

ESG Risk and Fixed Income Investing

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Agenda

1. Quantifying Climate and ESG Risk
2. ESG Investment Strategies
3. Key Take-aways

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Overview

ESG risk and climate change risk

- ESG and climate risk: connected but distinct
- Growing ESG awareness and quantification: significant capital inflow
- ESG investing: > US\$20T in AUM (1/4 of managed assets worldwide) (Forbes, 07/11/18)
- Impact firms' ability to conduct business

How should investors adapt?

1

Quantifying Climate Risk
and ESG Risk

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Climate and ESG risk – Data

Four Twenty-Seven, Vigeo Eiris, RepRisk



Climate risk scores
Geo-located
Firm-level; Security Level coming in December
Quarterly data feed with 10,000 assets screened for supply chain and market risk
6 climate hazards assessed



ESG scores, subscores
Based on 38 criteria, grouped into 6 domains of analysis (Environment, Community Involvement, Business Behaviour, Human Rights, Governance, Human Resources)
ESG coverage of ~4,500 issuers, thematic research on up to 10,000 issuers



ESG scores, E, S, G subscores
ESG ratings (AAA-D)
Updated daily
134,054 companies (Nov. 2019)

2

ESG Investment Strategies

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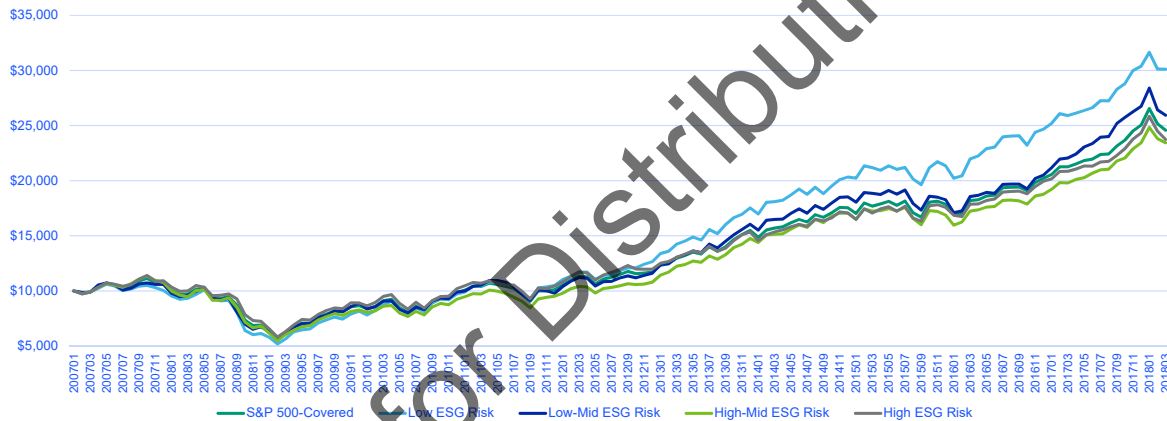
Simple sorts by ESG risk: How do strategies perform?

Equity, Investment Grade, and High Yield Markets

- In equity, we sort stocks by ESG risk
- In fixed income markets, we do the same for bonds
- It's a simple sort: we don't pre-sort by any other variables
- We focus here on RepRisk data
- Let's see the results...

Equity Portfolio Values vs. Time

Based on highest trailing two-year RepRisk ESG Scores*



*Sourced from Bureau van Dijk, a Moody's Analytics Company

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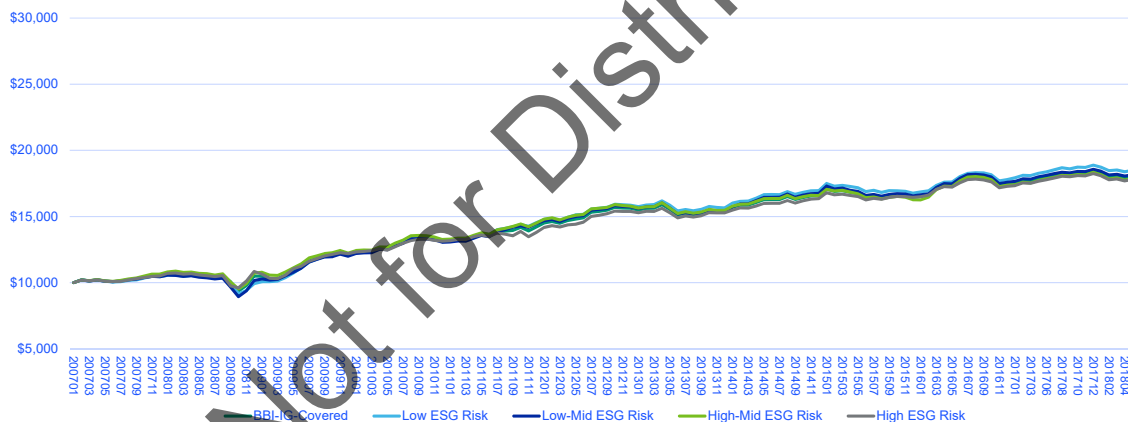
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9

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Investment Grade Bond Portfolios

Based on highest trailing two-year RepRisk ESG Scores*



*Sourced from Bureau van Dijk, a Moody's Analytics Company

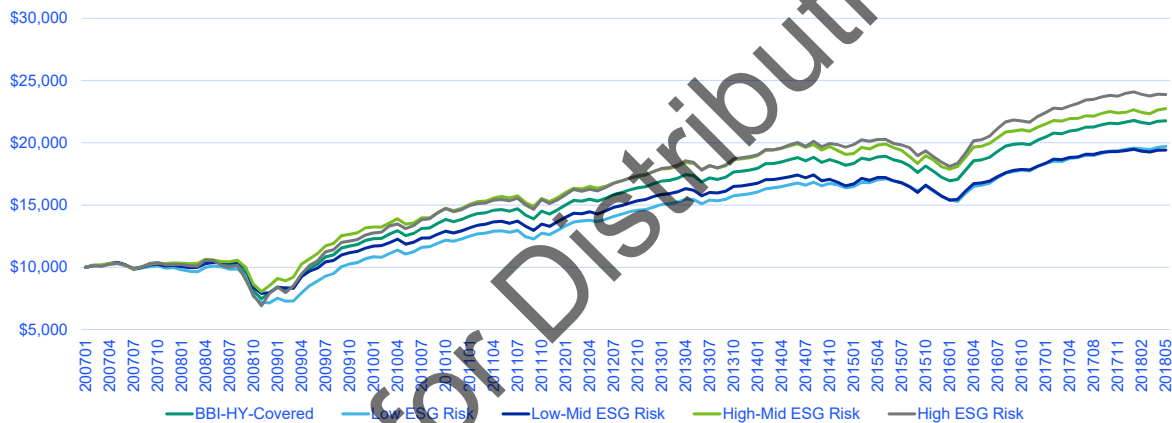
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10

High Yield Bond Portfolios

Based on highest trailing two-year RepRisk ESG Scores*



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ESG Strategy Performance

Dependent on market

- Performance in U.S. large cap equity is **as expected**, and differences are **material**
- Performance in U.S. Investment Grade is **as expected**, but differences are **not material**
- Performance in U.S. High Yield is the **opposite** from our expectations
 - Result: High ESG Risk bonds outperform in USHY
 - Theory: Reducing ESG risk has a cost, which outweighs benefit for HY

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What's the issue with these results?

Special features of fixed income investing

- In fixed income, lots of other risk exposures matter
 - Yield (spread), duration, maturity, sector, rating
- Correlation with these affect ESG portfolio results
- Let's dig deeper into these now and control for them

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Refining the results – linear programming

ESG performance with sector, rating, maturity constraints

- Two portfolios:
- (1) Maximize weighted average ESG risk score
 - (2) Minimize weighted average ESG risk score

Subject to the constraints:

- (a) Weighted average spread = WAS for index
- (b) Weighted average duration = WAD for index
- (c) Sum of maturity bucket weights = S. of maturity bucket weights for index (e.o. 5 buckets)
- (d) Sum of sector bucket weights = S. of sector bucket weights for index (e.o. 13 Buckets)
- (e) Sum of rating bucket weights = S. of rating bucket weights for index (e.o. 7 Buckets)

Investment Grade

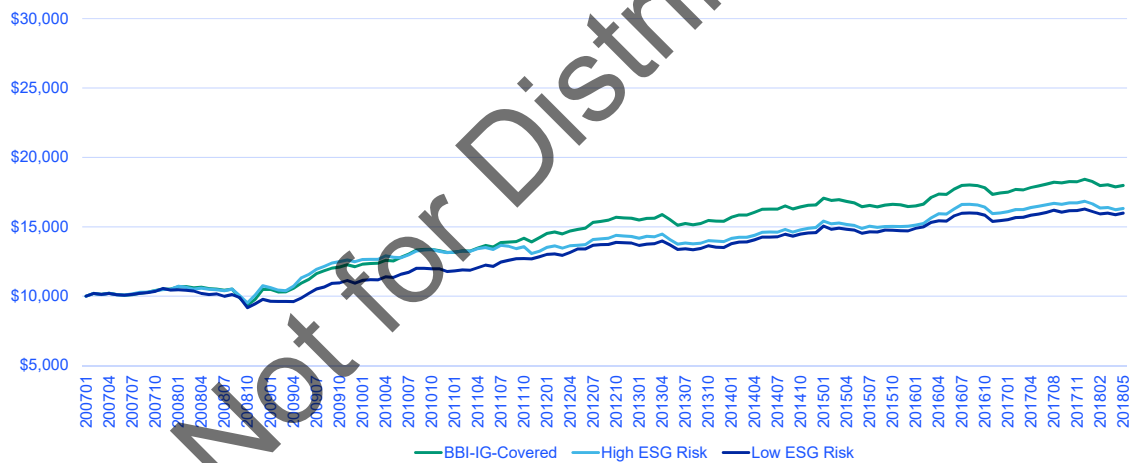
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Investment grade: Max and Min ESG portfolios

TTY ESG score, USIG – No performance difference

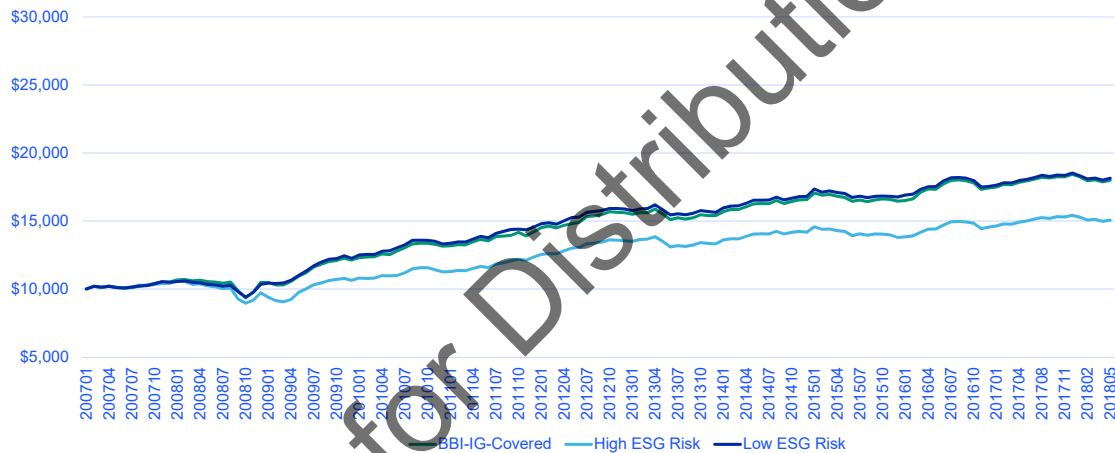


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Investment grade: Max and Min E portfolios

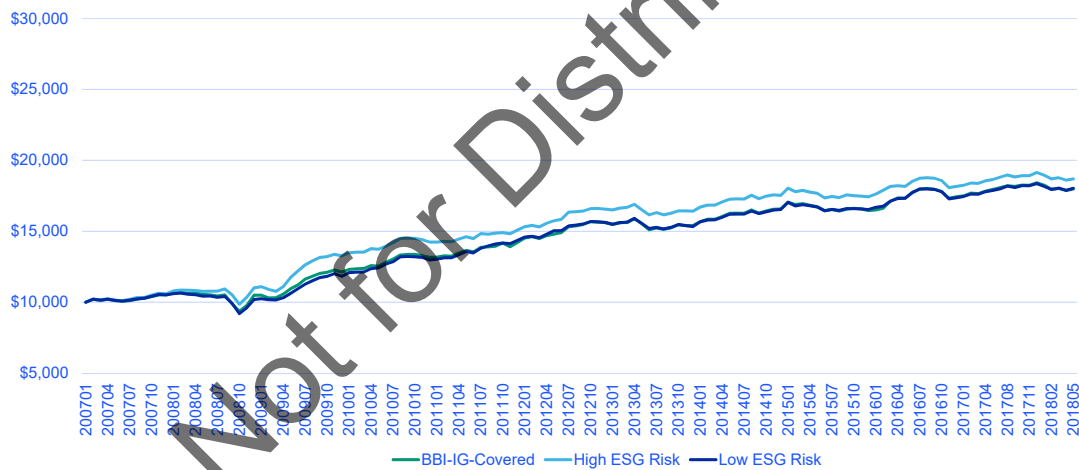
TTY E score, USIG – Low E risk outperforms



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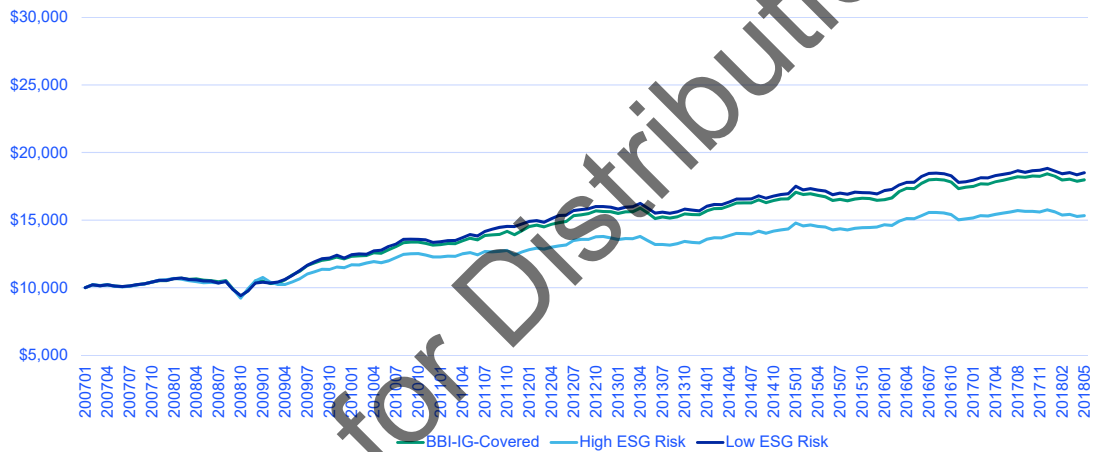
Investment grade: Max and Min S portfolios

TTY S score, USIG – High S risk outperforms



Investment grade: Max and Min G portfolios

TTY G score, USIG – Low G risk outperforms



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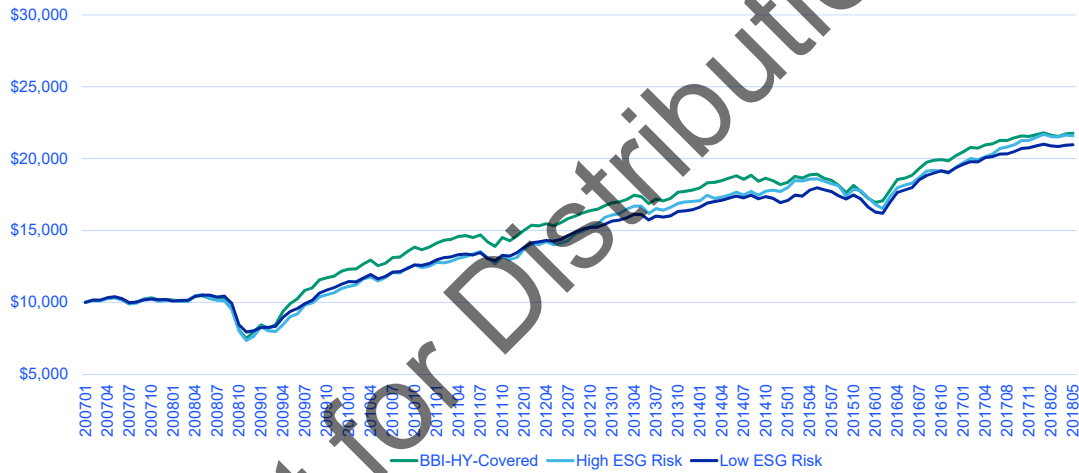
High Yield

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High Yield: Max and Min ESG portfolios

TTY ESG score, USHY – High ESG risk slightly outperforms



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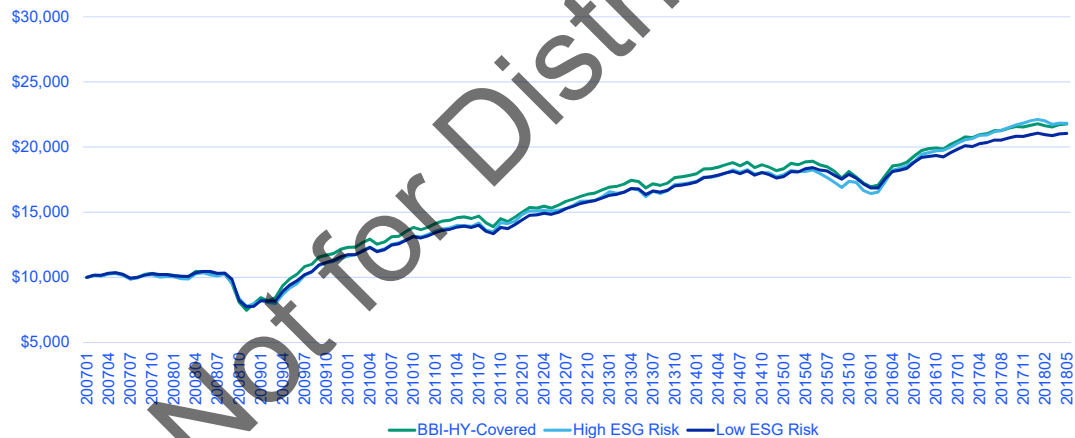
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High Yield: Max and Min E portfolios

TTY E score, USHY – High E risk slightly outperforms



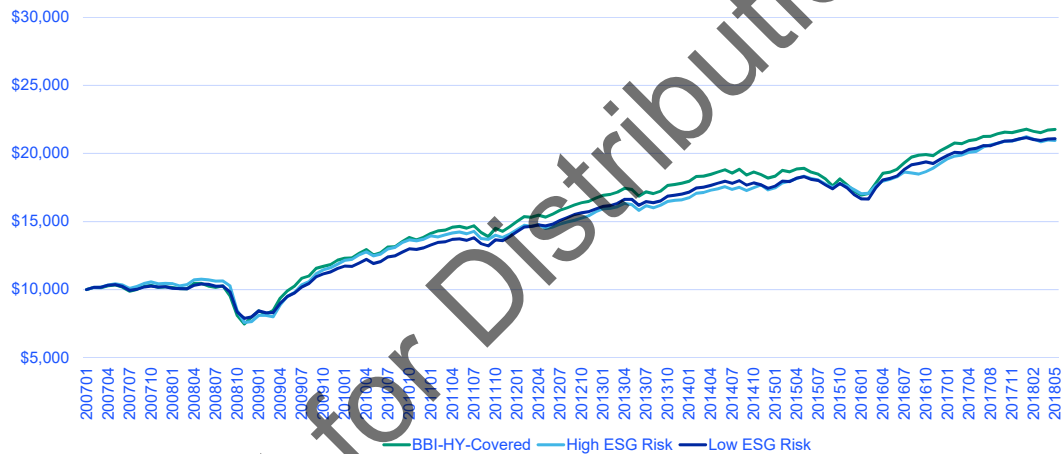
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22

High Yield: Max and Min S portfolios

TTY S score, USHY – No S performance difference



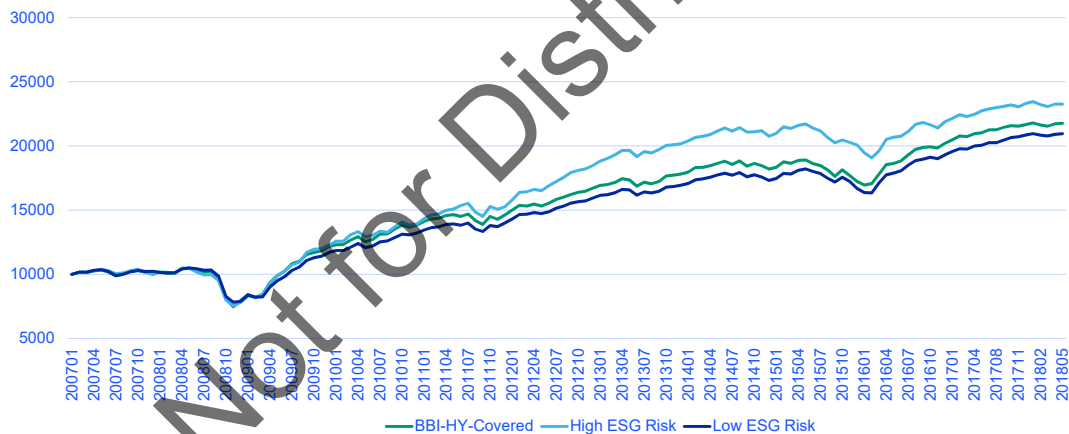
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High Yield: Max and Min G portfolios

TTY G score, USHY – High G risk outperforms



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ESG ratings vs. scores

- RepRisk publishes ESG ratings as well as scores
- Are the main results robust to using ratings versus the ESG scores?
 - Yes

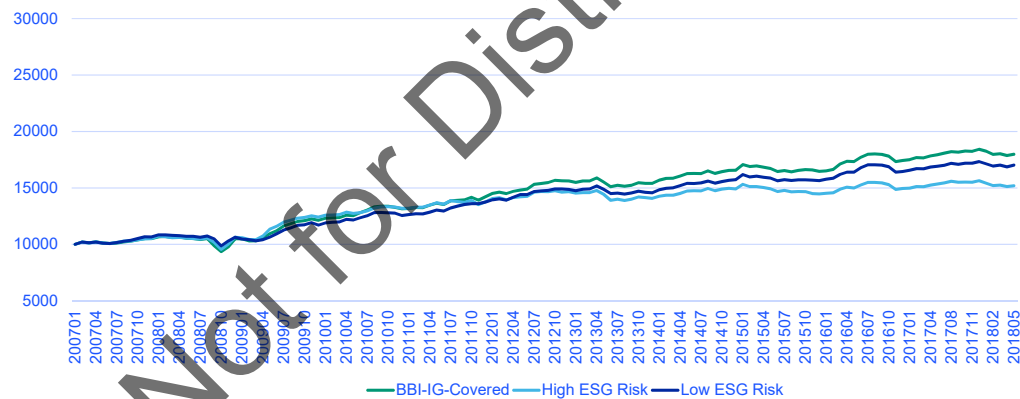
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USIG: Max and Min ESG Rating portfolios

TTY Rating value, USIG – Low ESG risk rating outperforms

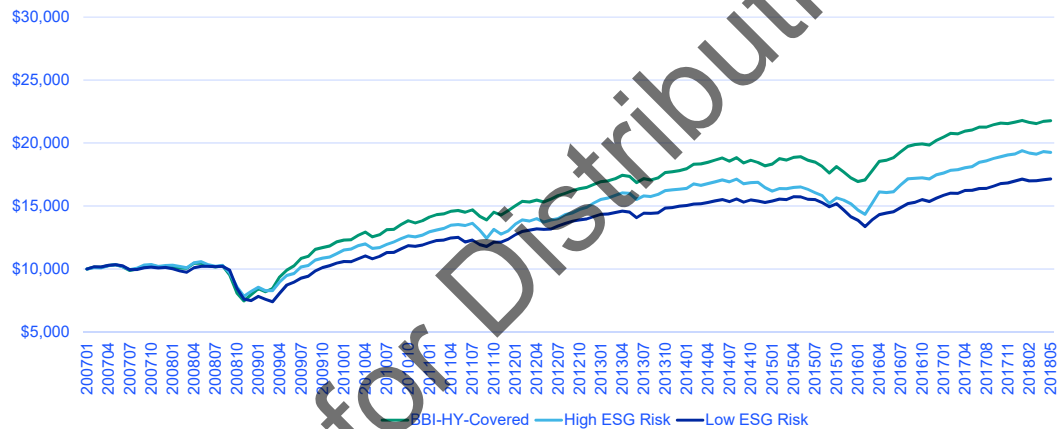


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USHY: Max and Min ESG Rating portfolios

TTY Rating value, USHY – High ESG risk rating outperforms



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3

Key take-aways

Take-aways

- 1 ESG tools have become indispensable for many investors and risk managers
- 2 We now have data-driven, forward-looking climate and ESG risk analytics
- 3 ESG strategies in fixed income must control for ratings, duration, sector risk, and results differ by market

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