

Bloomberg Barclays MSCI ESG Fixed Income Indices

**A Market Standard for Environmental, Social, and
Governance Investing**

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Bloomberg Barclays MSCI ESG Fixed Income Family

Bloomberg, a global leader in fixed income indexing, and MSCI, the world's largest provider of ESG (environmental, social, and governance) equity indices¹ and research², have collaborated on the development of a family of rules-based benchmark indices that incorporate measures of ESG risk and exposures.

The Bloomberg Barclays MSCI ESG Fixed Income Indices include a range of investment-grade aggregate and corporate index benchmarks addressing the evolving needs of institutional investors, who increasingly aim to incorporate ESG considerations into their strategic asset allocation.

- **Bloomberg Barclays MSCI ESG-Weighted Indices** use MSCI ESG Ratings and MSCI ESG Ratings momentum to overweight/underweight issuers within an existing Bloomberg Barclays parent index. These indices include the full universe of index eligible securities and then apply tilts to the natural market value weights in favor of higher rated/positive momentum issuers and against lower rated/negative momentum issuers.
- **Bloomberg Barclays MSCI Socially Responsible (SRI) Indices** negatively screen out issuers from existing Bloomberg Barclays parent indices that may be involved in business lines or activities that are in conflict with investment policies, values or social norms. These indices use MSCI Business Involvement Screening Research (BISR) and MSCI ESG Controversies to identify exposure to screened issues.
- **Bloomberg Barclays MSCI Sustainability Indices** positively screen issuers from existing Bloomberg Barclays parent indices based on MSCI ESG Ratings, which are a "best in class" assessment of how well an issuer manages ESG risks relative to its industry peer group. ESG Ratings are available for corporate, sovereign, and government-related issuers. The minimum threshold applied to Bloomberg Barclays flagship indices is an ESG rating of BBB or better.
- **Bloomberg Barclays MSCI Green Bond Indices** offer investors an objective and robust measure of the global market for fixed income securities issued to fund projects with direct environmental benefits. An independent research-driven methodology is used to evaluate index-eligible green bonds to ensure they adhere to established Green Bond Principles and to classify bonds by their environmental use of proceeds.

*A Market Standard for
Environmental, Social, and
Governance Investing*

¹ By number of indices and by assets tracking the indices compared with publically available information produced by FTSE and S&P Dow Jones.

² ESG Research provided by MSCI ESG Research. By number of clients based on public information produced by Sustainalytics, Vigeo/Eiris and Oekom as of April 2017.

Introduction

Defining ESG Investing

Institutional investors are increasingly looking for ways to account for ESG signals in their investment decision-making process. The rise in the number of Principles for Responsible Investment (PRI) signatories moving from less than 200 (accounting for less than US\$ 10 trillion) in 2006 to more than 1700 (representing more than US\$ 70 trillion) in April 2017 is strong evidence of the trend towards higher ESG awareness.

No longer restricted to ethical screening, the term “ESG investing” now encompasses a wide range of investment objectives and beliefs, and different institutional investors sometimes pursue very different objectives when addressing ESG issues, including managing long-term risks, generating positive societal impact and/or aligning their investment with their beliefs.

- **Integration:** A growing body of research suggests that ESG factors have contributed to long-term financial performance. ESG factors can be used to identify better-managed companies or to flag companies with business models that are likely to face headwinds or tailwinds driven by rapidly evolving regulatory, environmental, demographic or technological trends. Institutional investors are increasingly looking to ESG factors as a way to manage these long-term risks and to achieve long-term sustainable financial performance.³
- **Values:** Some investors may consider ESG issues a means for aligning investments with their ethical, religious or political beliefs. They have typically used ESG research to screen for controversial activities such as tobacco, weapons, alcohol, gambling or fossil fuels, and to help exclude such activities from their investment universe. Unlike the ESG integration goals described above, where ESG factors are considered on the basis of their potential economic impact, values-based goals are intentionally aligned to match an investor’s beliefs.
- **Impact:** Increasingly, some investors are focused on the impact of their investments on the world around them. These investors aim to direct their capital toward companies that provide solutions to environmental and/or social challenges and, through formal frameworks such as the UN Sustainable Development Goals (SDGs), monitor the extent to which their investments are generating positive social or environmental impacts alongside their financial returns.

1,100 investors with over \$34trn in assets are signatories to the UN Principles for Responsible Investing

As the concept of “ESG Investing” continues to evolve, we observe three key trends:

Growth of ESG Integration strategies: Macro societal and environmental trends - ranging from climate change and rising sea levels to social inequality and demographic shifts - pose potentially overlooked risks for long-term institutional investors. Traditionally, such risks were considered exogenous, but we observe a growing awareness among long-term institutional investors in the value or understanding and managing of their exposure to ESG risks.

Rise of ESG Benchmark Adoption: As ESG investment guidelines become more commonplace among asset owners in general, and as many continue to build capabilities in engagement and risk management, we have seen a growing set of institutional investors focus on long-termism by adopting ESG-informed benchmarks. The development of broad-based

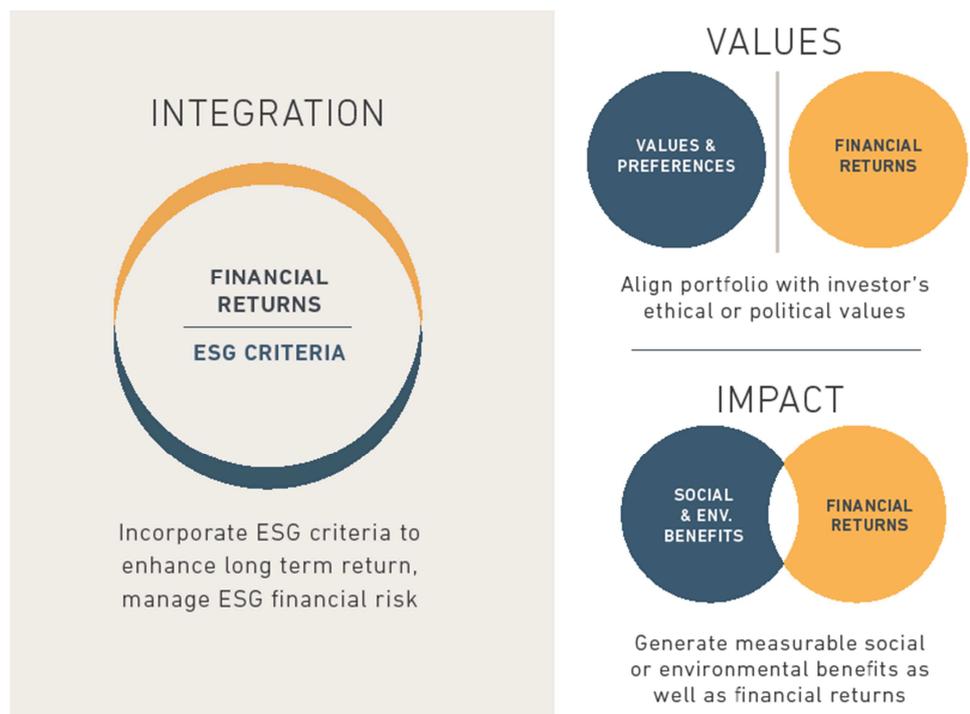
³ Khan, Serafeim and Yoon (2015). “Corporate Sustainability: First Evidence on Materiality,” Harvard Business School Working Paper No. 15-073. Friede, Busch and Bassen (2015), “ESG and Financial Performance: Aggregated Evidence from More than 2000 Empirical Studies.” Journal of Sustainable Finance & Investment. Richard Hitchens, Sandra McCullagh and Chris Parks (2014) “Finding Alpha in ESG.” Credit Suisse ESG-α Series, 19 June 2015. Northern Trust (2014), “Doing Good and Doing Well - How Quality Can Enhance Your ESG Strategy.”

ESG indices - which reduce exposure to ESG risk while still maintaining a broad and diversified investment universe - has been accompanied by a parallel shift in thinking of ESG principles as core and strategic inputs into the investment process, rather than thematic or tactical considerations.

ESG Across Asset Classes: There has been increased recognition that ESG issues are a cross asset consideration. More established, yet still growing, in equity investing, ESG principles are growing in acceptance and formal usage for the fixed income asset class as well. With the size of the fixed income market far exceeding that of the equity market and a much more diverse set of issuers to evaluate, the overall volume of assets managed with ESG consideration is expected to grow considerably from this migration to fixed income alone.

Figure 1 - ESG Investing Framework

Due diligence on how an asset manager manages and monitors ESG risk is becoming much more specific in investment manager searches and RFPs



Source: MSCI ESG Research

Index Design and Methodologies

Design Objectives

The indices aim to offer a degree of market standardization that is currently absent in the fixed income asset class

The Bloomberg Barclays MSCI ESG Fixed Income Index Series was designed to meet the needs of the diverse ESG investment community. The four flagship ESG index variants (ESG-Weighted, Sustainability, Socially Responsible, and Green Bond) correspond to diverse ESG investment approaches utilized by different fixed income investors: ESG integration (through tilting or security selection), values alignment, and impact investing.

The indices were designed with the goal of benchmark standardization for fixed income investors, while remaining flexible and adaptable enough to offer bespoke solutions to meet a specific investor's constraints, preferences, or guidelines. As such, the underlying eligibility criteria for bonds in the indices match those of Bloomberg Barclays' market-leading fixed income benchmarks, and adhere to design principles required for any good benchmark:

- **Representative** of the market being measured and the desired risk exposures of index users.
- **Replicable**, having a sufficiently sized universe without excess turnover and transaction costs.
- **Objective and transparent**, with clearly-defined and objective rules, as well as daily visibility into current index composition and future composition during rebalancing periods.
- **Suitable** as investment benchmarks for actively and passively managed portfolios.

Index Rules

Fixed income index rules generally consist of three design elements:

1. Identifying the investment choice set you are trying to measure.
2. Defining which securities will be eligible from that universe.
3. Determining how each eligible security will be weighted.

For each of the Bloomberg Barclays MSCI ESG Fixed Income Indices, the eligible bond universes start with existing Bloomberg Barclays fixed income indices. From these universes, additional ESG eligibility criteria and/or weighting schemes are applied to arrive at the final benchmark index families.

The following sections offer an overview of the respective data sets contributed by Bloomberg Barclays (fixed income indices) and MSCI (ESG research and measurement) and details on how they are jointly applied in the construction of the Bloomberg Barclays MSCI ESG Fixed Income Index Series. Detailed rules for specific indices are available in the index profiles in the appendices of this document.

Bloomberg Barclays Fixed Income Indices

Eligible Bond Universe

The eligible bond universe for each index in the Bloomberg Barclays MSCI ESG Fixed Income Index Series is one of four flagship Bloomberg Barclays Aggregate Indices: the Global Aggregate, US Aggregate, Euro Aggregate, or Sterling Aggregate. These broad-based, investment-grade indices include corporate, Treasury, government-related, and securitized bonds.

Global Aggregate

The Global Aggregate Index is a market-value weighted, broad-based measure of the global investment-grade, fixed-rate debt market. The Global Aggregate Index contains three major components: the US Aggregate, the Pan-European Aggregate, and the Asian-Pacific Aggregate Index. In addition to securities from these three benchmarks, the Global Aggregate Index includes Global Treasury, Eurodollar, Euro-Yen, Canadian, and Investment Grade 144A index-eligible securities not already in the three regional aggregate indices.

To be included in the Global Aggregate Index, securities must meet the following criteria:

- **Eligible Local Currency:** Currencies eligible for inclusion must be freely tradable and hedgable. Eligible currencies include:
 - **Americas:** USD, CAD, CLP, MXN
 - **EMEA:** EUR, GBP, CHF, CZK, DKK, HUF, ILS, NOK, PLN, SEK, ZAR
 - **Asian-Pacific:** JPY, AUD, HKD, KRW, NZD, SGD, MYR, THB
- **Amount Outstanding:** Fixed minimum issue sizes are set for all local currency markets:
 - **USD, CAD, EUR, CHF, AUD:** 300mn
 - **GBP:** 200mn
 - **JPY:** 35bn
 - **DKK, NOK, PLN, ZAR, ILS, HKD, MYR:** 2bn
 - **SEK:** 2.5bn
 - **MXN, CZK, THB:** 10bn
 - **NZD, SGD:** 500mn
 - **CLP:** 100bn
 - **HUF:** 200bn
 - **KRW:** 500bn
- **Credit Quality:** Must be rated investment grade (Baa3/BBB-/BBB-) or higher using the middle rating of Moody's, S&P, and Fitch. When a rating from only two agencies is available, the lower one is used.
- **Maturity:** At least one year until final maturity.
- **Coupon:** Must be fixed-rate. Fixed to floating rate bonds are eligible up to one year prior to its floating rate date

Index rules also exclude certain types of securities (such as inflation-linked bonds, bonds with equity type features, tax-exempt municipals, structured notes), as well as private placements, retail bonds, and illiquid securities with no available internal or third-party pricing source.

Regional Aggregate Indices (US Aggregate, Euro Aggregate, and Sterling Aggregate)

The regional US Aggregate, Euro Aggregate, and Sterling Aggregate Indices use the same inclusion criteria as the Global Aggregate, but restrict the universe based on currency denomination of the bond. Additionally, the US Aggregate is restricted to SEC registered bonds or 144A bonds with registration rights.

Index Weighting

The standard convention for fixed income indices is to weight each security by its market value as a percentage of the overall universe. Other available weighting schemes include capped/constrained indices that limit exposure to market segments to predefined thresholds, GDP weighting by country, and Fiscal Strength Weights by country.

Index Mechanics

The same core index rules and mechanics applied to Barclays' flagship aggregate indices will be used within the Bloomberg Barclays MSCI ESG Fixed Income index family.

Rebalancing

Indices are rebalanced on a monthly basis on the last business day of each month. For each index, two populations of securities are maintained daily: a fixed returns universe, which is held constant throughout the month and used to compute returns, and a dynamic forward universe, which projects the next month's index composition based on current eligibility. On the last business day of the month (the rebalancing date), the composition of the latest forward universe becomes the returns universe for the following month.

During the month, indicative changes to securities (credit rating change, sector reclassification, amount outstanding changes, corporate actions, ticker changes) are reflected daily in the statistics and returns universe of the index. These changes may cause bonds to enter or fall out of the forward universe of the index on a daily basis, but will affect the composition of the returns universe at month-end only, when the index is rebalanced.

Intra-month cash flows from interest and principal payments contribute to monthly index returns, but are not reinvested at any short-term reinvestment rate in between rebalance dates to earn an incremental return.

Pricing and Related Issues

Index-eligible bonds are priced on a daily basis by Bloomberg's evaluated pricing service, BVAL. Prices for securities within the Bloomberg Barclays MSCI ESG Fixed Income index family will be the same as within the flagship Bloomberg Barclays aggregate indices.

Other index pricing conventions, such as quote type and settlement assumptions, will also be the same as the flagship Bloomberg Barclays aggregate indices.

Sectors within the Eligible Bond Universe

All securities in the aggregate bond indices that serve as the basis for the Bloomberg Barclays MSCI ESG Fixed Income index family are assigned a sector classification under Barclays index classification scheme. The sector classification is designed to segment bonds by industry, government affiliation, or some other grouping of ultimate issuer risk. All issuers within the Bloomberg Barclays fixed income indices are first classified into four broad sectors which represent the first level of the classification scheme:

- **Treasury:** Includes native currency sovereign debt issued by central governments.
- **Government-Related:** Includes non-Treasury bonds from issuers with direct and indirect government affiliations (government ownership, control, sponsorship, etc.). It also includes government debt obligations from local authority and agency issuers, as well as supranationals. The government-related sector has four sub-sectors to group different types of issuers: agency, sovereign, supranational, and local authority.
- **Corporate:** The largest and most detailed component of the Barclays classification scheme. The corporate sector has been refined over the years to accurately categorize issuers across geographic markets based on their primary lines of business and revenue streams that affect an issuer's ability to repay their debt. Any issuers with more than 50% government ownership are classified as government-related, as opposed to corporate in the Barclays classification scheme.
- **Securitized:** Captures fixed income instruments whose payments are backed or directly derived from a pool of assets that is protected or ring-fenced from the credit of a particular issuer. The four main sub-sectors of the securitized sector are MBS pass-through (MBS), asset-backed (ABS), commercial mortgage-backed (CMBS), and covered bonds. For Barclays MSCI ESG indices, only covered bond issuers will be assigned ESG Ratings.

Within each broad sector, there will be up to three additional layers depending on the depth and heterogeneity of issuers within that market.

MSCI ESG Research Ratings and Controversies

MSCI ESG Ratings

MSCI ESG Ratings are designed to help investors identify the environmental, social and governance (ESG) risks and opportunities of their investments and to integrate these factors into their portfolio construction. Companies are rated on a 7-point 'AAA' to 'CCC' scale according to their exposure to industry-specific ESG risks and their ability to manage those risks relative to peers.

MSCI ESG Ratings were developed through over 40 years of experience through legacy companies collecting, cleaning, standardizing and modelling ESG data from thousands of sources to create a precision tool for a clear signal of ESG performance.

A global team of 170+ research analysts rates over 6,400 companies (11,800 total issuers including subsidiaries) and more than 400,000 fixed income securities globally, including over 95% by market value of the Bloomberg Barclays Global Corporate Bond Index.

Figure 2 - MSCI ESG Ratings



Source: MSCI ESG Research

Figure 3 - MSCI ESG Rating Process



Source: MSCI ESG Research

1. Evaluate Corporate Governance

MSCI ESG Ratings analysis begins with an evaluation of each company's **Corporate Governance**, taking into consideration the company's ownership and control structures, the composition and effectiveness of its board, the effectiveness of its incentive practices and the integrity of its accounting. **Corporate Behavior** is also monitored, including any controversies that might have a significant negative impact on the company's value.

2. Identify Key Issues by Industry

Environmental and social analysis begins with MSCI ESG Research's industry materiality mapping framework that selects the most relevant four to 10 ESG issues for each industry out of 37 total key issues. Issue weights are also assigned.

A risk is considered material to an industry whenever companies could incur substantial costs or liabilities as a result of exposure to that risk. For example, the imposition of a new regulatory ban on a key chemical input requiring reformulation could have a material impact on companies in the chemical industry. The MSCI ESG Ratings model focuses only on issues that have been judged material for each industry.

This is an important step because the Environmental and Social issues that are relevant to a bank are very different from those that are relevant to a consumer-goods company.

3. Score Key Issues (0-10)

Industry-specific Key Issues are scored (0-10) using a rules-based methodology that

assesses company **Risk Exposure** and **Risk Management**.

Exposure takes a deeper dive into each company’s risk or opportunity profile and looks at how exposed the company is to each Key Issue based on its business and geographic footprint. Exposure level is measured on the scale of 0 (least) to 10 (most).

Management assesses the extent to which a company has developed robust strategies and demonstrated a strong track record of performance in managing its specific level of risk or opportunities. Management level is measured on the scale of 0 (weakest) to 10 (strongest). Over one thousand data points are sourced in the analysis of Key Issues, including analyst-collected ESG, government, and NGO datasets, company disclosure documents and 2,100 media sources. Exposure and Management scores are combined to calculate the Key Issue Scores (0-10).

4. **Final ESG Ratings (AAA-CCC)**

The final letter rating is determined based on each company’s aggregate performance across Key Issues normalized to industry peers. AAA ratings are assigned to companies that are industry leaders in managing relevant ESG risks and opportunities. MSCI ESG Research determines which companies are the most resilient among industry peers to potential disruptions arising from ESG risks. CCC ratings are attributed to companies judged to be industry laggards. MSCI ESG Research finds such companies are highly exposed to ESG risks and fail to meet common industry practices in managing such risks. Underpinning the letter ratings are numerical scores ranging from 0 (worst) to 10 (best).

Figure 4 - MSCI ESG Key Issue Framework

ENVIRONMENT PILLAR				SOCIAL PILLAR				GOVERNANCE PILLAR	
Climate Change	Natural Capital	Pollution & Waste	Env. Opportunities	Human Capital	Product Liability	Stakeholder Opposition	Social Opportunities	Corporate Governance	Corporate Behavior
Carbon Emissions	Water Stress	Toxic Emissions & Waste	Clean Tech	Labor Management	Product Safety & Quality	Controversial Sourcing	Access to Communication	Board	Business Ethics
Product Carbon Footprint	Biodiversity & Land Use	Packaging Material & Waste	Green Building	Health & Safety	Chemical Safety		Access to Finance	Pay	Anti-Competitive Practices
Financing Environmental Impact	Raw Material Sourcing	Electronic Waste	Renewable Energy	Human Capital Development	Financial Product Safety		Access to Health Care	Ownership	Corruption & Instability
Climate Change Vulnerability				Supply Chain Labor Standards	Privacy & Data Security		Opportunities in Nutrition & Health	Accounting	Financial System Instability
					Responsible Investment				Tax Transparency
					Insuring Health & Demographic Risk				

Source: MSCI ESG Research
 For details on MSCI ESG Ratings, please refer to:
<https://www.msci.com/esg-ratings>

MSCI ESG Government Ratings

Government and certain government-related issuers are assessed using a dedicated ESG Rating model. The MSCI ESG Government Ratings assesses a country’s performance based on over 100 data points across six environmental, social and governance risk factors affecting its’ value creation process. Countries are rated on a 7-point ‘AAA’ to ‘CCC’ scale and reflect how countries’ exposure to and management of ESG risk factors may affect the long-term sustainability of their economies.

MSCI ESG Government Ratings covers 198 countries and regions, including more than 99 percent of outstanding sovereign debt, as well as selected sub-national and supranational issuers such as states, provinces and cities, government-owned agencies and supranational administrative bodies, including over 92% by market value of government-related bonds.

MSCI ESG Controversies

MSCI ESG Controversies are designed to provide timely and consistent assessments of ESG controversies involving issuers.

The tool monitors company involvement in notable ESG controversies related to the company’s operations and/or products, possible breaches of international norms and principles such as the UN Global Compact, and performance with respect to these norms and principles. Each Controversy is attributed a 0-10 score and a flag color depending on the severity of its environmental, social or governance impact.

MSCI ESG Controversies covers approximately 8,800 publicly listed companies, in addition to approximately 95% by market value of the Bloomberg Barclays Global Corporate Bond Index.

Figure 5 - MSCI ESG Controversies Matrix

SCORE	FLAG	SEVERITY	TYPE	STATUS
0	RED	Very Severe	Structural	Ongoing
		Very Severe	Structural	Concluded
		Very Severe	Non-Structural	Ongoing
		Very Severe	Non-Structural	Concluded
1	ORANGE	Severe	Structural	Ongoing
2	YELLOW	Severe	Structural	Concluded
		Severe	Non-Structural	Ongoing
3	YELLOW	Severe	Non-Structural	Concluded
4	YELLOW	Moderate	Structural	Ongoing
5	GREEN	Moderate	Structural	Concluded
		Moderate	Non-Structural	Ongoing
6	GREEN	Moderate	Non-Structural	Concluded
7	GREEN	Minor	Structural	Ongoing
8	GREEN	Minor	Structural	Concluded
		Minor	Non-Structural	Ongoing
9	GREEN	Minor	Non-Structural	Concluded
10	GREEN	None	NA	NA

Source: MSCI ESG Research

For more details on MSCI ESG Controversies, please refer to:

<https://www.msci.com/documents/10199/acbe7c8a-a4e4-49de-9cf8-5e957245b86b>

MSCI ESG Business Involvement Screening Research (BISR)

MSCI ESG Business Involvement Screening Research (BISR) aims to enable institutional investors to manage environmental, social and governance (ESG) standards and restrictions reliably and efficiently.

Figure 6 - MSCI ESG BISR

 VALUES	 GLOBAL SANCTIONS	 CONTROVERSIES	 GLOBAL NORMS
<ul style="list-style-type: none"> • Abortion & Contraceptives • Adult Entertainment • Alcohol • Animal Welfare • Catholic, Islamic and other religious screens • Defense & Weapons • Dual-Use Export Violations • Fur • Gambling • Genetic Engineering • Nuclear Power • Predatory Lending • Stem Cell Research • Tobacco 	<ul style="list-style-type: none"> • Burma • Cuba • Iran • North Korea • Northern Ireland • Russia/Ukraine • Sudan • Syria • OFAC Cases • SEMA Cases 	<ul style="list-style-type: none"> • Child Labor • Employee Safety • Diversity • Employee Relations • Union Relations • Human Rights • Environment • Customer Relations • Marketing • Product Safety 	<ul style="list-style-type: none"> • UN Global Compact Screen • International Labour Organisation (ILO) • OECD Guidelines for Multinational Enterprises • UN Guiding Principles on Business & Human Rights

Source: MSCI ESG Research

For more details on MSCI ESG Business Involvement Screening Research, please refer to: http://www.msci.com/resources/factsheets/MSCI_ESG_BISR.pdf

SRI Indices

SRI benchmark indices provide an option for institutional investors who wish to exclude issuers involved in business activities that are restricted because they are inconsistent with certain values-based criteria. The flagship SRI indices exclude issuers with substantial revenue derived from sources such as alcohol, tobacco, controversial military weapons, nuclear power, and genetically modified organisms (GMOs), but additional SRI screening, such as the exclusion of bonds from sanctioned countries (e.g., Burma, Iran) or issuers involved in predatory lending, are also available.

Standard thematic screenings, such as issuer exclusion based on Catholic-values criteria, are also available in this category. Bespoke indices that negatively screen business activities based on an investor's specific list of restricted or policy-driven exclusions are also available upon request.

Bond Index Criteria

- Bonds must meet the same eligibility criteria for Bloomberg Barclays indices based on credit quality, minimum, issue size, etc.

- Business Involvement screening is generally only available for corporate bond issuers within Bloomberg Barclays indices, so the vast majority of benchmarks offered will be corporate only. Aggregate indices, where SRI screening is conducted only within the corporate sector, are also available, but with baseline index weights preserved and matching the non-SRI Aggregate benchmark.
- Other index conventions on rebalancing, security weighting, return calculations, etc. follow existing Barclays index conventions.

ESG Eligibility Criteria

1. Business Involvement Screening

For standard Bloomberg Barclays MSCI SRI indices, issuers involved in the following business activities are negatively screened using MSCI ESG Business Involvement Screening Research (BISR): alcohol, civilian firearms, gambling, military weapons, nuclear power, tobacco, adult entertainment, and genetically modified organisms (GMO). Figure 8 details the level of involvement that disqualifies an issuer for inclusion in the standard SRI Indices. These thresholds can be adjusted in bespoke indices to be more restrictive (up to zero tolerance for any tie) or less restrictive.

2. MSCI ESG Controversies Screening

Any issuer with a “Red” MSCI ESG Controversies Score (score less than 1) is excluded from the SRI indices. The Controversy Score measures an issuer’s involvement in major ESG controversies and how well they adhere to international norms and principles.

Additional Screening

MSCI ESG BISR also monitors a variety of other business activities that may be restricted by some investors, but are not part of the SRI index definition, including predatory lending, child labor, board diversity, stem cells, and abortion/contraception. Bespoke indices can be constructed for screening these additional activities. (Figure 9)

Screening is also available on an issuer’s exposure/involvement in markets that may be under sanctions within a particular local market (Iran, Burma, Cuba, etc.). Bespoke indices can be constructed on these additional exposures.

Other Notable SRI Indices

- Catholic Values Screened Indices: Indices that excludes the following business involvement criteria: abortion/contraception, adult entertainment, stem cells, military weapons.
- Corporate SRI ex CCC Indices: Indices that add an additional ESG Rating exclusion for issuers with an ESG Rating of CCC.
- Sub-indices by ESG Rating, sector, maturity (intermediate and long), etc.

FIGURE 7 - Bloomberg Barclays MSCI Socially Responsible Index Involvement Thresholds for Index Exclusion

ADULT ENTERTAINMENT	<ul style="list-style-type: none"> All companies classified as a "Producer" that earn more than 5% in revenue, or more than \$500 million in revenue, from this adult entertainment materials
ALCOHOL	<ul style="list-style-type: none"> All companies classified as a "Producer" that earn either 5% or more revenue or more than \$500 million in revenue from alcohol-related activities
GAMBLING	<ul style="list-style-type: none"> All companies classified as involved in "Operations" and "Support" that earn 5% or more revenue or more than \$500 million in revenue from gambling-related activities
TOBACCO	<ul style="list-style-type: none"> All companies classified as a "Producer" All companies classified as "Distributor", "Retailer", and "Supplier" that earn 15% or more from tobacco products
MILITARY WEAPONS	<ul style="list-style-type: none"> All companies classified as involved in manufacturing of "Nuclear Weapons", "Nuclear Weapons Components", "Chemical and Biological Weapons Components" or "Depleted Uranium Weapons" All companies classified as a "Manufacturer of Cluster Bombs" All companies classified as a "Manufacturer of Landmines" All companies classified as a "Manufacturer of Depleted Uranium Weapons" All companies that earn 5% or more revenues or more than \$500 million in revenue from manufacturing of Conventional Weapons, Conventional Weapons Components, and Weapons Support Systems and Services
CIVILIAN FIREARMS	<ul style="list-style-type: none"> All companies classified as "Producer" All companies classified as "Retailer" that earn 5% or more revenues or more than \$20 million in revenue from civilian firearms
NUCLEAR POWER	<ul style="list-style-type: none"> All companies classified as nuclear "Utility" All companies involved in Uranium Mining All companies involved in designing nuclear reactors All companies involved in enrichment of fuel for nuclear reactors All companies that earn 15% or more revenues as a "Supplier" to the nuclear power industry
GENETICALLY MODIFIED ORGANISMS	<ul style="list-style-type: none"> Companies that derive any revenue from activities like genetically modifying plants, such as seeds and crops, and other organisms intended for agricultural use or human consumption Companies that are only involved in GMO Research & Development activities are not excluded.

Source: MSCI ESG Research, Bloomberg

FIGURE 8 - Business Involvement Categories Available for Bespoke Screening

Abortion & Contraceptives	Defense & Weapons	Nuclear Power
Adult Entertainment	Gambling	Pork
Alcohol	Genetic Engineering	Predatory Lending
Animal Welfare	Global Norms	Religious Values
Board Diversity	Global Sanctions	Stem Cell
Child Labor	Human Rights	Tobacco

Source: MSCI ESG Research, Bloomberg

Sustainability Indices

Sustainability indices offer an option to investors who are committed to investing in companies that are ranked best in class among their peers based on MSCI ESG Rating (Corporate and Government). Issuers included in flagship ESG Sustainability indices must have ESG Ratings of BBB or higher. The indices also incorporate the MSCI ESG Controversies score, screening out on a timely basis any issuers in significant breach of ESG norms. Additional Sustainability indices are available with broader inclusion criteria (e.g., an ESG Rating threshold of BB and above).

Bond Index Criteria

- Bonds must meet same eligibility criteria for Bloomberg Barclays indices based on credit quality, minimum, issue size, etc.
- Other index conventions on rebalancing, security weighting, return calculations, etc. will follow existing Bloomberg Barclays bond index conventions.

ESG Eligibility Criteria

1. ESG Ratings

- Sustainability indices include issuers with an MSCI ESG Rating of BBB or higher using Corporate or Government Rating model.
- ESG Ratings are available for Treasury, government-related, corporate, and covered bond issuers. They are not applied to MBS, ABS, and CMBS issues.
- Unrated issuers from sectors with ratings are excluded Ratings are applied at the Barclays ticker level, and every bond within the same ticker will have the same ESG Rating.
- ESG Ratings for each issuer are generally updated on an annual basis, but may be reviewed more frequently as needed.

2. MSCI ESG Controversies Screening

- Any issuer with a "Red" MSCI ESG Controversies Score (score less than 1) is excluded from Sustainability indices. The Controversy Score measures an issuer's involvement in major ESG controversies and how well the issuer adheres to international norms and principles.

Security and Sector Weights

- Index eligible securities are market value weighted after screening based on MSCI ESG Rating and Controversy scores have been conducted. Therefore, sector weights may differ from the base index that does not apply any ESG screening.
- Sector Neutral versions of Bloomberg Barclays MSCI Sustainability Indices preserve the same sector exposure (Bloomberg Barclays Sector Class 1 or Bloomberg Barclays Sector Class 2) of the non-ESG versions of the same benchmark, while maintaining market value security weights within each sector.

For example, the class 1 sector neutral US Aggregate Sustainability Index will have the same Treasury, government-related, corporate, and securitized sector weights as the flagship US Aggregate Index. However, the composition of the government-related and corporate sectors will consist solely of issuers rated BBB or better with a Controversy score of "Green", "Yellow" or "Orange".

Other Notable Indices within the Sustainability Indices

- BB or Better indices: Sustainability indices with broader inclusion criteria using a lower ratings threshold for positive screening
- Sector neutral variants of flagship Sustainability indices
- Sustainability indices with additional MSCI ESG BISR negative screening
- Sub-indices by ESG Rating, sector, maturity (intermediate and long), etc.

ESG-Weighted Indices

ESG-Weighted Indices depart from market capitalization-based issuer weights in existing Bloomberg Barclays indices by using MSCI ESG Ratings to tilt issuer allocations above or below their baseline market value weights. These tilts are determined by an issuer's current MSCI ESG Rating, as well as its MSCI ESG Rating momentum, which is determined by any upgrades or downgrades of the issuer's MSCI ESG Rating relative to its prior rating in the prior 12 months. This allocation rule is meant to reward issuers that exhibit stronger ESG fundamentals, as well as those that are demonstrating improving fundamentals.

Bond Index Criteria

- Bonds must meet same eligibility criteria for Bloomberg Barclays indices based on credit quality, minimum, issue size, etc.
- The underlying universes for ESG-Weighted indices are identical to their non-ESG weighted equivalents. There is no additional positive or negative screening of issuers, making this family more of a "universal owner" benchmark.
- ESG-Weighted indices are available for corporate as well as Aggregate benchmark indices.
- Other index conventions on rebalancing, security weighting, return calculations, etc. will follow existing Bloomberg Barclays bond index conventions.

ESG Eligibility Criteria

- The weight of each index eligible issuer (and security) is adjusted by a fixed multiplier (Figure 7), which is determined by its MSCI ESG Rating (AAA, AA, A, BBB, BB, B, CCC, NR) and its MSCI ESG Ratings momentum (Positive, Neutral, Negative since its last evaluation). Security weights are then normalized using these adjusted market values.

FIGURE 9 - Market Value Adjustments Based on ESG Rating and Momentum

ESG Rating	Tilt	ESG Rating Momentum	Tilt
AAA, AA, A	1.5x	Positive	2.0x
BBB	1.0x	Neutral	1.0x
BB	0.8x	Negative	0.5x
B	0.67x		
CCC	0.50x		
NR	0.75x		
MBS / ABS / CMBS	1.0x		

Source: MSCI ESG Research, Bloomberg

- Factor tilts are based on beginning of the month ratings, so rating changes during the month would not affect index weights and returns until the next index rebalancing date.
- MSCI ESG Ratings are available for treasury, government-related, corporate, and covered bond issuers. They are not applied to MBS, ABS, and CMBS issues. However, all unrated issuers remain eligible for ESG-Weighted indices.
- Ratings are applied at the Barclays ticker level, and every bond within the same ticker will have the same ESG Rating.
- MSCI ESG Ratings are generally updated annually throughout the year, but may be reviewed more frequently as needed.

Security and Sector Weights

- Index eligible securities are market value weighted using the adjusted market values.
- Sector neutral versions of Bloomberg Barclays MSCI ESG-Weighted Indices preserve the same sector exposure (Bloomberg Barclays sector class 1 or Bloomberg Barclays sector class 2) of the non-ESG versions of the same benchmark, while maintaining adjusted market value security weights within each sector.
 - For example, the class 1 sector neutral US Aggregate Sustainability Index will have the same Treasury, government-related, corporate, and securitized sector weights as the flagship US Aggregate Index. However, the weights within the government-related and corporate sectors will reflect the relative tilts of each issuer based on ratings and ratings momentum.

Green Bond Indices

Green Bond indices offer institutional investors an option to investors who are looking to generate positive social impact through their investments. The Green Bond indices offer an objective and robust measure of the global market for fixed income securities issued to fund projects with direct environmental benefits.

Bond Index Criteria

- Bonds must meet same eligibility criteria for Bloomberg Barclays indices based on credit quality, minimum, issue size, etc.
- Unlike other Bloomberg Barclays Aggregate Bond Indices, the Global Green Bond Index does not have a 1-year minimum time to maturity and will hold bonds until final maturity.
- Other index conventions on rebalancing, security weighting, return calculations, etc. will follow existing Bloomberg Barclays bond index conventions.

MSCI ESG Research Green Bond Assessment

MSCI ESG Research Green Bond Assessment provides an independent research-driven methodology to evaluate index-eligible green bonds to ensure they adhere to established Green Bond Principles and to classify bonds by their environmental use of proceeds. Securities are evaluated along four dimensions to determine whether they should be classified as a green bond, including:

- Stated use of proceeds;
- Process for green project evaluation and selection;
- Process for management of proceeds; and
- Commitment to ongoing reporting of the environmental performance of the use of proceeds

Bonds are classified into one of seven themes according to the MSCI ESG Research Green Bond taxonomy, including: Alternative Energy, Energy Efficiency, Pollution Prevention, Sustainable Water, Green Building, Climate Adaptation and Other.

For more information, please see the Bloomberg Barclays MSCI Green Bond Index Primer.

Index Governance

Bloomberg Barclays MSCI ESG Fixed Income Indices are jointly governed by an Index Steering Committee with equal representation from Bloomberg and MSCI.

Index Customization and Reporting Options

Standard Bloomberg Barclays MSCI ESG Fixed Income Indices are available for a broad range of sector, maturity, and quality breakdowns. Some investors may prefer an even more customized index solution that offers even better matching of their ESG considerations. Investors should contact their Bloomberg Barclays or MSCI representative for further details on bespoke index solutions.

These customizations may require a bespoke fixed income index design or a bespoke application of ESG criteria. These may include:

- Additional MSCI ESG BISR screening or screening at different thresholds
- Different ESG Ratings thresholds for index exclusion/exclusion
- More/less aggressive tilting for ESG-Weighted indices
- Mixed ESG methodologies within the same benchmark (e.g., ESG weighting for government issuers, but Best in Class screening for corporate issuers)

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