Index Insights

Sustainable Investment | Analytics

Applying ESG Factors to Government Bond Indices

Towards More Sustainability

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Introduction

From taking the climate emergency into account during the 2015 COP 21 in Paris to the launch of the World Bank sovereign ESG data portal in 2019, sovereign ESG integration is gaining momentum.

The Sovereign Risk Monitor (SRM) framework, created by Beyond Ratings, systematically incorporates ESG performance, offering more insight on how to assess sovereign creditworthiness. The composition of the Sustainability profile allows investors to better understand how Environmental, Social and Governance performance are considered and assessed.

As we move towards more sustainable government bond indices, it is important to bear in mind that the higher the tilt strength, the higher the increase in the Sustainability profile score.

Applying ESG factors to government bond indices remains a challenge as it requires multiple trade-offs. The search for higher ESG performance can come at the expense of higher Active Share and tracking error.

Sovereign ESG Integration is Gaining Momentum

International organizations, regulators, sovereign governments and public authorities have for some time been focused on the topic of climate change and its effects. As the threat rises, so has their involvement.

As stated in the paper *Climate Change and Sovereign Risk* [1], climate change has significant implications in terms of sovereign borrowing costs. Moreover, these effects are much larger for countries highly vulnerable to climate change.

In December 2015, the Paris Agreement on climate change was adopted by 196 Parties at COP 21. The goal of this legally binding international treaty is to limit global warming to well below 2°C (preferably to 1.5°C), compared to pre-industrial levels. However, the challenges ahead are still significant; governments are not yet on track, and much more is still left to be done.

Furthermore, financial institutions and market participants have focused on integrating Environmental, Social, and Governance (ESG) in sovereign risk analysis. As a result, they now request and expect investors to consider and integrate ESG in all major asset classes, including sovereign bonds.

In this regard, a number of initiatives have been launched over the years:

1. In April 2006, the United Nations launched the Principles for Responsible Investment (PRI) − a fully independent network of investors. PRI is working on developing a more sustainable global financial system by encouraging the adoption of its six principles[2] and spurring collaboration on their adoption.

2. In December 2015, the Financial Stability Board (FSB) established the industry-led Task Force on Climate-related Financial Disclosures (TCFD) to design a set of recommendations for consistent “disclosures that will help financial market participants understand their climate-related risks”. TCFD published its recommendations in June 2017.

3. In December 2016, the European Commission established the High-Level Expert Group (EC-HLEG) on Sustainable Finance. This group was mandated to (i) steer the flow of public and private capital towards sustainable investments, (ii) identify the steps that financial institutions and supervisors should take to protect the stability of the financial system from environmental risks, and (iii) deploy these policies on a pan-European scale. In January 2018, the EC-HLEG on Sustainable Finance published its final report.[3]

4. In December 2017, during the Paris One Planet Summit, the Network of Central Banks and Supervisors for Greening the Financial System (NGFS) was launched. The Network’s purpose is to help strengthen the global response required to meet the goals of the Paris Agreement, to enhance the role of the financial system to manage risks, and mobilise capital for green and low-carbon investments in the broader context of environmentally sustainable development.

5. In October 2019, the World Bank launched its Sovereign ESG Data Portal – a free, open and easy-to-use online platform that provides users with sovereign-level ESG data. The portal is designed to help investors better align ESG analysis with key sustainable development policy indicators and analysis.

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[1] Paper can be found at the following link: Climate Change and Sovereign Risk (soas.ac.uk).

[2] More about PRI and its principles can be found at the following link: About the PRI | PRI Web Page | PRI (unpri.org).

[3] Full report of the EC-HLEG on Sustainable Finance can be found at the following link: Final Report EC-HLEG on Sustainable Finance.

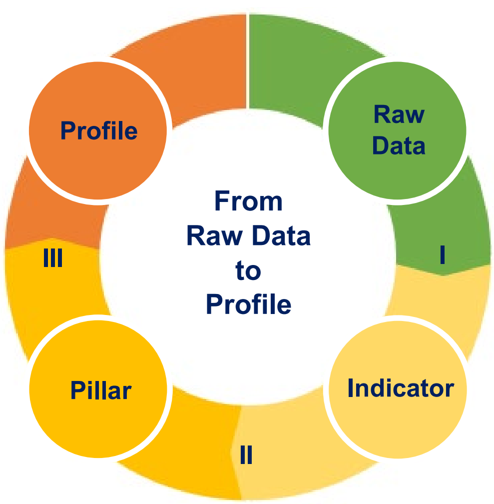
The Sovereign Risk Monitor in a Nutshell

About the Framework

The Sovereign Risk Monitor (SRM) has been developed by Beyond Ratings[4] as part of work leading to the granting of a financial credit rating agency licence by the European Securities and Market Authority in March 2019[5]. Moreover, the effectiveness of SRM in assessing the ESG performance of sovereigns has been highlighted by the World Bank[6,7].

SRM uses a quantitative, relative and systematic approach, based on 69 indicators for 146 countries, divided into two profiles of sovereign risk assessment, *i.e.*, *Economic and Financial*, as well as *Sustainability*. Beyond Ratings calculates a score on a quarterly basis for each indicator, starting from 1999 to the present. Each of the 69 indicators is the outcome of numerous adjustments – systematic to a large extent – based on public, private and proprietary data (see Figure 1).

Figure 1: From Raw Data to Profile



The process used to transform raw data into a profile's score consists of three steps:

(i) The raw data are transformed into indicators by using z-scores and normalizing the data. The value of each indicator is measured on a scale from 0 to 10 (0 = worst performance and 10 = best performance). Then, each score corresponds to the average of the score of the current quarter and the scores of the three past quarters, weighted under a rule giving a preference to the present.

(ii) The indicators are then aggregated within a pillar under different risk themes (3 for *Sustainability* and 4 for *Economic & Financial* pillar).

[4] For more information on the Sovereign Risk Monitor, please see Sovereign Risk Monitor methodology | FTSE Russell.

[5] Subsequent to its acquisition by LSEG, Beyond Ratings renounced its CRA license in July 2019 and does not issue financial credit ratings.

[6] Gratcheva, E. M.; T. Emery and D. Wang. 2020. Demystifying Sovereign ESG. Equitable Growth, Finance and Institutions Insight;. World Bank, Washington, DC. © World Bank.

[7] Bouye, E and D. Menville. 2021. The Convergence of Sovereign Environmental, Social and Governance Ratings. Policy Research Working Paper; No. 9583. World Bank, Washington, DC. © World Bank.

(iii) These pillars are finally aggregated into their respective Profiles.

The aggregation derives from advanced statistical and econometric techniques discussed in [the methodology document](). The end-result of the process yields one aggregated score per profile.

About the Composition of the Sustainability Profile

The Sustainability profile shows a country's structural ESG outlook and long-term sustainable drivers. These scores are based on 41 indicators, which are generally stable, and compare relative exposures to Environmental (30%), Social (30%) and Governance (40%) risks (see Figure 2). Each indicator belongs exclusively to a risk theme. The Sustainability profile consists of 14 risk themes, three risk themes in Environmental performance, five in Social performance and six in Governance performance. It is important to note that some indicators of the Environmental Performance Pillar are proprietary indicators, *i.e.*, in-house developed.

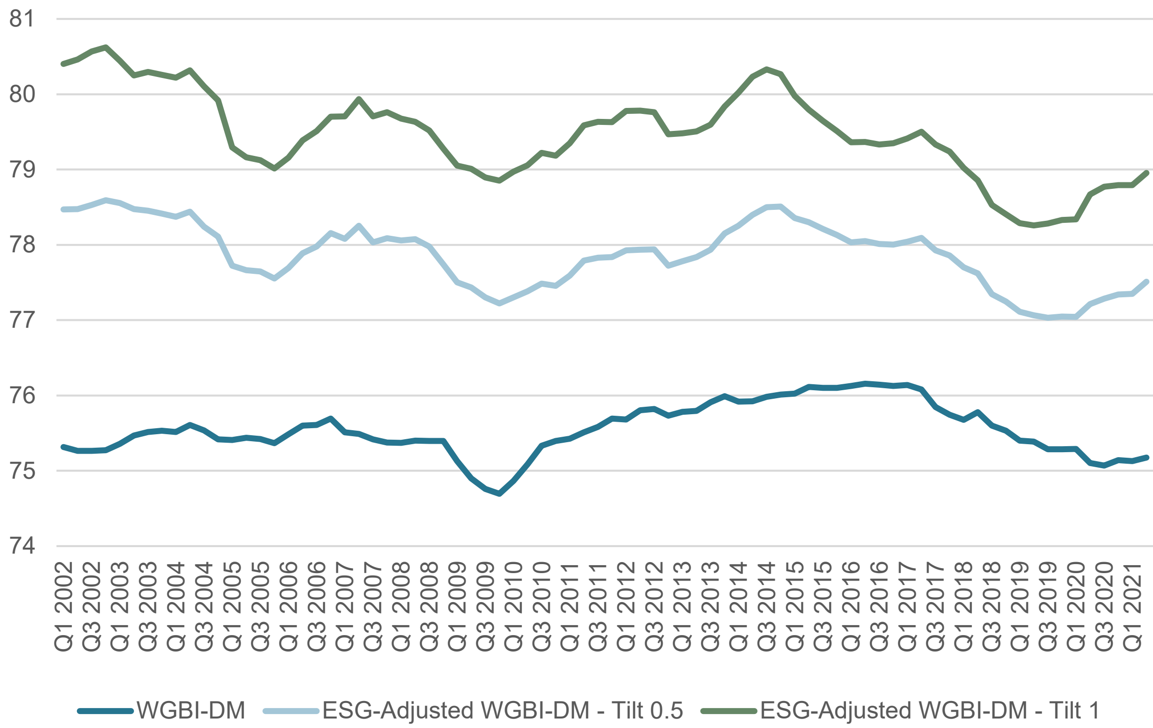
Figure 2: From ESG to Sustainability

Towards More Sustainable Government Bond Indices

In Figure 3, we compare the Sustainability profile scores associated with the World Government Bond Index Developed Market (WGBI-DM) benchmark as well as some of its ESG-adjusted counterparts, *i.e.*, ESG WGBI-DM with different tilts (0.5 *vs.* 1). We can see that the higher the tilt strength, the higher the increase in the Sustainability profile score.

Compared to the WGBI-DM benchmark, the average overperformance in the Sustainability profile score over the whole period is 3.1% for index with the lower ESG Tilt (0.5) vs. 5.2% for the index with the higher tilt (1).

Figure 3: Sustainability Profile Score Evolution, WGBI-DM vs ESG WGBI-DM



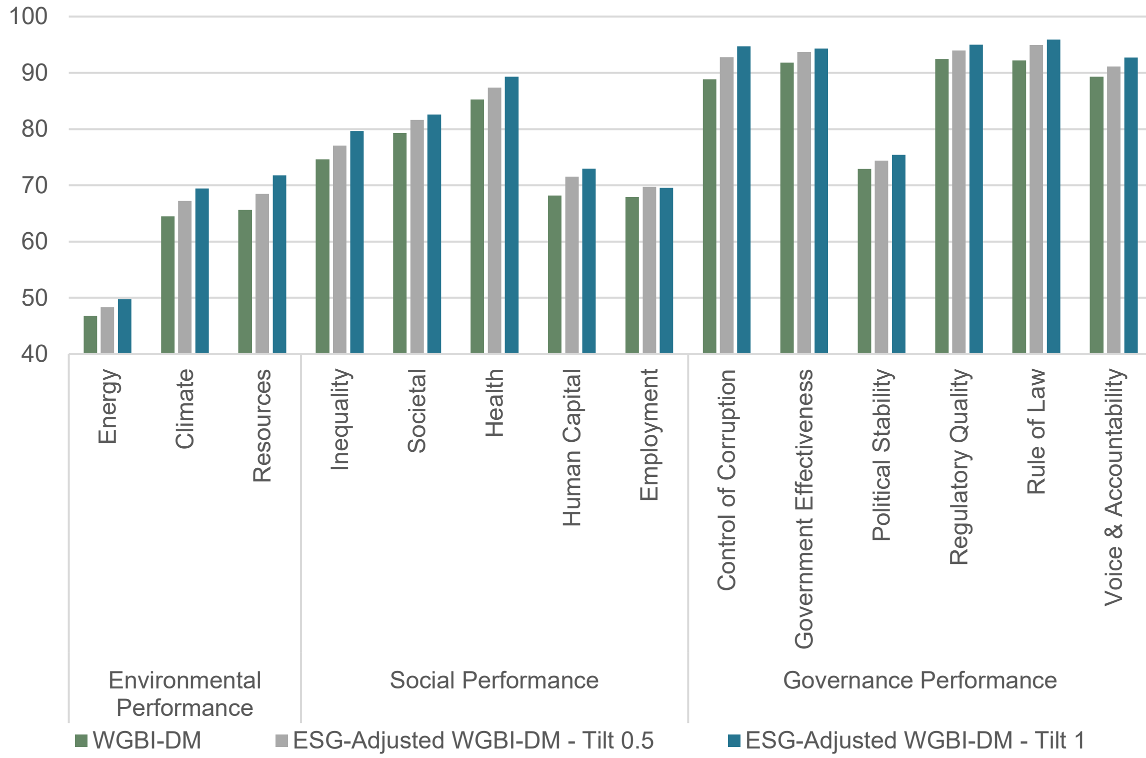
Source: FTSE Russell, Beyond Ratings.

We provide the Sustainability profile score breakdown in Figure 4. We can see that the increase in E, S and G performances are (i) homogeneous from one risk theme to another and (ii) proportional to the tilt strength, *i.e.*, the higher the tilt strength, the higher the scores.

Environmental performance scores increase relatively more than the others, notably due to the lower scores assigned to the WGBI-DM benchmark. On the Social performance side, a reduction in inequality and a higher level of human capital are observed. Lastly, even if the room for manoeuvre is more limited in Governance, the increase in scores for each risk theme is still significant.

On average, and over the whole sample period, the ESG improvement is significant compared to the WGBI-DM benchmark. From the lowest to the highest tilt (from 0.5 to 1) respectively, we register increases from 4.6 to 9.4% for the overall E-performance, from 2.7 to 3.8% for the overall S-performance, and from 2.6 to 4.0% for the overall G-performance.

Figure 4: ESG Score Breakdown, WGBI-DM vs ESG WGBI-DM, Q2 2021



Source: FTSE Russell, Beyond Ratings.

Trade-offs in ESG Government Bond Index Design

Applying ESG factors to government bond indices results in trade-offs, which involves balancing tracking error and ESG uplift. Market-weighted global debt indices such as the FTSE WGBI typically have large exposures to a few countries (notably the United States and Japan), and this concentration presents a challenge for ESG implementation.

There are multiple ways of applying an ESG overlay to an index or portfolio. The more standard approaches are positive screening and/or exclusions, or using a multiplicative approach of overweighting/underweighting, set by ESG rating or ESG bands. Neither approach achieves the Active Share[8] class requirement to enable meaningful ESG improvements. Investors need to be willing to take on more Active Share, which will allow for more redistribution into ESG leaders and less distribution to ESG laggards.

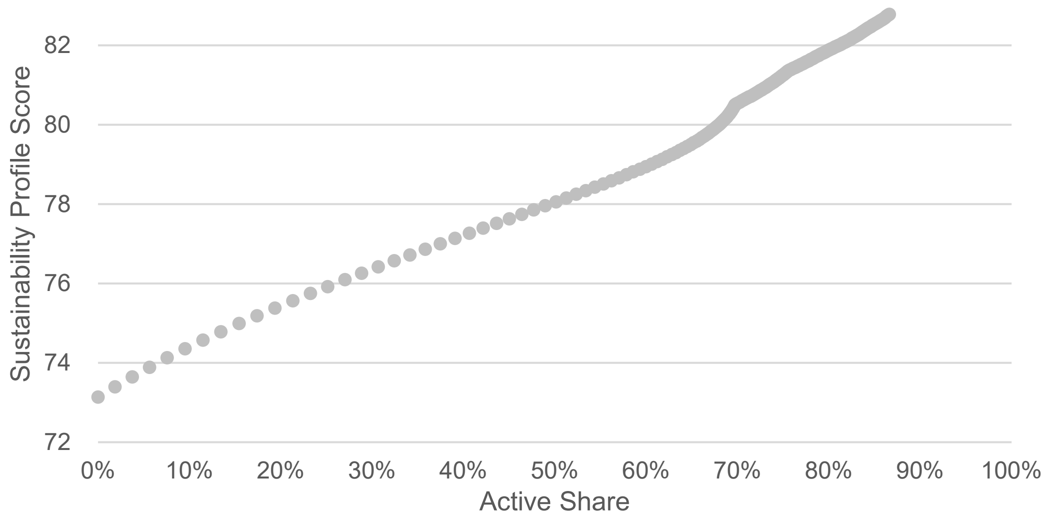
The challenge, therefore, is not what to implement, but how to implement an ESG strategy that includes Active Share and ignore tracking error.

The innovative approach taken by the FTSE ESG WGBI allows for the application of an enhanced country reallocation using ESG factoring. This transparent methodology, lifted from the FTSE Global Factor Index series, applies the factor methodology to country-specific E, S and G values and treats these pillars as Factor exposures. Applying this model to the WGBI, a strategy can regulate its Active Share (see Figure 5) to control for ESG improvements. This exposure can

[8] Active Share is a measure of the percentage of stock holdings in portfolio that differs from the benchmark index. The concept was introduced in 2006 by Martijn Cremers and Antti Petajisto of the Yale School of Management. (link accessed Oct. 5th 2021)

be controlled for levels of diversification and take on greater tracking error, while enhancing the ESG value.

Figure 5: ESG Improvements for Greater Active Share

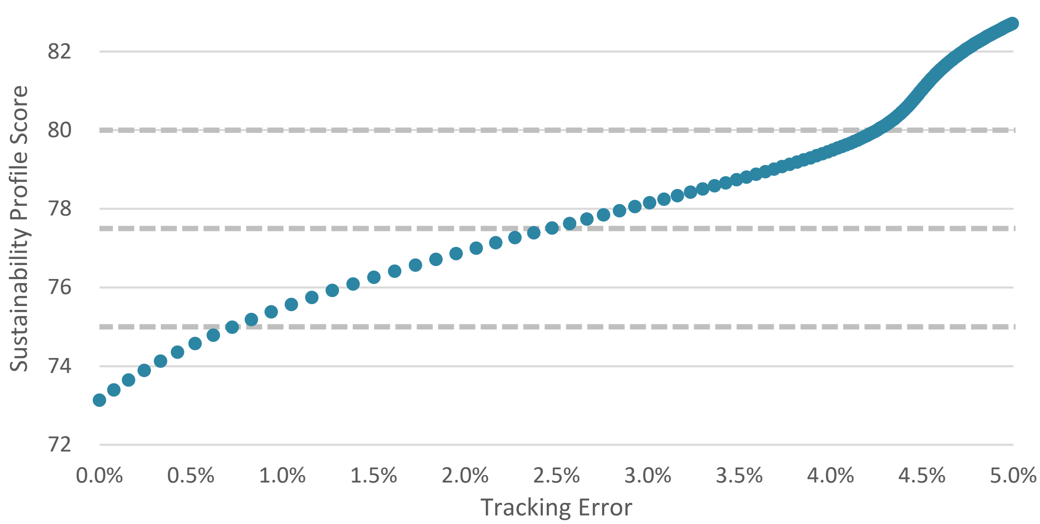


Source: FTSE Russell, Beyond Ratings.

ESG enhancement can only go as far the highest rated ESG country, which would be a 100% allocation to Sweden, highest ESG scoring country in the WGBI universe.

The consequence of taking more active share and more ESG also, results in a higher tracking error to the flagship WGBI index (see Figure 6).

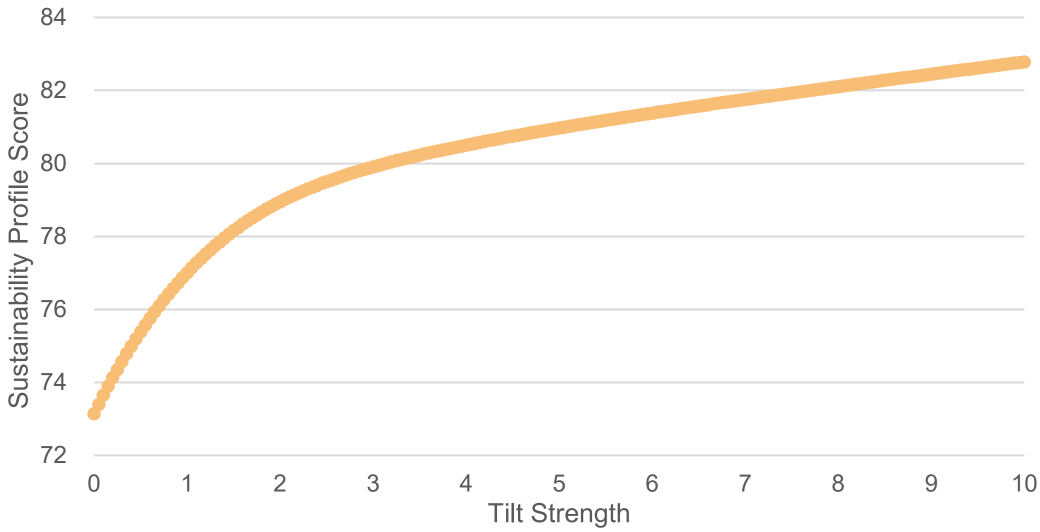
Figure 6: ESG Improvements for Higher Tracking Error, USD Unhedged



Source: FTSE Russell, Beyond Ratings.

In the standard FTSE ESG Government Bond Index, ESG Tilts are set at 0.5, a value that keeps tracking error below 50bps (see figures 7). Increasing the tilt strength further results in a higher sustainability profile, but the improvements in sustainability tails off for increases in tilt strength beyond 2.

Figure 7: ESG Improvements for More Aggressive Tilt



Source: FTSE Russell, Beyond Ratings.

Conclusion

There is a continuing philosophical debate about how best to apply an ESG investment approach to global sovereign debt portfolio, evidence of which is the relative lack of ESG government Bond indices in the market.

ESG integration in a global sovereign index presents significant challenges, not least in a developed markets bond portfolio, where issuers' ESG scores can be clustered together. As shown in this *Index Insights*, there are trade-offs between Active Share, ESG performance and tracking error that need to be addressed if investors are seeking to achieve meaningful ESG improvements versus an underlying benchmark.

The innovative approach taken by the FTSE ESG WGBI is to apply the factor tilting methodology of the FTSE Global Factor Index series. This approach takes country-specific E, S and G values, derived from Beyond Ratings' Sovereign Risk Monitor, and treats these pillars as factor exposures. Applying this model to the WGBI, a strategy can adjust its Active Share (see Figure 6) to control for ESG enhancement.

About FTSE Russell

FTSE Russell is a leading global provider of benchmarks, analytics and data solutions with multi-asset capabilities, offering a precise view of the markets relevant to any investment process. For over 30 years, leading asset owners, asset managers, ETF providers and investment banks have chosen FTSE Russell indexes to benchmark their investment performance and create investment funds, ETFs, structured products and index-based derivatives. FTSE Russell indexes also provide clients with tools for performance benchmarking, asset allocation, investment strategy analysis and risk management.

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