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## Overview

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## How to Incorporate ESG-Enhanced Corporate Bonds in a Portfolio Context

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# ESG-Enhanced Corporate Bond Indices: A Strategic Allocation

- Corporate bonds selected on the basis of both ESG integration and exclusion at the issuer level\* can replace vanilla corporate bonds — this approach has historically reduced portfolio risk.
- ESG-enhanced corporate bonds consistently tilted towards higher credit quality investment grade bonds.
- Incorporating ESG-enhanced bonds into portfolios historically improved the portfolio's ESG profile, with the other fixed income characteristics kept broadly in line with the parent benchmarks.

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In this paper, we examine how to incorporate ESG-enhanced corporate bonds into an investment portfolio from a strategic asset allocation standpoint. To this end, we examine the differences between ESG-enhanced corporate bond indices, namely the Bloomberg SASB US Corporate ESG Ex-Controversies Select Index and the Bloomberg SASB Euro Corporate ESG Ex-Controversies Select Index, and their traditional market-value weighted counterparts.

As a reminder, **the Bloomberg SASB Corporate ESG Ex-Controversies Select indices utilise both an ESG exclusion<sup>1</sup> and integration approach and are designed to target bonds whose issuers have an enhanced ESG profile while keeping in check their active risk to the market value-weighted corporate bond indices.**

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ESG-enhanced corporate bonds can form part of a strategic (core) allocation within investment portfolios. Compared to broad-based corporate bond indices, bond indices with a focus on issuers with a strong ESG profile are often less volatile by virtue of their tilt towards higher grade bonds. In turn, this can improve the overall risk-return efficiency of investment portfolios. Along with a reduction in volatility, the inclusion of bonds whose issuers have an enhanced ESG profile undoubtedly improves the ESG profile of the portfolios too.

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\* Hereafter referred to as ESG-enhanced bonds.

## Assessing the Role of ESG-Enhanced Corporate Bonds in Portfolios

### Potential to Enhance Risk-Return Efficiency

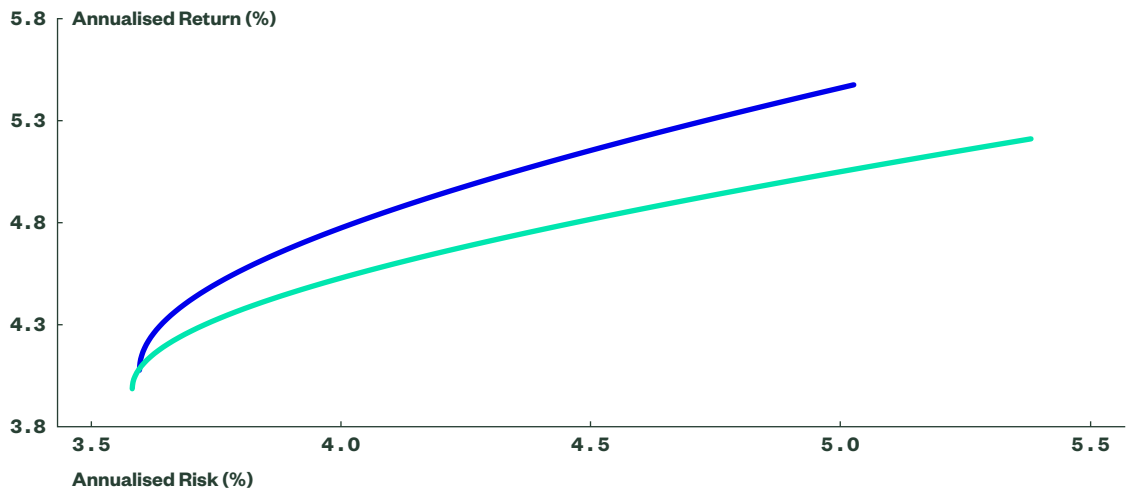
Incorporating ESG-enhanced corporate bonds in investment portfolios **can enhance risk-return efficiency, mitigate risk and improve the ESG profile of investment portfolios.**

Here we evaluate whether replacing conventional bonds with their ESG-enhanced ‘equivalents’ ameliorated the risk-return profile of investment portfolios. To do this, we analysed a portfolio of fixed income instruments and observed the impact on the efficient frontier when conventional corporate bonds were replaced with ESG-enhanced ones. **Historically, this led to an improvement in the risk-return profile as the efficient frontier shifted upwards and to the left;** this result was consistent for both the US and Europe (see Figure 1).

While this result appears promising, it is important to exercise caution over the interpretation of this finding as the analysis is based on only five years of data. Nevertheless, it represents some evidence to demonstrate how ESG-enhanced bonds may be a good replacement for broad corporate bond exposures.

Figure 1  
**Efficient Frontier Analysis of Investment Portfolios with ESG-Enhanced and Conventional US Corporate Bonds (Unconstrained) (2014–2020)**

■ US Treasury/SASB US Corporate  
■ US Treasury/US Corporate Aggregate



Source: State Street Global Advisors, Bloomberg Finance L.P., as of 30 September 2020. “US Treasuries” are represented by the Bloomberg Barclays US Treasury Total Return Unhedged USD Index. The “SASB US Corporate Bonds” are represented by the Bloomberg SASB US Corporate ESG Ex-Controversies Select Index. The inception date for the SASB Corporate Bond indices was September 2019. Results prior to this date were calculated by using available data at the time in accordance with the Index’s current methodology. Index returns reflect capital gains and losses and income.

### Mitigating Portfolio Risk

**ESG-enhanced corporate bonds also appear to exhibit less volatility.** To understand whether the inclusion of ESG-enhanced corporate bonds can help reduce risk, we have examined two fixed income portfolios: one offering exposure to USD bonds and the other to euro bonds. During the study period, the inclusion of ESG-enhanced bonds improved the risk-adjusted return, incurred consistently lower risk and generated a marginally higher excess return in down markets (see Figure 2).

Figure 2

## Selected Risk-Return Characteristics of Fixed Income Blended Portfolios

(a) US

	US Treasury 60%/SASB US Corporate 40%	US Treasury 60%/US Corporate Bond 40%
<b>Return</b>		
Past 1 Year	8.43%	8.00%
Past 3 Years	6.04%	5.88%
Past 5 Years	4.75%	4.65%
Annual Return	4.39%	4.27%
<b>Risk</b>		
Past 1 Year	4.26%	4.47%
Past 3 Years	4.04%	4.10%
Past 5 Years	3.76%	3.79%
Annual Volatility	3.67%	3.69%
Maximum Drawdown	-4.08%	-4.04%
<b>Ratio</b>		
Return per Unit Risk	1.20	1.16
<b>Market Beta</b>		
Market Beta	0.99	—
<b>Excess Returns</b>		
Up Months	0.00%	—
Down Months	0.02%	—

(b) Europe

	Euro Treasury 60%/SASB Euro Corporate 40%	Euro Treasury 60%/Euro Corporate Bond 40%
<b>Return</b>		
Past 1 Year	0.46%	0.50%
Past 3 Years	3.27%	3.23%
Past 5 Years	2.97%	2.96%
Annual Return	3.55%	3.51%
<b>Risk</b>		
Past 1 Year	5.55%	5.74%
Past 3 Years	3.89%	3.97%
Past 5 Years	3.61%	3.67%
Annual Volatility	3.63%	3.68%
Maximum Drawdown	-4.59%	-4.74%
<b>Ratio</b>		
Return per Unit Risk	0.98	0.96
<b>Market Beta</b>		
Market Beta	0.99	1.00
<b>Excess Returns</b>		
Up Months	0.00%	—
Down Months	0.01%	—

Source: State Street Global Advisors, Bloomberg Finance L.P., as of 30 September 2020. "US Treasuries" are represented by the Bloomberg Barclays US Treasury Total Return Unhedged USD Index while "Euro Treasuries" are represented by the Bloomberg Barclays Euro Treasury Total Return Unhedged EUR Index. The "SASB US Corporate Bonds" are represented by the Bloomberg SASB US Corporate ESG Ex-Controversies Select Index and the "SASB Euro Corporate Bonds" are represented by the Bloomberg SASB Euro Corporate ESG Ex-Controversies Select Index. "US Corporate Bonds" are represented by the Bloomberg Barclays US Corporate Bonds Index and "Euro Corporate Bonds" are represented by the Bloomberg Barclays Euro Corporate Bonds Index. The inception date for the SASB Corporate Bond ESG ex-Controversies indices was September 2019. Results prior to this date were calculated by using available data at the time in accordance with the Index's current methodology. Index returns reflect capital gains and losses and income. Cells highlighted in green represent the more favourable number.

### ESG-Enhanced Bonds Can Reduce Portfolio Risk

To understand why the inclusion of ESG-enhanced corporate bonds appears to have lowered portfolio risk, we compared the credit quality of these bonds against their broad-based counterparts. **Figure 3 shows that ESG-enhanced corporate bonds tilted toward better credit quality bonds and away from poorer ones.** For instance, US ESG-enhanced corporate bonds showed a significant bias toward the higher quality AA3 and A1 bonds and away from the lower quality BAA3 bonds. Similarly, ESG-enhanced European corporate bonds favoured stronger credit quality bonds too.

Figure 3

**Distribution of Average Active Weights (ESG-Enhanced vs. Broad-Based Corporate Bonds) in Each Credit Rating (2014–2020)**

(a) US

## Monthly Average Credit Rating

	AAA (%)	AA1 (%)	AA2 (%)	AA3 (%)	A1 (%)	A2 (%)	A3 (%)	BAA1 (%)	BAA2 (%)	BAA3 (%)
2014	-0.45	-0.02	-0.59	3.65	6.26	-2.27	-3.74	0.85	-0.44	-3.25
2015	-0.43	0.04	-2.11	4.94	6.61	-2.52	-3.90	1.83	1.51	-5.96
2016	-0.44	0.17	-1.56	4.43	7.39	-3.18	-3.59	1.90	0.95	-6.08
2017	0.05	0.17	-1.39	4.08	7.86	-4.43	-3.37	3.27	1.07	-7.31
2018	0.09	0.56	-1.19	3.42	7.07	-3.27	-3.68	2.16	1.30	-6.46
2019	0.10	0.63	-1.27	3.01	6.83	-2.83	-4.27	3.18	0.91	-6.28
2020 (YTD)	0.15	0.64	0.29	0.57	6.27	-3.00	-2.47	2.17	0.02	-4.65
Average (Full Period) (Year)	-0.13	0.31	-1.12	3.44	6.90	-3.07	-3.58	2.19	0.76	-5.71

(b) Europe

## Monthly Average Credit Rating

	AAA (%)	AA1 (%)	AA2 (%)	AA3 (%)	A1 (%)	A2 (%)	A3 (%)	BAA1 (%)	BAA2 (%)	BAA3 (%)
2014	-0.14	-0.02	3.21	-1.32	0.32	2.57	-5.80	0.01	0.55	0.62
2015	-0.15	-0.02	1.18	0.87	0.98	1.81	-4.62	-2.58	4.16	-1.63
2016	-0.24	-0.16	1.05	-0.08	2.01	3.07	-3.04	-2.94	3.28	-2.94
2017	-0.27	0.00	-0.06	1.24	0.30	2.55	-1.85	1.26	0.56	-3.74
2018	-0.22	0.02	-1.12	2.41	0.33	0.82	-0.88	2.07	-0.89	-2.56
2019	-0.13	0.06	-0.94	1.88	-0.43	2.46	-0.29	0.28	-1.77	-1.14
2020 (YTD)	-0.13	0.10	-0.99	1.97	-0.55	-0.26	0.81	3.09	-3.01	-1.02
Average (Full Period) (Year)	-0.18	0.00	0.33	1.00	0.42	1.86	-2.24	0.17	0.41	-1.77

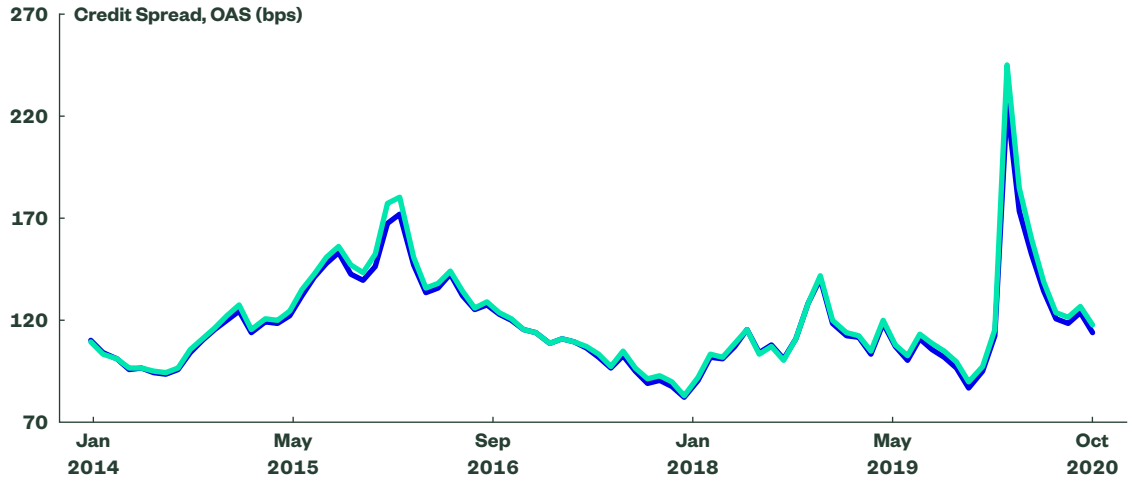
Source: State Street Global Advisors, as of September 2020. Cells highlighted in dark red represent the highest underweight while the cells highlighted in dark green represent the highest overweight.

Characteristics of ESG-Enhanced Corporate Bonds

To complete the analysis, we also looked at other characteristics of ESG-enhanced and non-ESG-enhanced corporate bonds. Assessing credit from the perspective of option-adjusted spread, we found that ESG-enhanced US corporate bonds had a lower average credit spread while keeping both average duration (7.5 years) and average yield to worst largely the same (3.2%) over the time period (see Figure 5). **This is because the SASB corporate bond indices seek to maximise the ESG profile at the issuer level while keeping the other broad fixed income risk characteristics similar to the parent benchmarks.** The main differences occur at the Bloomberg Barclays Class 2 Sector level where material sector bets are observed (see Figure 6). The same finding holds for euro corporate bonds.

Figure 4  
**Option-Adjusted  
 Spread — ESG-  
 Enhanced US  
 Corporate Bonds vs.  
 Parent Benchmark**

■ SASB US Corporate Bonds  
 ESG Ex-Controversies  
 ■ US Corporate Bonds



Source: State Street Global Advisors, as of September 2020.

Figure 5  
**Characteristics of  
 ESG-Enhanced  
 US Corporate Bonds  
 vs. Parent Benchmark**

	SASB US Corporate Bonds	US Corporate Bonds (Parent Benchmark)
Index Rating	A2 / A3	A3 / BAA1
Yield to Maturity	2.01	2.05
Years to Maturity	12.25	12.08
Coupon	4.23	3.93
Modified OA Duration	8.71	8.69
Yield to Worst	1.98	2.00
No. of Constituents	3228	6630
No of Issuers	269	743

Source: Bloomberg Finance L.P., State Street Global Advisors, as of end of September 2020. Cells highlighted in green represent the higher number. "SASB US Corporate Bonds" are represented by the Bloomberg SASB US Corporate ESG Ex-Controversies Index and "US Corporate Bonds" are represented by Bloomberg Barclays US Corporate Bond Index.

Figure 6  
**Sector Biases of  
 ESG-Enhanced US  
 Corporate Bond Index  
 vs. Parent Benchmark**

US

	2014	2015	2016	2017	2018	2019	2020	Average (Full Period) (Year)
Banking (%)	2.55	0.85	0.07	0.75	1.95	0.90	0.94	1.14
Basic Industry (%)	5.53	5.07	4.12	4.43	3.58	1.68	0.99	3.63
Brokerage/Asset Managers/ Exchanges (%)	-0.26	-0.30	0.01	-0.05	-0.28	-0.65	-0.67	-0.31
Capital Goods (%)	-1.45	-1.33	0.66	0.17	0.49	-0.26	-1.39	-0.45
Communications (%)	-1.72	0.52	1.53	2.07	1.16	1.79	0.75	0.87
Consumer Cyclical (%)	-2.19	-2.44	-3.69	-4.19	-4.23	-2.96	-0.98	-2.95
Consumer Non Cyclical (%)	1.29	0.42	-0.30	0.83	2.11	2.64	2.79	1.40
Electric (%)	-0.25	-0.63	-0.56	-1.52	-2.43	-1.91	-1.44	-1.25
Energy (%)	-4.37	-5.38	-3.84	-4.50	-4.73	-4.64	-3.47	-4.42
Finance (%)	1.21	1.20	-0.66	-0.56	-0.56	-0.59	-0.60	-0.08
Financial Other (%)	-0.12	-0.03	0.06	-0.01	-0.04	-0.05	-0.05	-0.03
Industrial Other (%)	-0.29	-0.32	-0.33	0.22	0.01	0.02	-0.06	-0.11
Insurance (%)	-2.81	-1.36	-0.70	-1.12	-0.93	-1.61	-2.46	-1.57
Natural Gas (%)	-0.50	0.10	0.01	-0.06	-0.01	0.25	0.28	0.01
Other Utility (%)	0.00	0.00	0.00	0.00	0.00	0.12	0.19	0.04
REITS (%)	-2.32	-2.37	-0.77	-0.42	-0.28	1.42	1.79	-0.42
Technology (%)	6.10	6.68	5.33	5.08	5.70	5.68	5.57	5.73
Transportation (%)	-1.88	-1.97	-2.08	-2.03	-2.10	-1.93	-2.17	-2.02
Utility Other (%)	1.51	1.29	1.15	0.91	0.58	0.13	0.00	0.80

Source: Bloomberg Finance L.P., State Street Global Advisors, as of end of September 2020. Cells highlighted in green represent the higher number. "ESG-enhanced US Corporate Bonds" are represented by the Bloomberg Barclays SASB US Corporate ESG Ex-Controversies Index and "US Corporate Bonds" are represented by Bloomberg Barclays U.S. Corporate Bonds Index.

Enhancing Portfolio  
 ESG Profile

Another important feature of these bonds is that they have an enhanced ESG profile. **Therefore, it is no surprise that we saw a marked improvement\* in the ESG profile of ESG-enhanced corporate bonds against their parent benchmarks.**

\* Source: State Street Global Advisors, as of September 2020. More information is available on request.

## Risk Attribution for Stylised Fixed Income Portfolios

To understand the biases that result from replacing corporate bond indices with their ESG-enhanced versions, we created fixed income portfolios with 60% in US Treasuries and 40% in the Bloomberg SASB US Corporate ESG Ex-Controversies Index and compared them against a US broad-based benchmark. The analysis was conducted on the basis of holdings data using a MSCI Barra Multi-Asset Class Risk Model as at the end of September 2020.

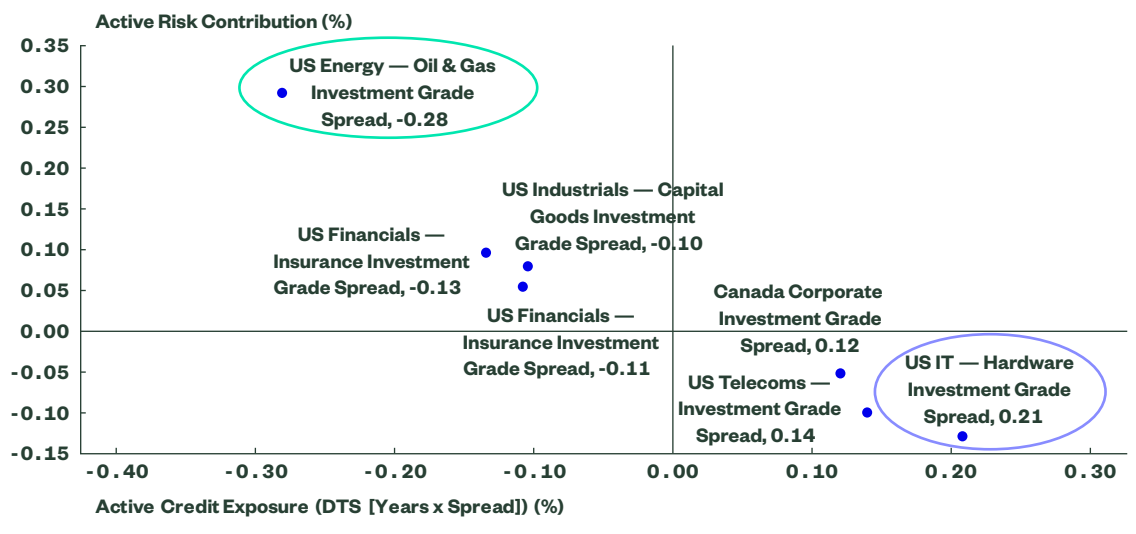
As shown in Figure 7, the tracking error between the ESG-enhanced and non-ESG-enhanced fixed income portfolios was low and mainly came from credit risk (e.g. oil & gas and insurance spreads) and selection risk (see Figure 8). **The material amount of selection risk highlights that bond selection using ESG criteria is a relevant consideration in the outcome of these indices.**

Figure 7  
**Risk Contribution to Ex-Ante Tracking Error of 60% Treasuries/40% ESG-Enhanced US Corporates vs. 60%/40% Parent Benchmarks**

Factors	60% US Treasuries & 40% SASB US Corporate (versus 60%/40% Parent Benchmarks)
Rates	0.01
Credit	0.25
Basis	0.00
Selection Risk	0.18
<b>Total (Tracking Error)</b>	<b>0.45</b>

Source: MSCI Barra, State Street Global Advisors, as of September 2020. "US Treasury" is represented by Bloomberg Barclays US Treasury Total Return Unhedged USD, "SASB US Corporate" is represented by Bloomberg SASB US Corporate ESG Ex-Controversies Select Index. The inception date for the SASB Corporate Bond indices was September 2019. Results prior to this date were calculated by using available data at the time in accordance with the Index's current methodology. Index returns reflect capital gains and losses and income. Cells highlighted in green represent the higher numbers.

Figure 8  
**Portfolio Risk Contribution — Credit Risk Factors (60%/40% ESG-Enhanced Fixed Income vs. 60%/40% Parent Benchmarks)**



Source: MSCI Barra, State Street Global Advisors, as of end of September 2020. The numbers next to the label in the graph represent the credit spread exposure in DTS.

## Endnote

- 1 There are specified thresholds on when a bond issuer is excluded. For civilian firearms manufacturers, companies deriving 5% or more of their revenues from the manufacture and/or sale of assault and non-assault weapons to civilian customers and/or their key components as well as from the distribution and/or retail sale of assault and/or non-assault weapons. For thermal coal extraction companies, all companies deriving 5% or more of their revenue from the extraction of thermal coal. Finally, for tobacco companies, all companies deriving 5% or more of their revenue from the production or supply of tobacco or tobacco related products and services or 10% or more of their revenues from the distribution and retail sale of tobacco products.

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