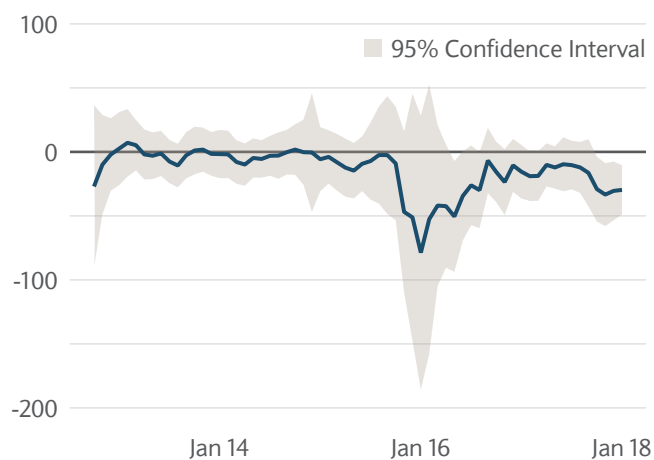


## What does the ESG premium look like in high yield?

To assess the ESG spread premium, we performed a statistical analysis every month, controlling for duration, quality and sector allocation. The estimated spread premia display some interesting similarities as well as differences from one provider to the other. In both cases, we find that although

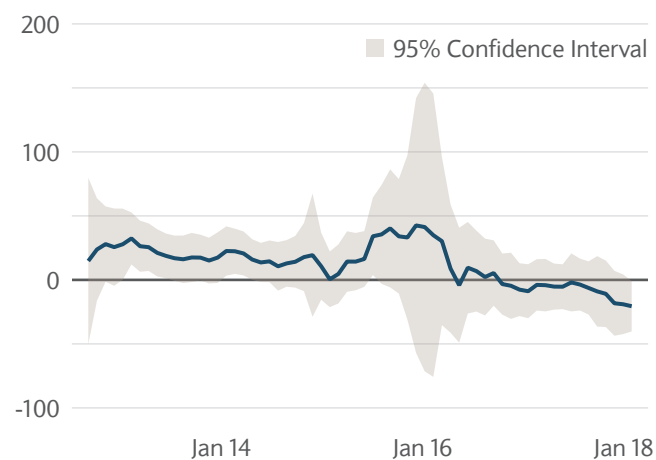
the spread premium has tended to decrease slightly, the first and last premia are not significantly different from each other. However, spread premia follow different paths over time, in particular during the energy crisis in 2015 and 2016, depending on which provider is used.

FIGURE 14  
Historical ESG spread premium in the US HY market (MSCI) (bp)



Source: Bloomberg Barclays Indices, MSCI ESG Research, Barclays Research

FIGURE 15  
Historical ESG spread premium in the US HY market (Sustainalytics) (bp)



Source: Bloomberg Barclays Indices, Sustainalytics, Barclays Research



“ESG investing poses different challenges in high yield than in investment grade.”

## The effect of ESG on high-yield bond portfolios

As with the IG market, we also wanted to establish how ESG factors affect HY bond portfolio returns. We followed a similar methodology to our IG research, making sure that all other risk factors were equal.

Although the cumulative performances are positive and similar to each other, the patterns are different and mirror those of the spread premia shown earlier. In one case (Figure 16 using MSCI data), the drop in spread premium

at the end of 2015 corresponds to high returns of the ESG factor. This is followed by a spread reversal that corresponds to sluggish returns. In the other case (Figure 17 using Sustainalytics data), the spread widening of high-ESG bonds in 2015 corresponds to underperformance also followed by reversal in subsequent years.

These contrasting spread and performance patterns illustrate the effect of different methodologies in ESG rating.

FIGURE 16

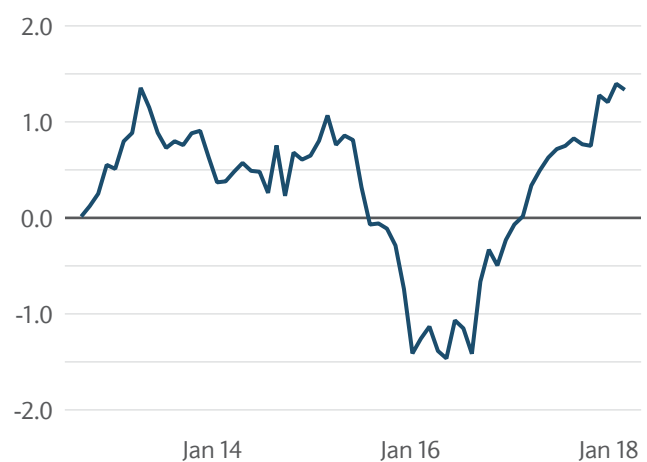
Cumulative performance (%) of a high-ESG portfolio over a low-ESG one in the US HY market (using MSCI ESG data)



Source: Bloomberg Barclays Indices, MSCI ESG Research, Barclays Research

FIGURE 17

Cumulative performance (%) of a high-ESG portfolio over a low-ESG one in the US HY market (using Sustainalytics data)



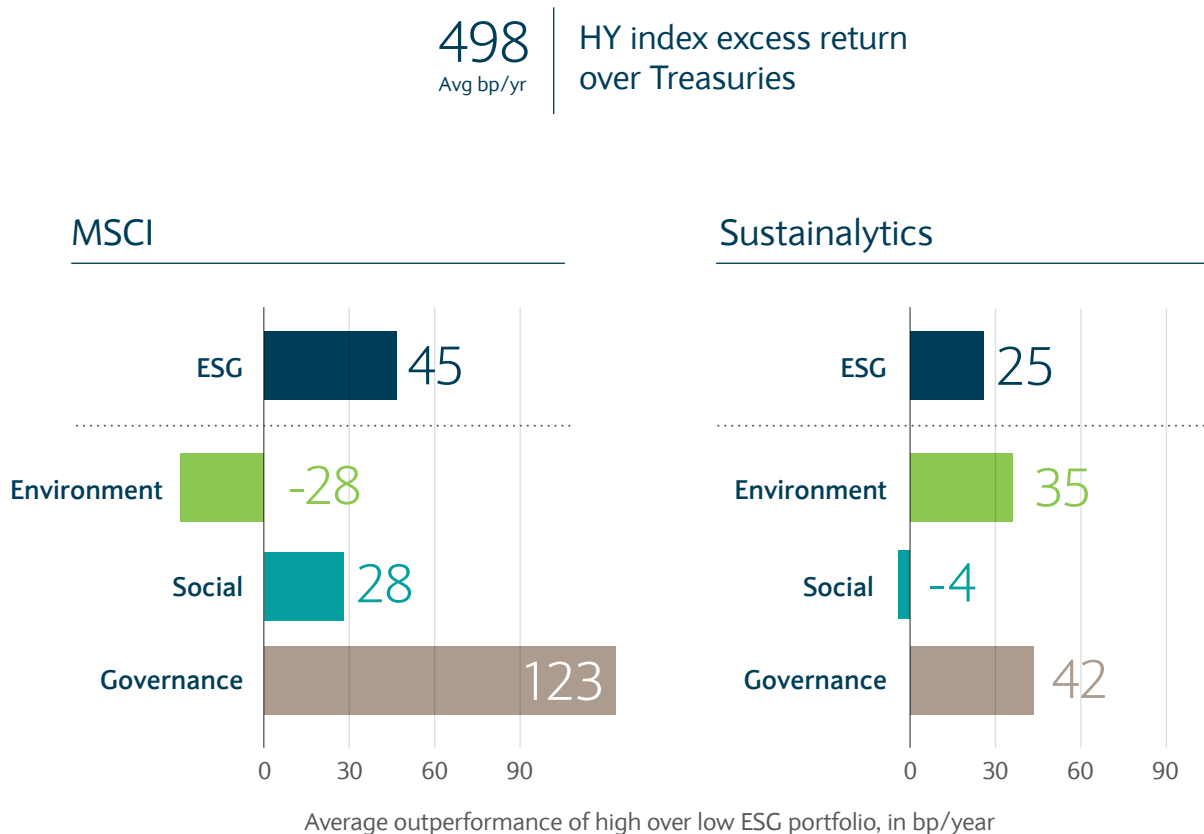
Source: Bloomberg Barclays Indices, Sustainalytics, Barclays Research

A summary of the ESG factor performance (Figure 18) shows that high-ESG HY portfolios mostly – but not always – outperformed the low-ESG ones. Portfolio strategies tilted according to the MSCI Environment and the Sustainalytics Social factors had negative returns in the past five and a half years. The highest return, and the only one that exhibits statistical significance, relates to portfolios tilted according to corporate governance data supplied by MSCI.

“High-ESG HY portfolios mostly - but not always - outperformed the low-ESG ones.”

FIGURE 18

Portfolios of high-ESG issuers have outperformed low-ESG portfolios in the US HY market (2012-18)



Note: Sustainalytics' Governance pillar measures governance of sustainability issues. Sustainalytics has a separate corporate governance rating that is not represented in this study.

Source: Bloomberg Barclays Indices, MSCI ESG Research, Sustainalytics, Barclays Research

# ESG continues to have a positive effect on bond investing

Our follow-up investigation into the effect of ESG on credit portfolio performance has strengthened our findings reached in 2016. Over the past nine years, tilting a portfolio systematically to companies with better ESG ratings has been beneficial to performance:

- Adding two more years of data to our US IG study and repeating the study in Europe supports our earlier US results: high-ESG portfolios consistently outperformed low-ESG ones, in many cases significantly.
- ESG scores have been higher, on average, in EUR IG credits than in USD IG.
- Bonds with higher ESG ratings tend to have higher credit ratings and lower spreads.
- We were unable to identify a statistically significant ESG spread premium in US IG markets, but did find that in EUR IG markets, high-ESG bonds have traded at tighter spreads than low-ESG ones in the past four years, implying European bond markets have placed greater emphasis on ESG criteria than their US counterparts.
- In the US, bonds with lower corporate governance scores experienced more frequent credit rating downgrades.
- In the US HY market, our results are less precise, given the smaller dataset and higher risk of HY bonds, but we find that portfolios with a high-ESG tilt had a tendency to outperform.

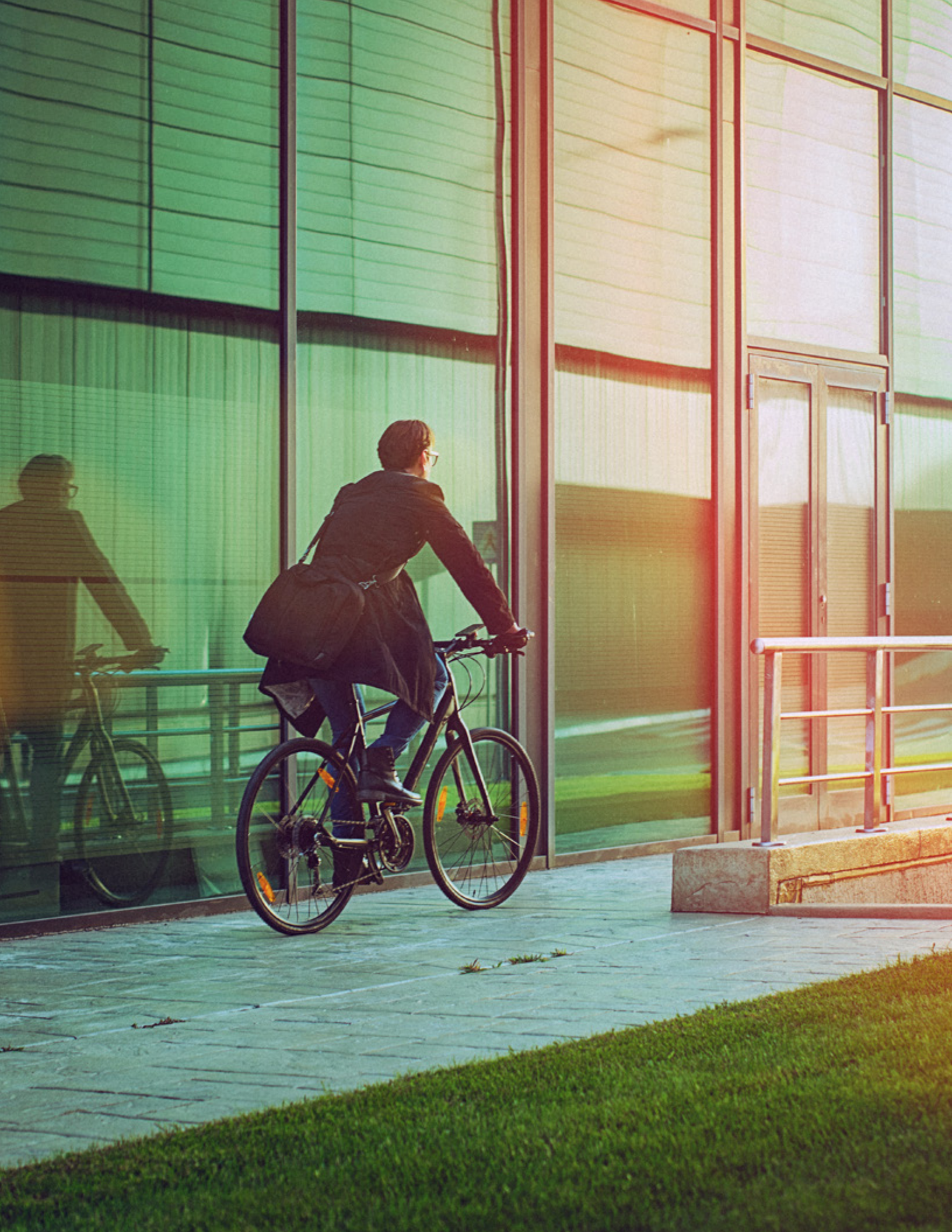
Our study has strengthened the evidence that ESG has a positive effect on performance in two primary directions: the results extend to euro markets, and our original findings in the US were confirmed.

However, it still leaves us with a bit of a puzzle: if there has been no systematic change in the ESG valuation premium, what drives the outperformance of high-ESG portfolios? Our hypothesis is that companies that are better prepared to face the broad range of non-financial risks covered by ESG scores might be less likely to have negative surprises.

One expression of this was the finding of lower downgrade rates for high-Governance companies in the US. It may well be that ESG returns take the form of an idiosyncratic risk. Low-ESG companies may be more likely to perform worse than the market because of specific adverse events, such as an environmental disaster or a labour conflict, while high-ESG ones might be better positioned than their peers to weather market turmoil.

In all three markets considered, we find that incorporating ESG factors in bond portfolios can lead to small but steady performance gains.

“Over the past nine years, tilting a portfolio systematically to companies with better ESG ratings has been beneficial to performance.”



# About the authors

**Lev Dynkin** is the founder and Global Head of the Quantitative Portfolio Strategy (QPS) Group at Barclays Research. Dynkin and the QPS group joined Barclays in 2008 from Lehman Brothers, where they had been a part of Fixed Income Research since 1987. The Institutional Investor magazine survey ranked the QPS group #1 in the category of Quantitative Analysis for over a decade in the US, as well as top-ranked it in Europe. Dynkin began his career as a research scientist in the area of theoretical and mathematical physics after obtaining his PhD in physics from the University of St. Petersburg, Russia. He is a member of the editorial advisory boards of the Journal of Portfolio Management and Journal of Fixed Income. Dynkin has co-authored with his colleagues several books on quantitative portfolio management.

**Albert Desclée** is a Managing Director in the QPS Group at Barclays Research, based in London, and is responsible for its European activities. He advises investors on portfolio construction, including benchmark selection, risk management, asset allocation, choice of investment style and optimal risk budgeting. Albert joined Barclays in 2008 from Lehman Brothers, where he had the same responsibilities. Prior to joining Lehman Brothers' Research department, he worked at Salomon Brothers in London, where he was in charge of fixed income index analytics and portfolio construction advisory. Albert graduated from the Catholic University of Louvain (Belgium) and obtained an MBA from INSEAD.

**Mathieu Dubois** is an analyst in the QPS Group, based in London. Prior to joining Barclays in 2018, he worked as a quantitative analyst at Prudential plc, conducting multi-asset research. He studied mathematics at the Swiss Federal Institute of Technology (EPFL) and Paris VI University, and he holds a PhD from the London School of Economics.

**Jay Hyman** is a Managing Director in the QPS Group. Based in Tel Aviv, Jay advises clients around the globe on portfolio management relative to traditional benchmarks or liabilities. He has published research on topics including risk budgeting, performance attribution, portfolio optimization, style analysis, cost of constraints, sufficient diversification and index replication. Jay joined Barclays in 2008 from Lehman Brothers. He holds a PhD in Electrical Engineering from Columbia University in New York.

**Simon Polbennikov** is a Director in the QPS group. He is responsible for empirical studies on quantitative strategies and investment styles in fixed income, benchmark customization, tactical allocation, and hedging. Simon joined Barclays in October 2008 from Lehman Brothers, where he held a similar role. He studied physics at Moscow State University, Russia, and received a PhD degree in empirical finance from Tilburg University, Netherlands.

# Important Content Disclosures

## Barclays

This communication has been prepared by Barclays.

“Barclays” means any entity within the Barclays Group of companies, where “Barclays Group” means Barclays Bank PLC, Barclays PLC and any of their subsidiaries, affiliates, ultimate holding company and any subsidiaries or affiliates of such holding company.

## Conflicts of Interest

BARCLAYS IS A FULL SERVICE INVESTMENT BANK. In the normal course of offering investment banking products and services to clients, Barclays may act in several capacities (including issuer, market maker and/or liquidity provider, underwriter, distributor, index sponsor, swap counterparty and calculation agent) simultaneously with respect to a product, giving rise to potential conflicts of interest which may impact the performance of a product.

## Not Research

The information provided does not constitute ‘investment research’ or a ‘research report’ and should not be relied on as such. Investment decisions should not be based upon the information provided.

## Barclays Positions

Barclays may at any time acquire, hold or dispose of long or short positions (including hedging and trading positions) and trade or otherwise effect transactions for their own account or the account of their customers in the products referred to herein which may impact the performance of a product.

## For Information Only

THIS INFORMATION HAS BEEN PREPARED BY THE RESEARCH DEPARTMENT WITHIN THE INVESTMENT BANK OF BARCLAYS. The information, analytic tools, and/or models referenced herein (and any reports or results derived from their use) are intended for informational purposes only. Barclays has no obligation to update this information and may cease provision of this information at any time and without notice.

## No Offer

Barclays is not offering to sell or seeking offers to buy any product or enter into any transaction. Any offer or entry into any transaction requires Barclays’ subsequent formal agreement which will be subject to internal approvals and execution of binding transaction documents.

## No Liability

Neither Barclays nor any of its directors, officers, employees, representatives or agents, accepts any liability whatsoever for any direct, indirect or consequential losses (in contract, tort or otherwise) arising from the use of this communication or its contents or reliance on the information contained herein, except to the extent this would be prohibited by law or regulation.

## No Advice

Barclays is not acting as a fiduciary. Barclays does not provide, and has not provided, any investment advice or personal recommendation to you in relation to any transaction and/or any related securities described herein and is not responsible for providing or arranging for the provision of any general financial, strategic or specialist advice, including legal, regulatory, accounting, model auditing or taxation advice or services or any other services in relation to the transaction and/or any related securities described herein. Accordingly Barclays is under no obligation to, and shall not, determine the suitability for you of the transaction described herein. You must determine, on your own behalf or through independent professional advice, the merits, terms, conditions and risks of any transaction described herein.

## Not a Benchmark

The information provided does not constitute a financial benchmark and should not be used as a submission or contribution of input data for the purposes of determining a financial benchmark.

## Information Provided May Not Be Accurate or Complete and May Be Sourced from Third Parties

All information is provided “as is” without warranty of any kind. Because of the possibility of human and mechanical errors as well as other factors, Barclays is not responsible for any errors or omissions in the information contained herein. Barclays is not responsible for information stated to be obtained or derived from third party sources or statistical services. Barclays makes no representation and disclaims all express, implied, and statutory warranties including warranties of accuracy, completeness, reliability, fitness for a particular purpose or merchantability of the information contained herein.

## Past & Simulated Past Performance

Any past or simulated past performance including back-testing, modelling or scenario analysis contained herein is no indication as to future performance.

No representation is made as to the accuracy of the assumptions made within, or completeness of, any modelling, scenario analysis or back-testing.

## Opinions Subject to Change

All opinions and estimates are given as of the date hereof and are subject to change. The value of any investment may also fluctuate as a result of market changes. Barclays is not obliged to inform the recipients of this communication of any change to such opinions or estimates.

## Important Disclosures

For important regional disclosures you must read, visit the link relevant to your region. Please contact your Barclays representative if you are unable to access.

EMEA <https://www.home.barclays/disclosures/important-emea-disclosures.html>.

APAC <https://www.home.barclays/disclosures/important-apac-disclosures.html>.

U.S. <https://www.home.barclays/disclosures/important-us-disclosures.html>.

## About Barclays

Barclays Bank PLC is authorised by the Prudential Regulation Authority and regulated by the Financial Conduct Authority and the Prudential Regulation Authority and is a member of the London Stock Exchange. Barclays Bank PLC is registered in England No. 1026167 with its registered office at 1 Churchill Place, London E14 5HP.

## Copyright

© Copyright Barclays 2018 (all rights reserved).

