Sustainable Investing and Bond Returns

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Abstract

We investigate the link between environmental, social, and governance (ESG) ratings and corporate bond performance. We constructed broadly diversified portfolios designed to track the Bloomberg Barclays US Investment-Grade Corporate Bond Index through matching characteristics (sector, quality, duration). We imposed on these portfolios either a positive or negative tilt to different ESG factors. We find that a positive tilt to ESG factors resulted in a small but steady performance advantage. No evidence of a negative performance impact was found. ESG attributes did not significantly affect the price of corporate bonds. 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 with a positive tilt to governance and weakest with a tilt to social. 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 this report despite significant differences in their methodologies.

Introduction

Sustainable investing, in which environmental, social, and governance (ESG) issues are incorporated into the investment process, is increasingly gaining a foothold in mainstream financial markets.

For some of the most committed investors, the knowledge that their funds are being invested to support their values is so important that they would accept a lower return to assure this end. A much larger group would be happy to support these values, but only when convinced that there is limited negative impact on returns. Finally, if consideration of ESG principles can actually help to improve portfolio performance – as many adherents claim – then it would be hard to justify any resistance to their adoption. The relationship between ESG characteristics and performance is therefore of primary importance.

Focus on Credit Market

In the absence of much research into the impact of ESG values on the credit markets, Barclays Research has conducted a new study to determine the nature of the relationship between bond performance and ESG issues. We focused on the credit markets for several reasons.

An increasingly large number of bond investors are interested in ESG investing. The relationship between sustainability and portfolio performance, though, has been researched far less in the credit market than in equity. Institutional investors also dominate credit investing, including pension funds, which are leading the trend for sustainable returns. Bonds represent a substantial percentage of these assets.

Finally, corporate bonds are complex: they combine exposure to interest rates and credit spread, so allocations along both dimensions influence risk and performance. Unintended biases can therefore easily appear when overweighting one bond relative to another. To aid bond managers in evaluating the potential performance effect of integrating ESG data into their portfolio construction, we knew it was important to carefully avoid systematic risk exposures.

What This Report Covers

We begin with a short overview of what drives ESG investing and the rapid rise in its popularity over the last decade. We then investigate the impact that increasing ESG awareness has had on different groups of financial market participants, including asset owners, asset managers, corporate managers and regulators.

The second section addresses ESG ratings. Many market participants rely on independent providers of ESG scores and ratings in their investment decisions. In fact, we rely on them ourselves when we quantify the performance impact of ESG-motivated investment decisions. We therefore try to understand them better: what exactly do the scores measure and how are they constructed? We describe the approaches followed by two major ESG metrics providers – MSCI and Sustainalytics – and investigate the relationships between different metrics. How do these scores relate to more traditional credit ratings, or to corporate bond spreads? How stable are the scores over time? We investigate these questions in the context of the US investment-grade credit market.

Finally, we perform a detailed analysis of the relationship between ESG scores and corporate bond performance. We construct bond portfolios with high-ESG and low-ESG alignment. These are carefully designed to track the index by controlling for the non-ESG factors known to affect bond returns. We find that high-ESG-aligned portfolios tend to outperform, and we try to understand why.

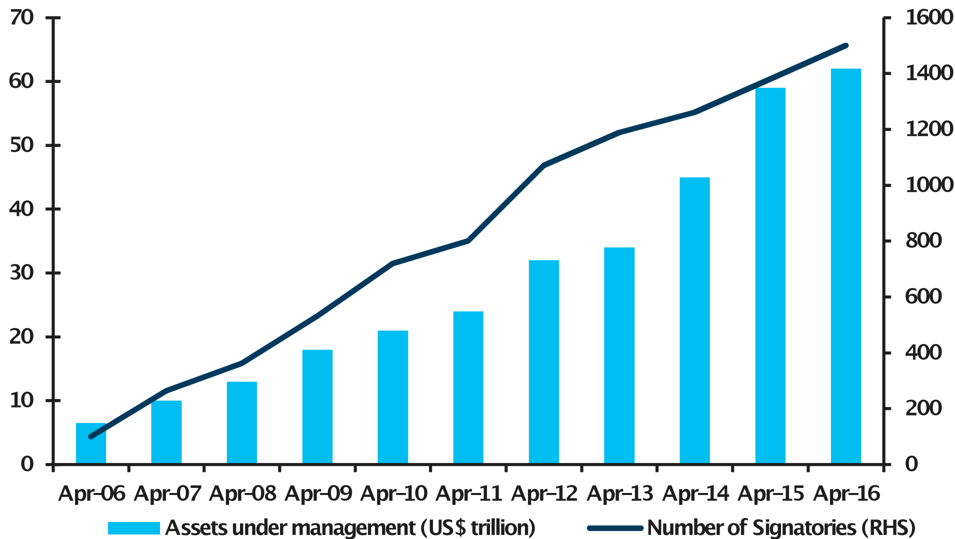
What is ESG Investing?

Responsible investing goes by many different names and definitions, but can be broadly described as expanding the objectives of an investment process beyond pure financial considerations to reflect investors' values and beliefs such that their holdings positively affect the community and broader ecosystem.

In order to measure the sustainability of investments, a widely accepted set of metrics has evolved, known as environmental, social, and governance (ESG) scores. In addition to the traditional objective of delivering financial returns, ESG investing enables investors to structure portfolios aligned with their values.

While not new, responsible investing has gathered momentum and taken on broader significance in the past ten years. The United Nations, for example, supported the launch of six Principles for Responsible Investing in 2006 to incorporate sustainability into investment practice. Collectively known as UN PRI, it has since attracted nearly 1,500 signatories, collectively controlling over $60 trillion of assets under management. The steady increase in the number of UN PRI signatories is shown in Figure 1.

Figure 1. Number of UN PRI Signatories and their total Assets Under Management



Source: UN PRI

The widespread adoption of ESG investing has come hand-in-hand with a subtle but critical change in emphasis. The early charge was led by ethically motivated investors, while most institutional investors looked on from the sidelines, concerned about the potential negative impact on portfolio returns. The key to gaining traction was in reversing the perceived effect on performance. Today, it is no longer assumed that "doing the right thing" will place a drag on portfolio returns; rather, it is seen as prudent to avoid investing in companies that have a detrimental impact on the world, as their business practices may be forced to change. ESG ratings providers thus emphasize that their ratings measure the risks of negative events stemming from poor ESG behavior.

The recent expansion of ESG investing

Figure 2 summarizes ten significant ways in which the industry has changed in recent years. These developments, taken together, lead to a single inescapable conclusion: the trend towards sustainable investing is not just a passing fad, but a movement that has brought, and will continue to bring, fundamental and sweeping changes to the investment landscape.

Figure 2. From Fringe to Mainstream: Changes in the ESG Investment Landscape at a Glance

Yesterday	Today
Negative screening of "sin" industries	Positive screening based on ESG characteristics
Hiring of specialist ESG teams	ESG issues integrated in investment decisions
Investors sign up to the UN PRI	PRI Signatories report on ESG implementation
Asset managers offer specialist socially responsible investment mandates	Asset owners embrace responsible investing
Regulation is at best indifferent to ESG investing	Regulation is supportive of ESG issues
Limited offering of ESG-related indices	Broader offering of ESG indices; launch of thematic ETFs; ESG metrics incorporated in "smart beta" strategies
Emergence of specialist providers of ESG analysis	An industry of ESG data providers is growing fast and consolidating
Limited ESG data disclosure by corporations	Corporations develop a Corporate Social Responsibility (CSR) agenda
ESG data hard to collect	ESG data broadly available. Push for mandatory reporting
Active engagement limited to governance and proxy voting	Active engagement covers all E, S, and G dimensions

Source: Barclays Research

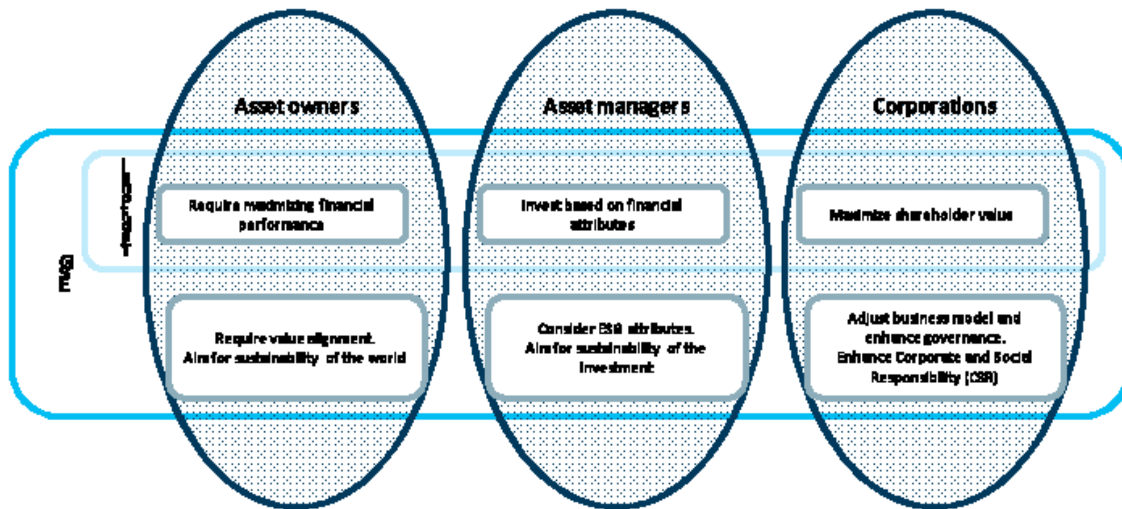
These changes can potentially lead to incremental costs to asset owners and asset managers, as well as corporations: commitment to ESG values and related reporting and analysis take time and resources to implement. This raises a host of questions for asset owners and managers:

- Many institutional asset managers have created specialist ESG teams. Is all this justified, or should such expertise just be embedded in traditional fundamental investment analysis with a long horizon perspective?
- Can a focus on ESG issues distract the investment focus away from return maximization?
- In particular, could the increased emphasis on ESG ratings encourage mutual fund managers to make their funds attractive to investors by increasing the weight of high ESG-rated securities with insufficient consideration of financial risk and return?
- Can the increasing scrutiny and reporting burden that comes with ESG alignment deter private companies from going public, or even encourage public corporations to go private? ESG ratings are generally published for publicly listed companies although corporate bonds can be issued by both public and private firms. A trend towards private ownership could limit the ESG rated investment universe of asset managers.

What is Unique about ESG Investing?

ESG investing has different implications for asset owners and asset managers: individual asset owners want to make the world a better place by allocating resources to responsible companies while maintaining financial performance. Asset managers acting on behalf of these investors want to be seen as ESG-compliant in order to attract assets, but also need to deliver financial performance in order to retain those assets. As shown in Figure 3, ESG investing expands the relationships among asset owners, asset managers, and corporations.

Figure 3. ESG investing expands the relationship among asset owners, asset managers, and corporations.



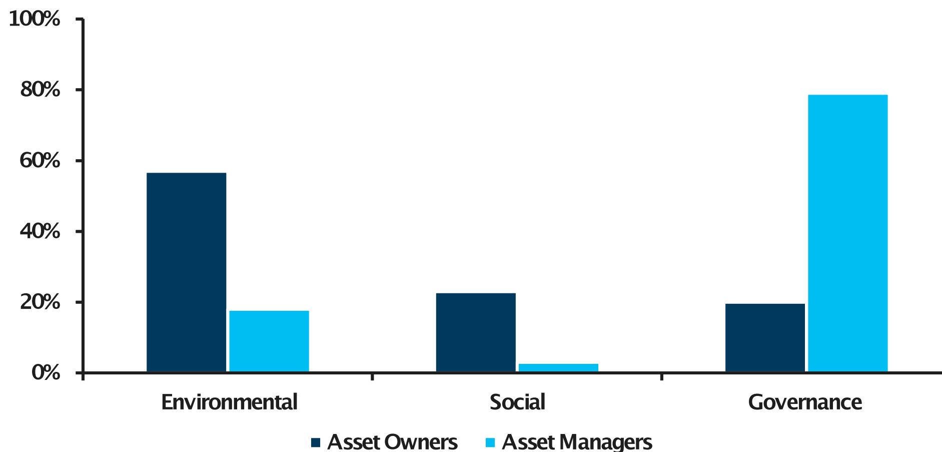
Source: Barclays Research

The three individual ESG elements differ in nature. Governance is an indication of how well governed a corporation is and the extent to which the primacy of shareholder interest is ensured. It can be seen as a measure of management quality. By contrast, the environment and social variables capture the risk and opportunities that are often specific to the industry and the activities of a company.

While many investors agree that governance is linked to performance, there is not as much consensus on the importance of environment and social attributes; their link to future performance is indirect. A Barclays survey of large asset managers in 2016 found their views on the importance of E, S, and G diverged dramatically from asset owners' views (see Figure 4).

The fact is there may not yet be enough evidence of a relationship between these metrics and performance. Relying on ESG metrics therefore could be seen as an act of faith that desirable corporate behavior should be beneficial to investors over the long run. The business of ESG measurement has emerged, in part, to help produce this evidence and lay an empirical foundation for this faith.

Figure 4. Which one of E, S, or G is most important to asset owners, and to asset managers?



Source: Barclays Research. Barclays survey of large fixed income managers (2016)

The Role of ESG Ratings

Once investors have decided to incorporate ESG-related considerations into their investment process, how do they proceed? The systematic consideration of a catalog of environmental, social, and governance issues for every company in the investment universe is complex.

One approach is to leave the process to asset managers that specialize in ESG investing. Another is to structure a mandate more formally, with quantitative metrics to express the investment goals and constraints. An ESG-specific benchmark could be specified rather than a more traditional one. In any case, the asset manager will need to report periodically to the asset owner on how the portfolio is positioned relative to ESG issues. For all of the above, asset managers and asset owners often rely on third-party ESG ratings, in the same way that credit ratings from rating agencies are pivotal to bond portfolios.

Several ESG data providers have emerged in the past two decades dedicated to helping investors identify companies that follow better and worse practices in different ESG areas. This relatively new industry is still fragmented by product area and geography, but it is experiencing consolidation. Only a handful of providers claim to offer comprehensive coverage across all three ESG dimensions and across geographies. In addition to specialist providers, large data vendors such as Bloomberg and FTSE are entering this market.

ESG ratings are used in various ways. They may be used to screen potential investments, and can be integrated into investment decision processes and portfolio analysis. They form the basis for the design of benchmark indices in both equity and debt markets (for example, Bloomberg Barclays MSCI sustainability indices). They can be used in the design of ESG-

targeted investment products and strategies, such as low carbon or ethical mandates. Some ESG-rating companies have also expanded coverage to sovereign issuers and to investment funds, in addition to individual corporations. In a recent development, Morningstar (in partnership with Sustainalytics) and MSCI have both started providing ESG rankings of mutual funds, based on aggregated scores of the companies comprising each fund's holdings.

According to an annual industry survey by Independent Research in Responsible Investment, the top two providers of independent ESG research and rankings are MSCI ESG Research and Sustainalytics. Another important provider, Institutional Shareholder Services (ISS) has a 30-year history of focusing on corporate governance issues, with expertise in law, accounting, and compensation. ISS was part of MSCI until 2014; it only recently expanded its services to cover a full range of ESG issues.

How Are ESG Ratings Formed?

While there are similarities between ESG research and ratings providers, each has its own methodology. ESG ratings are based on a multi-criteria scoring of individual corporations based on a large set of factors or metrics across all three E, S, and G dimensions.

The ranking process begins in a bottom-up manner. Within each of the three main dimensions, dozens of specific categories of risk are assessed, and each company is scored on its exposure to that category of risk and the steps it has taken to mitigate it.

Global warming may be the "poster child" of sustainable investing, but it is far from the only issue considered. In fact, ESG ratings reflect a broad range of considerations within each of the three categories. Ratings providers have a detailed hierarchy of sub-categories and specific issues that are used to arrive at numeric scores for each company. Figure 5 offers a small sampling of the more detailed sets of issues examined by ESG ratings providers.

Figure 5. Sample Issues Considered in Forming ESG Scores

Environment	**Social**	**Governance**
Carbon Emissions	Labor Management	Corporate Governance
Energy Efficiency	Diversity and Discrimination	Business Ethics
Natural Resource Use	Working Conditions	Anti-Competitive Practices
Hazardous Waste Management	Employee Safety	Corruption and Instability
Recycled Material Use	Product Safety	Anti-Bribery Policy
Clean Technology	Fair Trade Products	Anti-Money Laundering Policy
Green Buildings	Advertising Ethics	Compensation Disclosure
Biodiversity Programs	Human Rights Policy	Gender Diversity of Board

Source: MSCI ESG Research, Sustainalytics, Barclays Research

In each category, the assignment of a numerical score to a company may require the synthesis of quantitative and qualitative information from multiple sources. Among the information sources and questions evaluated in a given area are:

- Quantitative ESG data disclosed by a company regarding its own activities
- Estimates of ESG data from third-party sources
- Level of self-disclosure
- How exposed is the company to significant risks in this area?

- How much has been done to manage such risks?
- Has the company been involved in controversial incidents on this topic? What happened?
- Is there a formal program in place to manage this issue company-wide?
- Is the company well placed to capitalize on opportunities in this area?

ESG score providers combine information from all of these sources and calculate fine-grained scores for each individual metric on an absolute basis. These are then aggregated up to overall scores for each of the three pillars (E, S, and G), and from there to an overall ESG score, as a weighted average of the granular scores. This weighting is another key element in the aggregation process. A given corporation may be involved in many different businesses and geographies, each bringing different exposure to ESG issues. Similarly, the relative importance of each metric may vary substantially by industry or country.

To meet this challenge, ESG ranking firms have developed schemes for assigning different sets of weights to underlying risk factors for each industry and company. Thus, while an overall environment ranking will be provided for any firm, these scores will mean something distinct in each case, whether covering a bank, a pharmaceutical firm, an oil company, and so on; the environment score will also form a different percentage of the overall ESG score. For example, the environment score has a relatively small weight in the combined ESG score of banks, but a large weight in the ESG rating of energy companies.

Both the selection of the underlying metrics that are evaluated and the weights assigned to these metrics change over time, reflecting industry developments and evolving beliefs regarding corporate "best practice."

ESG rating firms' research contains two kinds of rankings: relative and absolute. The most fine-grained metrics are typically absolute scores, or raw scores, which allow comparison between any two companies across the board. Conversely, the highest-level ESG ratings are based on rankings relative to a peer group in the same industry. Rating comparisons are most useful for firms within the same peer group; a comparison of the overall ESG scores of companies in different industries is much less meaningful. In this sense, ESG ratings are very different than credit ratings, which rank the credit-worthiness of firms in all industries on a common scale.

And while ESG ratings across firms are often in rough agreement, there are differences in the different providers' methodologies at every level:

- Selection of the detailed list of low-level factors in each category

- Assignment of raw factor scores: how much emphasis is placed on the different types of information available? How much of a penalty is assigned to companies that do not disclose information or do not maintain formal ESG-focused programs?
- What parts of the ratings process are purely formula-driven, and where is there room for an analyst to apply subjective judgment?
- Assignment of weights to different factors for each industry. Must these be constant across an industry, or can a given firm be assigned different weights to respect its mix of businesses?
- To what peer group should each firm be compared to convert absolute scores to relative ones?

Due to these differences in approach, it is not surprising that different ratings providers can at times disagree in their assessment of a company.

Properties of ESG Ratings

To what extent are individual E, S, and G scores from the same provider correlated with each other? For example, is a company with a high governance score likely to also have high environment or social scores? Our analysis of the ratings on corporate bond issuers from both providers we analyzed shows that all of these correlations are low (near zero for MSCI and about 30% for Sustainalytics). This means that individual E, S, and G scores carry different information, complementing each other to help form a holistic description of non-financial information and risk.

Do different providers of ESG ratings tend to reach similar conclusions? As a lot of the analysis done by each provider is based on publicly accessible data sources, and on the information put forward by the rated companies, one could expect the qualitative rankings of different companies to be comparable. However, as discussed, the differences in the way the data are processed, analyzed, and presented can lead to very different results.

In practice, we observe that MSCI and Sustainalytics ratings often disagree with each other. When measuring the relationship between ESG ratings of the two providers, we find positive but low correlations across all three dimensions, as well as for the composite rating. This is not surprising, given the differences in methodology described above.

Thus, ESG ratings should not be considered as a simple commodity; the ratings from different providers carry different information and can potentially suggest different portfolio management decisions. This makes it all the more surprising that our analysis seems to arrive at similar conclusions using ESG ratings from either provider – as we shall

soon see – in terms of both the relationship with credit ratings and the performance implications.

The Relationship between ESG Scores and Credit Ratings

Although it uses non-financial information, ESG scoring aims to evaluate companies based on long-term risks and opportunities. On the face of it, it should therefore have similarities with credit analysis, which measures a corporation's risk of default.

If that is the case, bonds with high ESG scores are more likely to have a high credit quality and therefore trade at a lower yield spread to government bonds. This would also mean that filtering an investment or index universe simply to exclude low-ESG bonds could automatically translate into a systematic bias to less risky, lower yielding securities and may therefore lead to lower returns over time.

To find out whether focusing on ESG issues can translate into a quality or spread bias, we consider a broad universe of corporate bonds and investigate whether different sets of bonds, grouped by ESG scores, have different properties. Our universe is the Bloomberg Barclays US Corporate Investment-Grade Index, a popular benchmark for institutional asset managers investing in the U.S. credit market. In April 2016, this index included 5,675 bonds from 761 different issuers. We only consider bonds with ESG scores from both MSCI and Sustainalytics, reducing the sample size by about 10%.

We sort bonds by ESG score and group them into three equal size buckets: low, medium, and high ESG. We report the average characteristics of the three portfolios in Figure 6. This figure contains two sets of data: one sorted according to MSCI scores and the other using Sustainalytics ESG data. In both cases, spreads decrease steadily with increasing ESG score; the average spread of high-ESG bonds was 38bp lower than that of the low-ESG portfolio using MSCI data and 35bp lower for Sustainalytics.

To measure the difference in quality, we transform the traditional letter ratings from credit rating agencies into a number (higher for lower quality and lower for higher quality) and then average the numeric ratings. The difference in average rating between high and low ESG buckets corresponds to a one-notch change in credit rating, from A2 to A3.

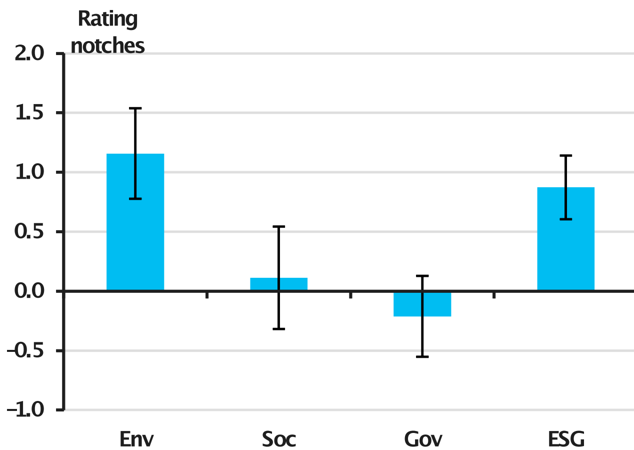
Figure 6. Average Characteristics of Bonds in Different Tiers of ESG Scores (August 2009 to April 2016)

	MSCI				Sustainalytics			
	Low	Medium	High	High - Low	Low	Medium	High	High - Low
Average ESG Score	2.6	4.9	7.7	5.1	51	60	70	18
Spread over Treasury Bonds (bp)	172	154	134	-38	173	157	138	-35
Rating Quality	A3	A3	A2		A3	A3	A2	
Rating Quality Number	8.2	8	7.3	-0.9	8.4	7.9	7.3	-1.1

Source: MSCI ESG Research, Sustainalytics, Barclays Research

This analysis was repeated each month from August 2009 to April 2016. In Figures 7 and 8, in addition to the average number of notches by which the high-ESG bonds were more highly rated than their low-ESG peers, we show error bars indicating the variation in these numbers over time. We see that the difference in credit ratings between high-G and low-G bonds were not significantly different from zero, while high and low overall ESG scores led to about a one-notch difference using data from either MSCI or Sustainalytics. The two sets of results differ most with respect to S scores.

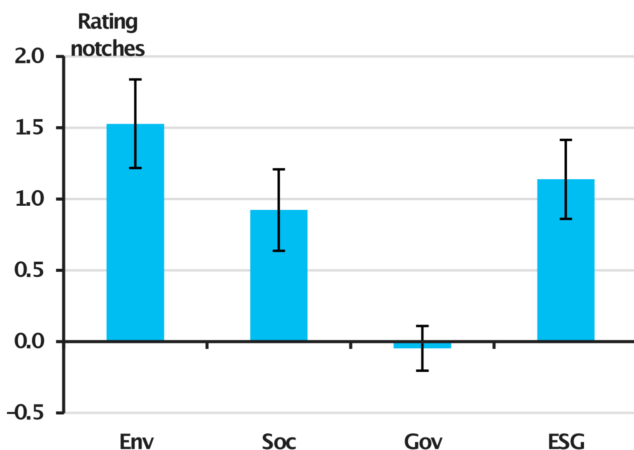
Figure 7. Average difference in credit rating between top and bottom tier of ESG rating – MSCI



Source: MSCI ESG Research, Barclays Research

Note: Error bars indicate one standard deviation above and below the average

Figure 8. Average difference in credit rating between top and bottom tier of ESG rating – Sustainalytics



Source: Sustainalytics, Barclays Research

Note: Error bars indicate one standard deviation above and below the average

How should we interpret these results? Does it make sense that having a good environmental record should have a clear impact on credit ratings while good governance does not? An alternative explanation might be that issuers with higher credit quality (and stronger balance sheets) are better able to comply with environmental constraints than those with lower credit quality, which are likely to have higher leverage and tighter financial constraints.

In any case, investors should be careful when using ESG data in their portfolio construction to avoid unintentional biases in allocation and risk profile. Just overweighting companies with better ESG scores can result in lower yields and, consequently, lower returns.

Are ESG Ratings Stable?

For investors considering full integration of ESG factors into the investment process, the stability of these ratings is an important consideration. Frequent changes in scores could potentially lead to excess turnover in investor portfolios, as well as less predictable risk exposures. This would be particularly difficult for credit portfolio managers, given the liquidity environment; secondary liquidity in the corporate bond market has deteriorated markedly since the financial crisis of 2008, forcing credit investors to adopt a long horizon by default.

Our data analysis reveals that for both MSCI and Sustainalytics, ESG scores are stable. A company that has a high ESG rating is likely to retain a high ESG rating on a one-year

horizon. Similarly, a low ESG rating today is a strong predictor of a low ESG rating one year forward.

For example, Figure 9 shows that for both providers, a top-tier ESG company has more than an 80% probability of remaining in the top tier a year later. Thus, there is little reason to fear that the adoption of ESG criteria would become a cause of excessive portfolio turnover.

Figure 9. How Likely is an ESG Rating to Change Over a Year? Transition Frequencies across ESG Tiers on a One-Year Horizon (August 2009 to April 2016)

		MSCI				Sustainalytics		
		at end of period				at end of period		
		Low	Medium	High		Low	Medium	High
at start of period	Low	73%	24%	3%	Low	84%	15%	1%
	Medium	22%	60%	18%	Medium	13%	73%	15%
	High	2%	17%	81%	High	0%	13%	87%

Source: MSCI ESG Research, Sustainalytics, Barclays Research

How Do ESG Ratings Affect Corporate Bond Performance?

Does the incorporation of environmental, social, and governance criteria in the investment process improve or hurt the financial performance of a bond portfolio?

Many studies have been published to try to establish an empirical link between ESG attributes and financial performance. A recent survey article on this body of research (Friede 2015) summarizes the results from 60 distinct review studies, covering 2,200 primary studies. The authors emphasize the difficulties in trying to generalize over many different studies, each of which may focus on a different aspect of ESG criteria in a different market, geography, or industry. Nonetheless, the survey reports that about half of the published studies show a positive link between corporate social responsibility and corporate financial performance, while less than 10% report a negative link.

There is a key distinction between an ESG approach based on negative screening by industry and one based on relative comparisons of the firms in each industry. For example, an investor using a negative screen may choose to exclude coal-mining companies from its investment universe. Another may use ESG ratings to rank coal-mining companies and choose to invest in the ones that have the best overall ranking within the sector. In the first case, if coal-mining companies outperform the market then the investment portfolio may lag a broad market index. In the second approach, the portfolio is neutral with regard to the

systematic sector exposure, but favors companies with better ESG policies, as these are considered to be less likely to suffer from the risks inherent in the industry.

Examples of both negative and positive screening can be found within the range of Bloomberg Barclays MSCI ESG bond indices. The Socially Responsible Investing (SRI) corporate bond index is based on negative screening and excludes companies involved in industries such as tobacco, alcohol, gambling, adult entertainment, nuclear power, genetically modified organisms, stem cell research, firearms, and weapon systems. By contrast, the Sustainability index uses a best-in-class approach based on ESG ratings to choose the best-rated subset of index bonds within each industry.

In earlier research (Polbennikov 2016), we analyzed the historical returns of both indices relative to the Bloomberg Barclays US Corporate IG Index. While they underperformed in terms of nominal returns, some of that underperformance was traced to systematic biases unrelated to ESG criteria. Once these biases were corrected, we found that the return impact due specifically to the ESG tilt in security selection was positive for the Sustainability index but negative for SRI. We concluded that the wholesale exclusion of industries from the investment universe, while it may be desirable based on ethical considerations, is not justified based on purely financial criteria.

Our Methodology: Objectively Measuring ESG Impact on Performance

For insight into the impact of ESG-related practices on corporate bond portfolios, we applied an ESG tilt in security selection within each industry. Can such an approach improve portfolio performance over the long term?

To measure the effect of ESG investing on credit portfolio performance in an objective manner, it is important to isolate the ESG effect from all other possible sources of risk. To do this, we constructed pairs of portfolios that differed drastically in their ESG scores, but whose risk profiles were nearly identical across important dimensions of risk for corporate bonds. We then measured and compared the performance of these portfolios over time.

The core of our portfolio construction technique is a mechanism for building well-diversified portfolios of bonds designed to track a benchmark – in this case, the Bloomberg Barclays US Corporate Investment-Grade Index. We applied a simple model that constrains the portfolio to remain neutral to the benchmark along multiple risk dimensions that could arise from differences in yield, maturity, credit quality, or sector allocation. In addition, limits on concentration ensured that the tracking portfolios were highly diversified.

Many such portfolios could be created; in our procedure, the model was run once to find the portfolio with the highest possible average ESG score that meets these constraints and once to find the one with the lowest ESG score. The two tracking portfolios were

reconstructed on a monthly basis, coordinated with the monthly index rebalancing, to ensure that they kept pace with any changes in the structure of the corporate bond market. Both tracked the index quite well, experiencing the same broad rallies and declines as the benchmark, so that monthly tracking error volatility was low. The key question is whether substantial differences arose over time between the average returns of the two portfolios.

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

In addition to pairs of portfolios with the minimum and maximum overall ESG rating, we also created portfolio pairs that accentuate differences in individual E, S, and G scores, to try to observe which one of these three pillars is most related to performance. All of these studies were carried out twice, using ESG ratings from MSCI and Sustainalytics.

Our Findings

Most portfolio pairs (high-ESG minus low-ESG portfolios) delivered a positive return, indicating a generally positive return premium for the "ESG factor" in corporate bond markets.

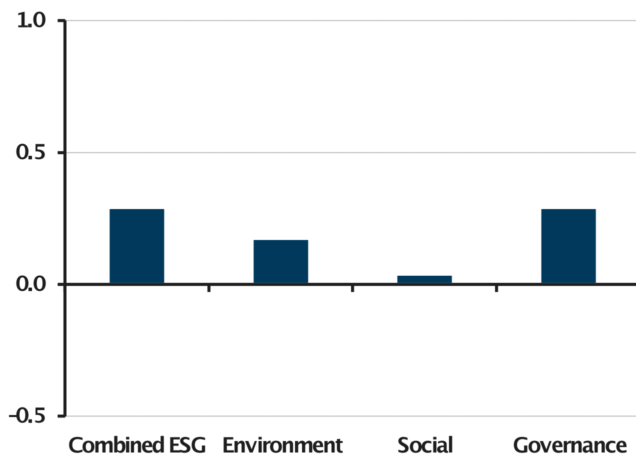
Figure 10 shows the cumulative excess returns of the high-ESG over the low-ESG portfolios from August 2009 to April 2016. The time window of the analysis is limited by the availability of historical ESG data from the two providers considered. For this pair of portfolios, the cumulative outperformance was almost 2% over the past seven years.

Figure 10. Cumulative Return (%) of a Portfolio with High ESG Rating over a Portfolio with Low ESG Rating using Sustainalytics ESG scores

Source: Sustainalytics, Barclays Research

Figures 11 and 12 summarize the returns of various simulated portfolio pairs, based on both MSCI and Sustainalytics data. For each one of these two providers, we construct four portfolio pairs to measure the performance associated with the combined ESG factor, as well as the environmental, social, and governance pillars taken in isolation. The average return differences reported in Figures 11 and 12 represent the difference in performance between high and low ESG-score portfolios. For both providers, the combined ESG rating has been associated with incremental returns over the past seven years. The return differences between the high and the low ESG portfolios are small (0.42%/y in one case and 0.29%/y in the other), but positive.

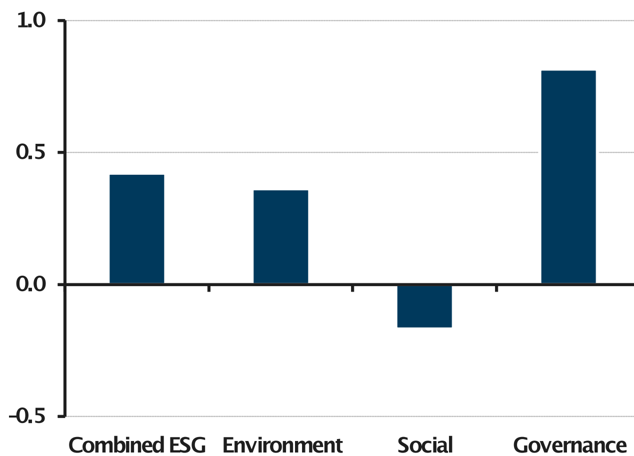
Figure 11. Return difference (%/year) between portfolios with high and low scores for ESG provider Sustainalytics



Source: Sustainalytics, Barclays Research

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

Figure 12. Return difference (%/year) between portfolios with high and low scores for ESG provider MSCI

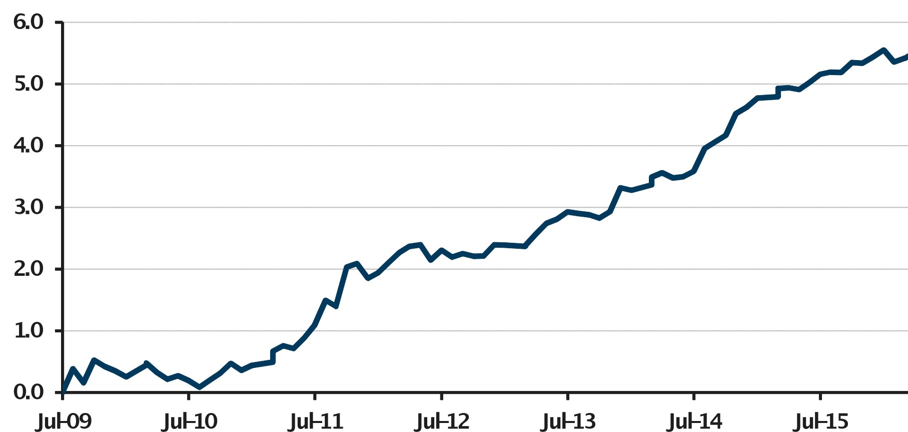


Source: MSCI ESG Research, Barclays Research

It is striking that despite different approaches to evaluating bond issuers, a similar pattern is observed for both providers: Governance has the strongest link with performance and social the weakest (even slightly negative). Environment is in between. The intuition of portfolio managers that governance is more important to portfolio risk and return than the other two dimensions of ESG (as seen in Figure 4) is validated in this analysis.

The message conveyed by this analysis is that incorporating an ESG tilt in an investment-grade credit portfolio is not detrimental to returns, but can be beneficial. This is particularly true for governance, which may indeed be a reflection of management quality that, over a long horizon, can be beneficial to bondholders of a corporation. In the example shown in Figure 13, the return associated with governance is high – 5.5% of cumulative outperformance – and persistent over seven years.

Figure 13. Cumulative return (%) of a portfolio with high governance score over a portfolio with a low governance score (using MSCI ESG scores)



Source: MSCI ESG Research, Barclays Research

No Evidence of "Systematic Richening" of High ESG Bonds

It is possible that, as a result of the increased popularity of ESG investing, portfolio flows from issuers with poor ESG attributes to those with high ESG scores have resulted in the systematic richening of high ESG bonds (and cheapening of low ESG bonds). If that is the case, the returns observed in our analysis should be considered as transient and possibly not representative of future market conditions.

If such a systematic ESG-based repricing of bonds happened in the past few years, it should be visible in bond valuations, particularly in spreads over Treasuries. However, issuers with high ESG scores could also have tighter spreads for unrelated reasons – they could be tilted towards higher credit ratings or specific industries, for example. We use statistical analysis to measure the extent to which there is a systematic ESG-specific spread premium that would cause the spreads of high-ESG corporate bonds to be higher or lower than those of their peers after controlling for sector, quality, and duration. We repeated this analysis each month and observed both the average results over our study period and the changes that were observed in the interim. We then calculated a crude estimate of the impact that these observed spread differences might have had on portfolio returns.

We found no evidence of a systematic tightening of high-ESG bonds relative to the broader market; in fact, if anything, we found the opposite. Results of the statistical analysis had low significance in many months, indicating that the market was largely pricing corporate bonds based on sector, quality, and duration, with little or no systematic preference for ESG bonds. As shown in Figure 14, using overall ESG scores from both MSCI and Sustainalytics as the ranking variable, a small negative spread premium was detected at the start of the

period, indicating that high-ESG bonds were more expensive than their low-ESG peers. However, by the end of the study, this reverted to a small positive number.

Figure 14. Implied Returns from Changes to ESG Spread Premium

		MSCI	Sustainalytics
ESG Spread Premium (bp)	Beginning of period (August 2009)	-5.3	-1.0
	End of period (April 2016)	0.8	2.9
	Average (Aug 2009 – Apr 2016)	-3.7	1.5
	Cumulative Change (Beg to End)	6.1	3.8
Implied Return Advantage of High-ESG Bonds (%/yr)	Carry	-0.04%	0.01%
	Price return from ESG spread premium trend	-0.06%	-0.04%
	Total Return	-0.10%	-0.02%

Source: MSCI ESG Research, Sustainalytics, Barclays Research

The effect of this premium on returns would be two-fold. First, over the long-term, high-ESG bonds should earn a carry advantage equal to the spread, which for the MSCI rankings came to an estimated -0.04%/year. Second, if the spread widened by 6 basis points over the course of the seven years of the study period – representing roughly 1 bp/year – this should translate into an estimated underperformance of about -0.10%/year. For Sustainalytics ratings, the performance difference was estimated at -0.02%/year. Thus, if there was a systematic effect of ESG ratings on pricing, the small changes to this number should have caused a small underperformance for high-ESG bonds over the study period. We can thus rule out the possibility that the outperformance of high-ESG portfolios described above was due to a systematic richening of ESG bonds; and there is therefore no reason to expect this outperformance to be reversed.

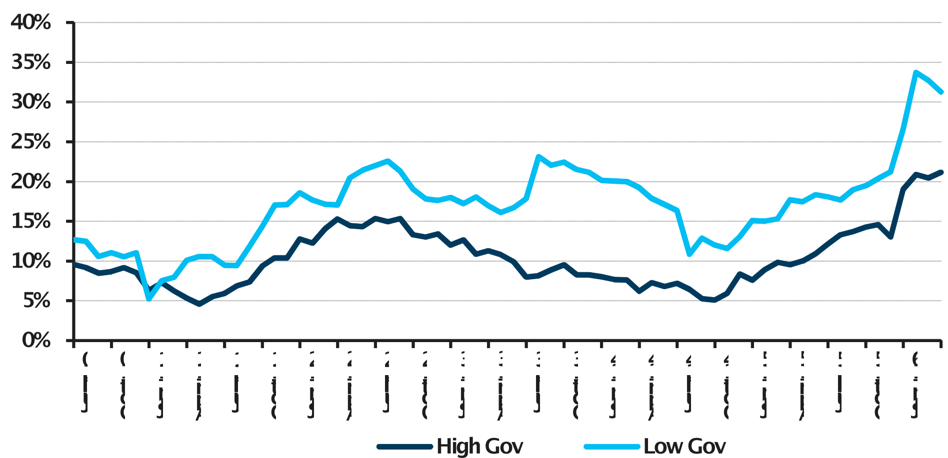
What Is the Reason for High-ESG Outperformance?

If there was no systematic richening of bonds with good ESG rankings, what has made them outperform? One interpretation could be that poor ESG rankings relate to risks of various types of adverse events that could negatively impact companies' fortunes and that, even over the relatively short time period we have investigated, our high-ESG portfolios experienced fewer such events than the low-ESG portfolios. Unfortunately, we do not have the data to document this effect. However, we know that in bond markets, negative changes to a company's outlook are often associated with a downgrade in credit ratings, as well as negative returns. Do we find that high ESG scores are associated with a lower rate of subsequent downgrades?

To test this, we partitioned our bond universe into two groups – above and below the median ESG scores – and observed the number and magnitude of downgrades in each set. This allowed us to report an annual "downgrade notch rate" capturing both the frequency

and intensity of downgrades. (For example, if 10% of the issuers in a given group experience one-notch downgrades and another 3% have two-notch downgrades, the downgrade notch rate for the year would be 16%.) We compared these downgrade rates for bonds scoring high and low in different ESG categories according to the two providers; the most striking difference in the two groups was observed using governance scores. As shown in Figure 15, bonds with low governance scores from MSCI experienced a consistently higher rate of subsequent downgrades than those with high scores throughout our study period.

Figure 15. 12-month Rolling Average Number of Downgrade Notches per Issuer per Year for Bonds with High and Low Governance Scores



Source: MSCI ESG Research, Barclays Research

Conclusion

All indications are that the trend towards sustainable investing is not only becoming more sophisticated but also gaining widespread acceptance. ESG has become an increasingly popular framework for measuring and managing assets in a way that resonates with the values and beliefs held by many asset owners. ESG investing is now becoming embedded in the investment process of many institutional investors.

While evaluating an investment across environment, social, and governance dimensions was once a demanding task, a number of service providers have emerged that offer ESG scores derived using non-financial metrics of corporate performance.

Our research into the impact of ESG on the performance of U.S. investment-grade corporate bonds in the past seven years shows that portfolios that maximize ESG scores while controlling for other risk factors outperform the index, and that ESG-minimized portfolios underperform. The effect was most pronounced for the governance tilt and least

pronounced for the social tilt. Favoring issuers with strong environmental or social ratings has not been detrimental to bond returns. These conclusions hold using ESG ratings data from two different ratings providers, despite significant differences between the two ratings methodologies.

In many publicly quoted companies, corporate decision-makers have been forced to balance the long-term best interests of their firms against relentless investor pressure for short-term earnings growth. The growth of the sustainable investing movement can help redress the balance. As ESG considerations play out over a long horizon, and as they increasingly become a priority for company managers, they may help alleviate the pressure for short-termism and, rather, encourage a focus on long-term value creation – to the mutual benefit of the firm, its investors, and the world at large.

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Appendix A: A Brief Glossary of ESG Terms

As the perception of ESG has changed over the past decade, the jargon used to describe the industry has evolved in step, developing more terms that have positive connotations regarding performance. In the brief (and certainly incomplete) glossary below, we attempt to summarize the industry jargon.

Terms for the Industry as a Whole

Responsible investing (RI): Investing based on criteria that are not purely financial, in order to support positive effects on society and avoid negative ones. This is a blanket term intended to encompass the items detailed below.

Socially responsible investing (SRI): Investing based amongst others on social criteria, for example by avoiding controversial industries such as tobacco, alcohol or gambling.

ESG: The environmental, social and governance metrics that investors apply to measure the sustainability of their investments. These factors are:

Environmental: Issues connected to global warming, energy usage, pollution and the like.

Social: factors such as how a company treats its workers, health and safety considerations, and community outreach.

Governance: a focus on topics including business ethics, board structure and independence, executive compensation policies and accounting.

ESG investing: Incorporates measurable criteria to compare investments across the three broad categories of Environment, Social, and Governance. ESG metrics provide measurable attributes of a corporation that may be used in many forms of responsible investing. Note that Governance is distinct in nature from Environment and Social attributes, and that investors may have their own priority ranking of the various categories. “ESG investing” has become synonymous with “sustainable investing.”

Sustainable investing: Ensures that an investment will preserve its value over time. In the case of a corporation, ensuring that it has the capacity to endure and can keep operating over a long period. In this view, ESG factors serve to highlight exposures to risks that could derail a company over the

long term. A poor environmental record may make a firm vulnerable to legal action or regulatory penalties; mistreatment of workers may lead to high turnover, low productivity, or poor quality work; poor corporate governance can give management wrong incentives or increase the likelihood of accounting irregularities. By extension, a sustainable investment should not be detrimental to the broad ecosystem in which it operates. So sustainability can been seen at two levels: sustainability of the investment and sustainability of the world.

Ethical investing: Ensures that specific ethical or religious considerations are taken into account when choosing investments. This is very similar to Socially Responsible Investing and generally involves exclusion of controversial industries. The "ethical investing" term has been used more widely in the UK.

Impact investing: Investments that consider social or environmental benefits alongside financial return. Impact investors may be willing to earn below-market returns in order to help finance causes they deem worthy. This may be seen as an alternative to dividing assets among investment funds seeking to maximize financial performance and philanthropic activities for social benefit and no financial return. By directing a larger fund base to address both issues simultaneously, a larger net impact might be achieved. An example of impact investing is investing in green bonds, whose proceeds have clear net environmental benefit and comply with standards called Green Bond Principles.

Sustainable and responsible investing (SRI): Used as an umbrella term for all of the above by industry associations. This – the second definition of SRI – seems to be the preferred term accepted by industry organizations because it is broader in scope and places greater emphasis on issues that are financially material to investors.

Ways to Incorporate ESG Goals in a Portfolio

Negative screening: Excluding specific companies or industries that are considered to be particularly objectionable from the investment universe of a portfolio. For example, Bloomberg Barclays MSCI Socially Responsible (SRI) Indices apply a negative screen to existing Bloomberg Barclays indices to exclude issuers involved in activities that are in conflict with investment policies, values, or social norms, such as tobacco, alcohol, nuclear power and weapon manufacturing.

Positive screening: Selecting a portfolio of companies with desirable characteristics to form an investment universe or a benchmark index. For example, the STOXX Global ESG Leaders equity index offers a representation of the leading global companies in terms of environmental, social and governance criteria, based on ESG indicators provided by Sustainalytics.

ESG integration: The inclusion of ESG metrics in all aspects of the investment process, such as security valuation, the formation of expected returns, risk analysis and portfolio construction.

Corporate engagement: The process by which investors actively seek to influence corporations with a view to addressing ESG shortcomings and to encourage better practice. An active ownership culture – also called stewardship – among shareholders can help promote more sustainable and

responsible business practices. Most corporate engagement relates to governance issues, as this is where the relationship between investors and corporate management can be anchored in existing accounting, financial and legal frameworks.