



J. Safra Sarasin

Country ESG Ratings

Sovereign ESG performance through a new lens

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Sustainable Swiss Private Banking since 1841

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Introduction

Sovereign risk is back in the spotlight. Geopolitical tensions and conflicts, climate change as well as food and energy crises are forcing investors to rethink the impact of Environmental, Social and Governance (ESG) issues on sovereign risk.

Given the lack of consensus on how to assess countries' ESG performance, how can fixed income investors best integrate ESG factors to identify and manage credit risk?

When evaluating the sustainability of a sovereign, most existing approaches combine different ESG metrics into a single aggregated ESG rating, resulting in a ranking. However, this process suffers from an "ingrained income bias", whereby wealthy countries tend to score higher on ESG performance than poorer economies. At the same time, ESG indicators in the sovereign space are not routinely updated and are prone to data gaps, unlike their corporate-world counterparts. These limitations complicate ESG integration into sovereign investment analysis and can restrict the investment universe from a yield perspective. They also make it difficult for impact-oriented investors to support countries on their journey toward the United Nations' Sustainable Development Goals (SDGs).

This paper examines these issues and highlights how our updated Country ESG Framework can help best assess country ESG performance and add value to the sovereign investment process.

At Bank J. Safra Sarasin (BJSS), we were among the first to produce country sustainability ratings back in 2002. Since then, we have continuously updated and developed our methodology, with the latest model launched in 2023.

We believe sovereign ESG data should be adjusted when there is income bias, and should be combined with the ESG momentum analysis. Thanks to this approach, we are better equipped to spot and actively participate in the relative outperformance of countries with the potential to achieve their SDGs.

Key Points

- **ESG analysis for sovereigns is increasingly gaining popularity and can offer added value in the sovereign investment process.**
- **At BJSS, we were among the first to produce sustainability ratings for countries in 2002, with the latest model launched in 2023.**
- **Our updated ESG framework includes several steps to assess sovereign ESG risk: calculating country ESG scores across 78 indicators, correcting for income bias, adjusting for treaty compliance, checking exclusion lists, analysing trend momentum and benchmarking ESG performance against peers in our BJSS Country ESG Matrix.**
- **Income bias, whereby emerging countries have lower ESG scores than developed economies, is a key concern for investors, as are ESG data inconsistencies.**
- **Compliance with UN treaties is linked to improved human rights over time, therefore we adjust our ESG ratings downwards if countries have not ratified key environmental and social treaties and conventions.**
- **We have strengthened our ESG framework with a selective exclusion list of countries that are currently experiencing conflict.**
- **Our matrix indicates whether a country is displaying a positive or negative ESG momentum across financially material indicators as corruption perception, business sophistication, rule of law and private civil liberties.**
- **Our approach provides a more nuanced lens on sovereigns' sustainability journeys and can best identify emerging trends as well as help monitor risks in portfolios.**

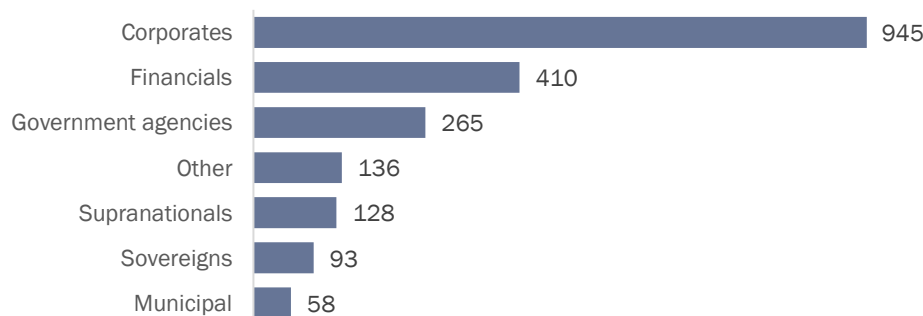
Why does ESG integration matter in sovereign debt investments?

Despite its considerable size¹, the sovereign debt market has been the subject of less systematic environmental, social, and governance (ESG) considerations than other investment asset classes. This is in part due to investors not fully understanding how to integrate ESG issues into sovereign debt analysis². However, there is an increasing appetite for ESG integration with a rising number of academic and practitioner publications investigating how ESG factors can affect sovereign debt valuations.

On the impact side, sovereign ESG analysis can help investors align portfolios with their values and sustainable goals. This is especially true for sovereign debt, where labelled issuances (i.e. green bonds, social bonds, etc), which could be used by investors to finance a country's energy transition or SDG goals, are only a fraction of corporate debt (Exhibit 1). This is particularly the case for emerging markets sovereign debt, where labelled sovereign bonds issuance is not as prevalent as in the European Union³. Assessing sovereigns' ESG performance allows investors to solve this problem, determine for themselves which countries need financing for sustainable development, and which ones are able or are already on the right path to achieve related goals.

Exhibit 1: Labelled bond issuance by issuer type, 2007–September 2020

Amount issued (USD billion)



Source: World Bank 2020 ESG Guide and Bloomberg

¹ As of August 2020, The International Capital Markets Association (ICMA) estimates that the overall size of the global bond markets in terms of USD equivalent notional outstanding is approximately USD128.3 trillion. This consists of USD 87.5 trillion supranational, sovereign and agency bonds (SSA), or 68%, and USD 40.9 trillion corporate bonds (32%). ICMA, <https://www.icmagroup.org/market-practice-and-regulatory-policy/secondary-markets/bond-market-size/>

² CFA Institute and the United Nations' Principles for Responsible Investment (PRI). Guidance and case studies for ESG integration – equities and fixed income (2018).

³ Europe is the largest region for SSA issuance, eclipsing even total supranational issuance and significantly higher than the next geographic region of North America. The region accounts for nearly 60% of agency issuance (worth USD362.7 billion) and around 72% of sovereign issuance (worth over USD200 billion). Environmental Finance, [https://www.environmental-finance.com/content/downloads/sovereigns-supranationals-and-agencies-\(ssa\)-in-the-sustainable-bond-market.html](https://www.environmental-finance.com/content/downloads/sovereigns-supranationals-and-agencies-(ssa)-in-the-sustainable-bond-market.html)

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Integrating ESG factors into sovereign debt investment analysis can also provide investors with a more comprehensive understanding of the risks and opportunities associated with their investments, which may impact creditworthiness of sovereign issuers.

For example, good governance is regarded as the most material ESG factor for sovereign debt and has been extensively incorporated into credit rating models and valuations⁴. Investors can seek measures of a country's political stability, government and regulatory effectiveness, institutional strength, levels of corruption and the rule of law.

Environmental and social metrics, like biodiversity loss, water scarcity and management, climate change mitigation and adaptation, old-age dependency and food security are equally important. According to the International Monetary Fund (IMF), a country's vulnerability or resilience to climate change can have a direct effect on its creditworthiness, its costs of borrowing, and ultimately the likelihood it might default on its sovereign debt⁵. IMF research has found that an increase of 10 percentage points in climate change vulnerability is associated with an increase of over 150 basis points in the long-term government bond spreads of developing economies. An improvement of 10 percentage points in climate change resilience is instead linked to a decrease of 37.5 basis points in bond spreads. Finally, weak social structures can also expose countries to sudden economic impacts and credit downgrades, as seen in the aftermath of the Covid-19 pandemic.

By assessing a country's ESG profile and trends, investors can gain additional insights into its long-term financial viability. Therefore, a holistic approach to sovereign investing is key.

⁴ PRI, <https://www.unpri.org/fixed-income/a-practical-guide-to-esg-integration-in-sovereign-debt/4781.article>

⁵ IMF, <https://www.imf.org/en/Blogs/Articles/2021/02/17/blog-why-climate-change-vulnerability-is-bad-for-sovereign-credit-ratings>

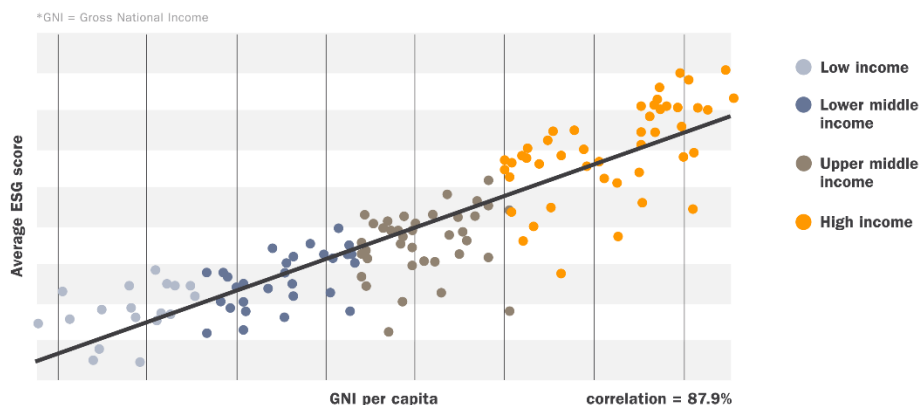
The impact of “ingrained income bias”, data lags and gaps on sovereign ESG

Integrating ESG factors into sovereign debt investment analysis requires access to reliable data sources and robust analytical frameworks. This is not always the case, and there is no consensus on the appropriate ESG framework when developing investment strategies in sovereign debt. However, recent research has brought to light several challenges that need to be tackled to make ESG investing in sovereigns more effective at spotting risk and leading to positive outcomes.

One of the most critical issues is the ingrained income bias, which emerging markets investors have cited as one of their key concerns about sovereign ESG investing⁶. A World Bank study comparing the ESG sovereign scores of several data providers found they are highly correlated, and that about 90% of the score can be explained by a country’s national income (Exhibit 2). In other words, the richer and more developed the country is, the higher its ESG rating. And while emerging market countries are the most in need of investments required to meet their SDG goals by 2030, their traditional aggregated sovereign ESG scores do not provide a full picture of their transformation potential or relative ESG risks, given their level of development.

Exhibit 2: Ingrained income bias in ESG scores

Average ESG scores across seven ESG providers are highly correlated with GNI per capita across 133 countries. The regression line exhibits a significantly positive slope.



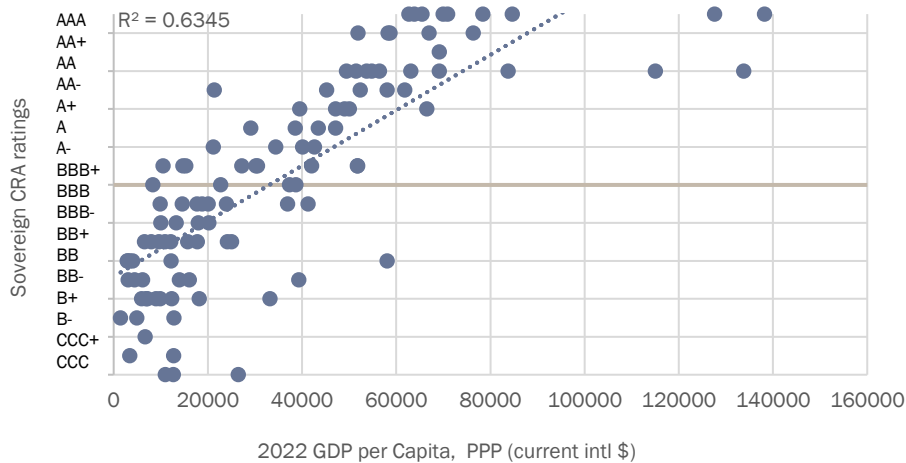
Source: Ekaterina M. Gratcheva, Bryan Gurhy, Teal Emery, Dieter Wang, Luis Oganés, Jarrad K. Linzie, Lydia Harvey, Katherine Marney, Jessica Murray, and Rupert Rink. 2021. “A New Dawn: rethinking Sovereign ESG”, EFI Insight-Finance. Washington, DC: World Bank and New York, NY: J.P. Morgan.

⁶ 24% of surveyed investors listed it as the most dominant concern about sovereign ESG investing. 74% of respondents agree that sovereign ESG should support sovereign issuers that have the greatest sustainable development to accomplish rather than the best ESG scores. World Bank Open Knowledge Depository. <https://openknowledge.worldbank.org/bitstreams/6c664ccf-ba17-59d9-98fa-709118908af7/download> J.P. Morgan emerging market sovereign debt investor survey

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While not surprising, this complicates ESG integration into sovereign investment analysis. It also limits sustainable investment strategies from a yield perspective, and makes it difficult for impact-oriented investors to support sovereigns on their SDG journey. Since credit ratings are also highly correlated with countries' GDP levels (Exhibit 3), investors are arguably better off if they exclude the income factor from the ESG data to get more added value from ESG analysis.

Exhibit 3: Sovereign credit ratings have high correlation to GDP per capita



Source: BJSS, Bloomberg and Macrobond. Sovereign credit ratings and GDP per capita, PPP adjusted are as of 2022

Our new proprietary country ESG model corrects this income bias where it is present and relevant. Using a simple statistical framework and our in-house ESG Country scorecard data, we estimate a log-linear relation between gross domestic product (GDP) per capita adjusted for purchasing power parity (PPP) and Key Issue scores (see “How we build our country ESG rating” below for an overview of our score construction). Where correlations are significant, we replace residuals from the regression with the original Key Issue scores, and proceed with pillar (E-S-G) and total ESG score calculation.

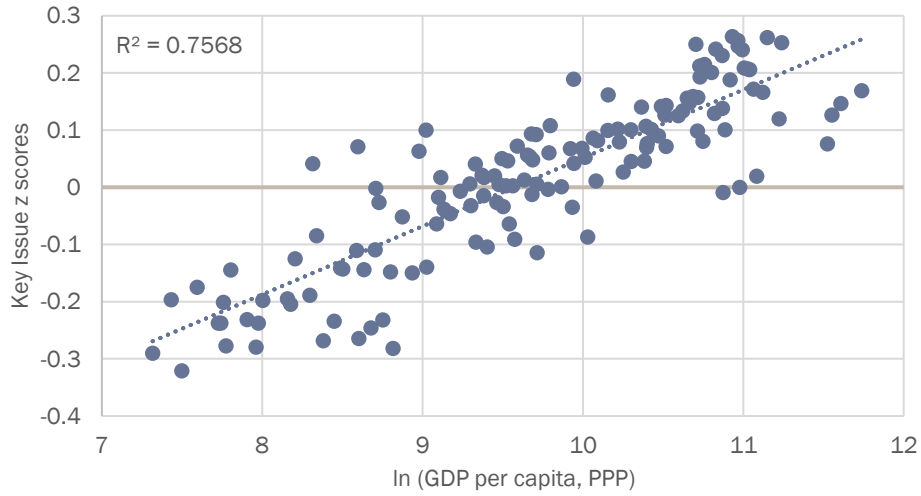
We believe that the PPP-adjusted GDP metric is more suitable for income adjustment because it helps to account for differences in the cost of living and services. As we aim to assess which country best utilizes its financial resources to achieve sustainable development, we need to remember that building hospitals and paying nurses is less expensive in lower income nations. This actually provides an advantage that GDP values would not reflect. Furthermore, PPP exchange rates are also more stable than market-based rates⁷, avoiding unnecessary GDP fluctuations for our ESG analysis.

Unsurprisingly, a country's level of development across social issues, such as the availability of basic human capital and infrastructure or innovation capital, closely tracks its wealth level (Exhibit 4).

⁷ IMF, imf.org/en/Publications/fandd/issues/Series/Back-to-Basics/Purchasing-Power-Parity-PPP

Exhibit 4: Some key ESG issues have high ingrained income bias

a) Basic Human Capital



b) Innovation



Source: BJSS, Macrobond and publicly available sovereign ESG data sources. For full list of sources see annex.

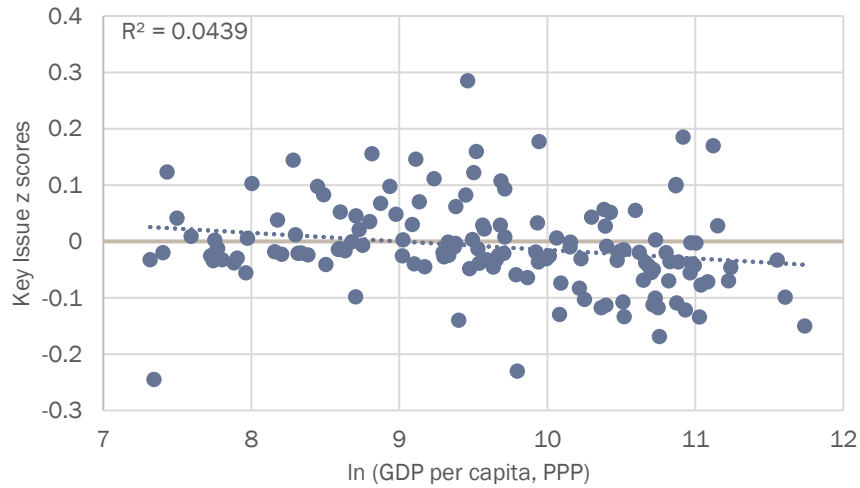
Note: We use a natural log of five-year average (2018-2022) of GDP per capita, PPP-adjusted (current international dollars) for the x-axis. In the first chart we used the weighted sum of basic human capital Key Issue indicator z-scores for the y-axis, which are related to countries' provision of health, education, energy and basic utilities infrastructure. In the second, we used the weighted sum of indicator z-scores for the y-axis, which are representative of countries' innovation and business sophistication levels.

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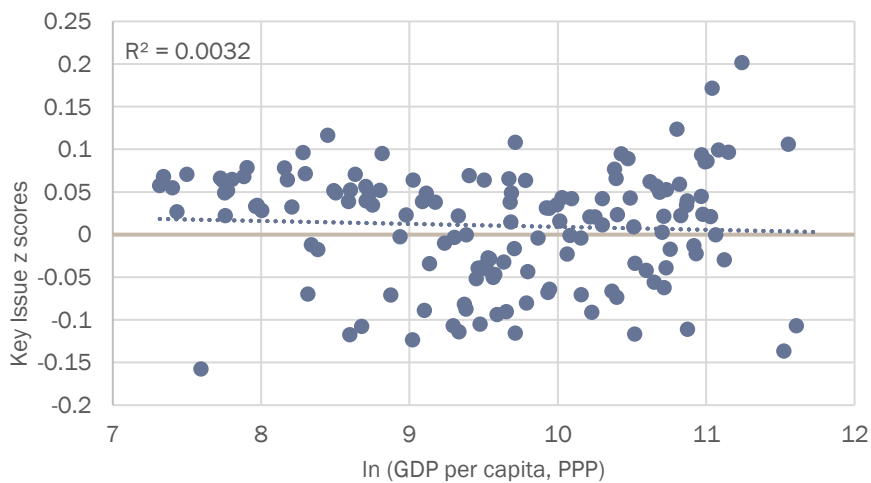
On the other hand, some key environmental issues related to water stress levels or biodiversity and ecosystem services show no income bias at all (Exhibit 5). Where we see no income bias, we use the uncorrected Key Issue scores as they are.

Exhibit 5: Other Key Issues have no income bias

a) Biodiversity



b) Water



Source: BJSS, Macrobond and publicly available sovereign ESG data sources. See Exhibit 4.

Note: We use a natural log of five-year average (2018-2022) of GDP per capita, PPP (current international dollars) for the x-axis. In the first chart, we used the weighted sum of Biodiversity Key Issue indicator z-scores for the y-axis, which represent countries' availability and sustainable use of natural resources. In the second chart, we used the weighted sum of Water Key Issue indicator z-scores for the y-axis, which represent countries' water stress levels and projections, as well as efficiency levels of water use.

Exhibit 6: Indicators and sources BJSS uses to assess countries' Innovation and Biodiversity Key Issues

Biodiversity and Ecosystems Services	Source
Biocapacity Reserve/Deficit	Global Footprint Network
Extent of Forest & Other Wooded Land, Annual Change	FAO, Global Forest Resources Assessment
Fish Stock Status	The Sea Around Us
GEF Benefits Index for Biodiversity	GBI BIO
Grassland Loss	Copernicus
Wetland Loss	Copernicus

Innovation	Source
Business Sophistication	World Intellectual Property Organisation
Creative Outputs	World Intellectual Property Organisation
Knowledge & Technology outputs	World Intellectual Property Organisation
R&D expenditure	World Bank Development Indicators
Researchers in R&D	World Bank Development Indicators

Source: BJSS

Additionally, we do not correct for income bias in Key Issues like Political Governance, Rights & Equality, and Personal Freedoms. We believe that countries, regardless of their level of wealth, are empowered to determine their regime type and the rights and freedoms granted to their population.

Another common criticism among sovereign investors is that ESG indicators in the sovereign space are prone to data gaps – unlike ESG data for corporates. We have therefore reduced our universe coverage to 152 countries, with the aim to have indicator coverage above 80% for most of the countries. If the country coverage does not include a specific indicator, we redistribute the weight of that indicator proportionally across all other indicators.

In a nutshell: The Bank J. Safra Sarasin Country ESG Framework

Frameworks that purely focus on aggregated, income-biased ESG performance risk restricting capital flows into emerging market issuers that need it most to improve. Our ESG approach, instead, aims to determine which countries have a relative ESG performance that is above or below what is expected of them based on their development level and their income peers.

Our Country ESG Framework covers 152 countries across the global sovereign investment universe. It incorporates 78 ESG indicators from respected third-party sources and NGOs to help us assess each country's performance across environmental, social and governance themes. To address the ingrained income bias problem, our country ESG model corrects for this income bias where it is present and relevant. We also adjust our ESG ratings downwards if countries have not ratified key environmental and social treaties and conventions. In addition, we enforce our ESG framework with a hard exclusion list of countries that are currently experiencing conflict. Finally, our framework indicates whether a country is displaying a positive or negative ESG momentum across such financially material indicators as corruption perception, business sophistication, rule of law and private civil liberties. This is because recent research shows that investors could benefit from countries' ESG momentum analysis.



Source: BJSS

The updated framework involves several steps to assess sovereign credit risk: calculating country ESG scores across 78 indicators, correcting for income bias, adjusting for treaties, checking exclusion lists, analysing trend momentum and checking economic performance against our Country Model Matrix.

How we build our country ESG rating

As with most sovereign ESG assessment processes, our approach starts with an ESG scorecard. This first step analyses the relative value of a country compared to its peers across 78 ESG data indicators (e.g. the Corruption Perception Index, or Age Dependency).

The methodology involves standard normalizing and adjusting each raw ESG indicator for directionality through the following formula:

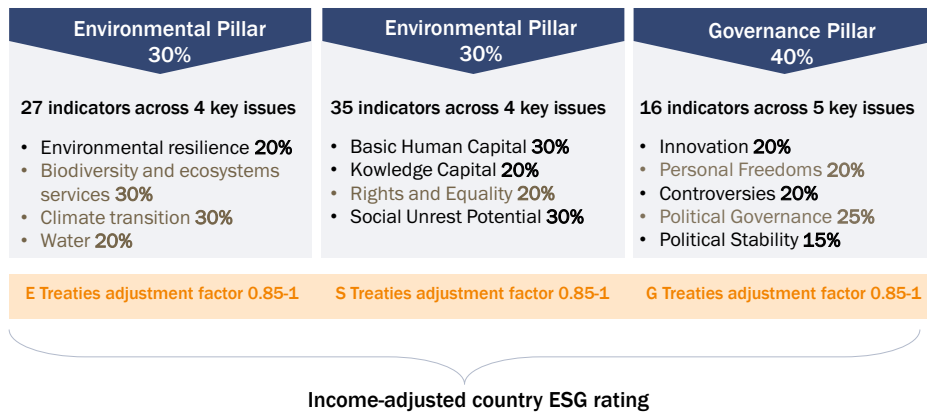
$$I_{SN;y;c;i} = \frac{I_{Raw;y;c;i} - \underline{I}_{Raw;y;i}}{\sigma_{Raw;y;i}} \times Direction_i$$

Where:

- y = year index
- c = country index
- i = indicator index
- $I_{SN;y;c;i}$ = standardized value of indicator i of country c in year y
- $I_{Raw;y;c;i}$ = raw value of indicator i of country c in year y
- $\underline{I}_{Raw;y;i}$ = average over all values of indicator i in year y
- $\sigma_{Raw;y;i}$ = standard deviation over all values of indicator i in year y
- $Direction_i$ = depending on the directionality of the indicator i either 1 or -1

The adjusted indicators are aggregated into 13 Key Issue scores for each country, following a predetermined weight scheme, representing countries' performance across different ESG themes, like Environmental Resilience, Climate Transition, Basic Human Capital and Political Stability (Exhibit 7).

Exhibit 7: Overview of the BJSS country ESG rating construction



Source: BJSS

Country ESG Ratings

In the second step, a simple econometric framework is used to construct income-adjusted Key Issue scores. Key Issue variables are regressed on the explanatory variable, given by the natural logarithm of the five-year rolling average GDP per capita (PPP adjusted) at a time t for each country. Key Issue scores of countries that are two standard deviations above or below the mean are removed from calculating simple linear-regression parameters and predicted values.

There are seven Key Issues that are highly correlated with GDP per capita PPP where the income bias is corrected:

Key Issue
• Basic Human Capital
• Controversies
• Environmental Resilience
• Innovation
• Knowledge Capital
• Political Stability
• Social Unrest Potential

For each of these Key Issues the residuals are retrieved, which represent the share of the Key Issue scores that are not explained by country's income level. Consequently, they are transformed and rescaled to a 0-5 range to yield the final Key Issue scores.

Key Issue scores without income adjustment are as follows:

Key Issue
• Biodiversity and Ecosystems Services
• Climate Transition
• Water
• Personal Freedoms
• Political Governance
• Rights & Equality

These key issues are simply transformed and rescaled to a 0-5 range.

Pillar scores

The final Key Issue scores of each country are aggregated to E, S and G pillar scores.

For each country, a pillar score is calculated as weighted sum of the final Key Issues scores. Each pillar is multiplied by the treaty adjustment factor (see next section on treaty adjustment factors), resulting in the final pillar score:

$$P_{Final;c;p} = T_{c;p} \sum_{k=1}^K KI_{Final;k;c} \times \omega_k$$

Where:

$k =$	key issue index
$c =$	country index
$\omega_k =$	weight for indicator k
$T_{c;p} =$	treaty adjustment factor for country c and pillar
$KI_{Final;k;c} =$	final key issue score for country c
$P_{Final;c;p} =$	final pillar score for country c

Income-adjusted country ESG rating

The final income-adjusted country ESG rating is a weighted average of the Environmental, Social and Governance pillars, with the following weights respectively: 30%, 30% and 40%. The rating is transformed and again rescaled to a 0-5 range.

$$ESG_{Weighted;c} = \sum_{p=1}^P P_{Final;c;p} \times \omega_p$$

$$ESG_{Final;c} = \frac{ESG_{Weighted;c} - ESG_{Weighted;min}}{ESG_{Weighted;max} - ESG_{Weighted;min}} \times 5$$

Where:

P =	pillar index
c =	country index
ω_p =	weight for each pillar
$P_{Final;c;p}$ =	final pillar score for country c
$ESG_{Weighted;c}$ =	weighted ESG score
$ESG_{Weighted;min}$ =	minimum of the range of weighted ESG scores of all countries
$ESG_{Weighted;max}$ =	maximum of the range of weighted ESG scores of all countries
$ESG_{Final;c}$ =	final income-adjusted ESG rating for country c

Incorporating treaty adjustment factors

The relationship between the violation of norms and lack of ratification of international treaties and sovereign risk is complex. While there is no clear consensus, history has shown that a country's failure to comply with international norms and treaties can be an indicator of increased sovereign risk. Statistical data modeling has also shown that compliance with United Nations' (UN) treaties is linked to improved human rights over time⁸. Therefore, the ratification of treaties is integrated in the country ESG rating assessment and viewed as a forward-looking datapoint.

For each pillar relevant treaties are identified, and conventions or indicators representing adherence to international norms and laws are evaluated. For example, the checks include if a country has ratified the UN Convention for Biological Diversity, the Paris Climate Agreement or the Ramsar Convention, which are relevant to the Environmental Pillar assessment for example.

For the Social pillar, the assessment covers the ratification of the eight fundamental conventions in the International Labour Organization's (ILO) Declaration on Fundamental Principles and Rights at Work, and more than half of the 18 Core International Human Rights Treaties.

Lastly, for the Governance pillar, the evaluation investigates if a country is on the EU or UN financial sanctions list for special social violations, if it is a signatory to Biological and Chemical Weapons, Ottawa and Oslo Conventions, and if it has abolished the death penalty and use of torture. Countries that have high levels of perceived corruption, and are not legally bound by the Nuclear Non-Proliferation Treaty are penalized.

If these conditions are not met, the country's pillar scores are reduced by up to 15%.

⁸ Carraro, V. (2019). Promoting Compliance with Human Rights: The Performance of the United Nations' Universal Periodic Review and Treaty Bodies. *International Studies Quarterly*, 63(4), 1079–1093. <https://doi.org/10.1093/isq/sqz078>

The criteria for the BJSS exclusion list

Unlike the thousands of issuers in the corporate universe, there are fewer than 200 sovereign issuers. In practice, even fewer are available to most investors because of segmentation into either developed or emerging market strategies, lack of labelled issuance in emerging markets and technical barriers to investing.

This means that traditional exclusionary screening based on social pillar conduct – for example restrictions on press freedom or high income-inequality levels – could lead to unacceptable tracking errors and significantly undermine risk-return diversification. Another typical point of debate is which criteria or conduct should be excluded, as opinions vary significantly and an extensive conduct-based exclusion list tends to restrict a large portion of the investable universe.

Our hard-exclusion list focuses on countries currently experiencing a conflict. We use the global standard definition of conflict from the Uppsala Conflict Data Program: "a state-based conflict or dyad which reaches at least 1000 battle-related deaths in a specific calendar year". If fatalities in the current year drop below 1000 for the first year in a row, our analysts will consider keeping these countries on the exclusion list for one more year, unless there are reasons to lift the exclusion early.

We also incorporate the Swiss Association for Responsible Investors' (SVKK) country exclusion list, which excludes the sovereign debt of countries against which Switzerland has issued a comprehensive military or repression goods embargo due to breaching international law, particularly human rights.

The BJSS ESG Committee reviews and approves this list on a yearly basis, although countries can be proposed for exclusion throughout the year, too.

Exhibit 8: In its 2023 review, the Committee approved the exclusion of the following countries:

Countries undergoing conflict	SVKK exclusion list
Afghanistan	Afghanistan
Belarus	Belarus
Central African Republic	Iran
Ethiopia	Libya
Libya	Myanmar
Mali	North Korea
Myanmar	Russia
Russia	Sudan
Somalia	South Sudan
South Sudan	Syria
Syria	Venezuela
Ukraine	Zimbabwe
Yemen	

Source: BJSS and SVKK

Monitoring risk with ESG trend analysis

We also look at indicator heat maps, and material indicator trends as shown in red or green in our matrix (see below), to formulate our qualitative view when making investment decisions.

We believe investors should consider both current sustainability risks and their possible evolution in the medium to long term when evaluating ESG factors for sovereign bond issuers.

While many ESG factors remain stable for extended periods, some may deteriorate due to unforeseen shocks that can impact credit quality and/or trigger defaults, ultimately leading to a negative bond performance. Noteworthy examples include the Arab Spring in 2011, the erosion of civil rights in Russia leading up to the war in Ukraine, Mozambique's default in 2017 as well as protests in Venezuela, Ecuador and Lebanon. ESG analysis enhances the investment process and provides insights into the challenges and opportunities in each country.

In our momentum analysis, we focus mainly on four specific governance and social indicators. This is for two reasons:

1. These indicators get the most attention in the ESG frameworks of the credit rating agencies (Rule of Law, Private Civil Liberties), or have a high correlation with GDP per capita (e.g. Corruption Perception, Business Sophistication). They are arguably more financially material than the rest, as they could lead to an upgrade or downgrade of the issuer's rating.
2. Behavioural and institutional attitudes towards environmental and societal changes usually take a longer time to bear fruit. Therefore, currently we don't rely on environmental factors outside this basket of indicators, but we do consider them on an ad-hoc basis.

Exhibit 9: Correlation coefficients of the four indicators used in BJSS ESG trend analysis

Indicator	Correlation with GDP per capita
Corruption perception	0.74
Business sophistication	0.65
Rule of law	0.52
Private civil liberties	0.35

Source: BJSS, Macrobond

Note: The table above shows correlation coefficients between natural log values of GDP per capita and natural log values of underlying raw indicators for all the countries in our universe (over the time period of 2010-2022)

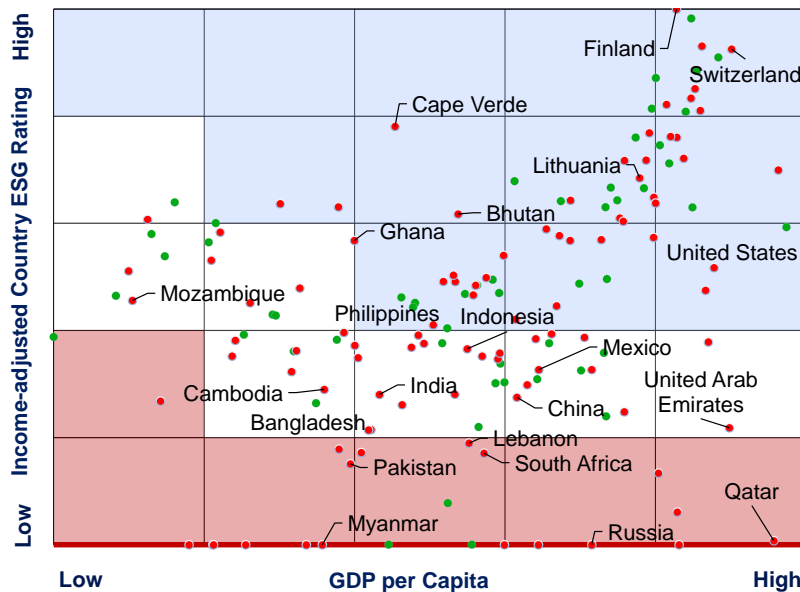
The BJSS Country ESG Matrix

The basis for the definition of our eligible investment universes is the proprietary J. Safra Sarasin Sustainability Matrix. Our matrix demonstrates the effectiveness of economies in utilizing their financial resources to achieve sustainable development and enhance their ESG characteristics. It plots countries' income-adjusted ESG scores (y-axis), i.e. their ESG performance given their level of wealth (represented as GDP per capita PPP adjusted score on the x-axis).

A third dimension is added in colour to represent a three-year trend in financially material governance-related indicators. As a result, the matrix demonstrates how well a country's ESG performance compares to peers with similar GDP per capita.

The matrix still shows some correlation with GDP, since we have not removed the bias for some Key Issues in the Governance and Social pillars for the reasons indicated above. Nevertheless, the results are more dispersed than before income adjustment, and highlight meaningful differences between countries of similar income level.

Exhibit 10: The BJSS Country ESG Matrix



- Countries undergoing war or conflict, or against which Switzerland has issued a comprehensive military or repression goods embargo due to a violation of international law, namely human rights, are D-Rated
- Countries exhibiting positive trend across equally weighted basket of indicators, related to level of corruption, business sophistication, rule of law and civil liberties
- Countries exhibiting negative trend across equally weighted basket of indicators, related to level of corruption, business sophistication, rule of law and civil liberties

Source: BJSS

GDP per capita (PPP adjusted) – x-axis

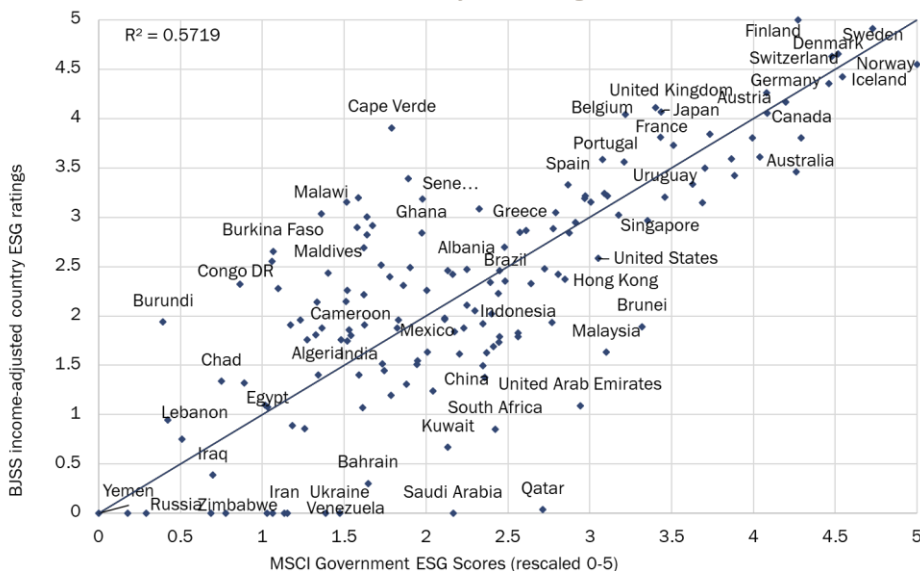
The GDP score is calculated from a natural log of five-year rolling average of GDP per capita (PPP adjusted) values, which is scaled up to a range of 0-5. The use of a five-year rolling average minimizes temporary fluctuations in ESG scores due to changes in GDP per capita.

Income-adjusted country ESG rating – y-axis

The y-axis represents countries' income-adjusted ESG scores. Our Country ESG Matrix has different thresholds for A, B or C-rated countries, depending on their income level. Even though income bias is removed, low-income countries require higher thresholds to be rated A or B than their high-income peers, given that they generally carry higher ESG risks.

Exhibit 11 shows the correlation of the income-adjusted ESG scores, with uncorrected scores for a list of 152 countries. Although still significant, the correlation with MSCI Government ESG scores is lower than the typical correlation found for data from ESG data providers (as highlighted by the World Bank study mentioned previously). While low-income emerging market countries have benefited the most from the adjustment, some key benchmark countries have seen a negative correction as a result of the updated methodology.

Exhibit 11: Correlation between BJSS country ESG ratings and MSCI Government ESG



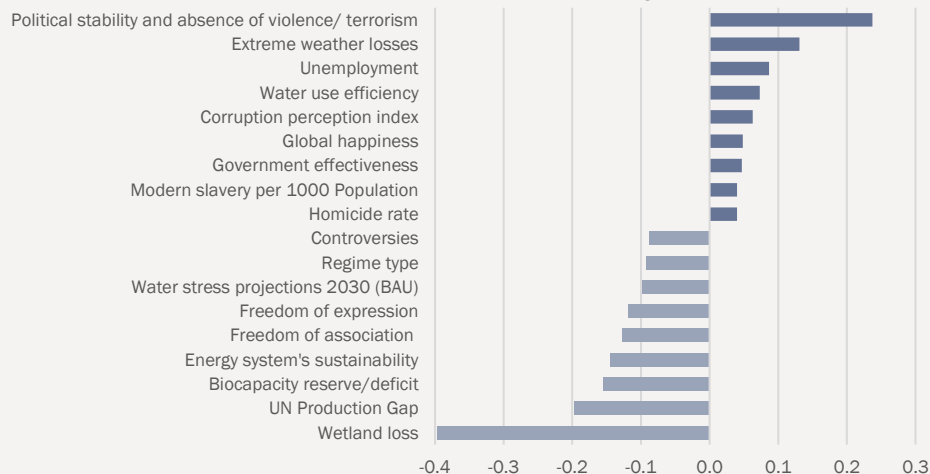
Source: BJSS, MSCI. Note: MSCI Government ESG Scores are as of 18.01.2023 and have been rescaled to a 0-5 range. The straight line represents the first bisector, i.e. x=y. If a country is plotted above the line, it means that its BJSS income-adjusted rating is higher than its MSCI score.

For instance, significantly lower ratings were calculated for Qatar or South Africa. Due to the new rating, both countries are not eligible anymore for BJSS sustainable investment strategies.

Qatar – a case study

Even though Qatar and its neighbours – Bahrain and Saudi Arabia – belong to the highest income group, they fare poorly in comparison to their high-income peers and even many low-income countries. Despite many positives, like high political stability and government effectiveness, developed infrastructure, low youth unemployment, and high levels of water use efficiency⁹, Qatar has a number of systematic weaknesses in E and G pillars. For example, it has one of the highest biocapacity deficits, meaning that it uses its renewable natural resources beyond their regenerative capacity. Although it is no longer the country with the highest ecological footprint in the world, like it was back in 2017, the trend has been picking up once again leading up to the 2022 FIFA World Cup event. As of 2022, if all people on the planet had the footprint of the average resident of Qatar, we would need resources equivalent to 8.7 earths to sustain comparable societies¹⁰. Qatar's high ecological footprint can be partly explained by strong reliance on imports, elevated levels of wealth, as well as substantial greenhouse gas emissions per capita and reliance on fossil fuels for export, as shown in Exhibit 12 below. According to the Production Gap Report 2021 by the United Nations Environment Programme (UNEP), Qatar is one of the countries with planned fossil-fuel production that is dangerously out of sync with the Paris Agreement limits¹¹. The report tracks the discrepancy between governments' planned fossil-fuel production and global production levels consistent with limiting warming to 1.5°C or 2°C.

Exhibit 12: Best and worst ESG indicators in the BJSS Country ESG score for Qatar



Source: BJSS, Macrobond and third-party sources that go into our model (for a full list of sources, see annex).

Note: Indicators z-scores are not adjusted for income bias here. Income-adjustment is done a level higher, at the Key Issue Score level.

⁹ Qatar has become a leader in desalination in recent years to ensure sustainable access to fresh water for its residents and citizens. Doha News, <https://dohanews.co/here-are-the-steps-qaatar-is-taking-to-slip-from-worst-sustainability-air-quality-ranks//#:~:test=Fife%20stations%10have%10already%20hbeen.AI%20Janoub%20Stadium%10precinct%20soon>

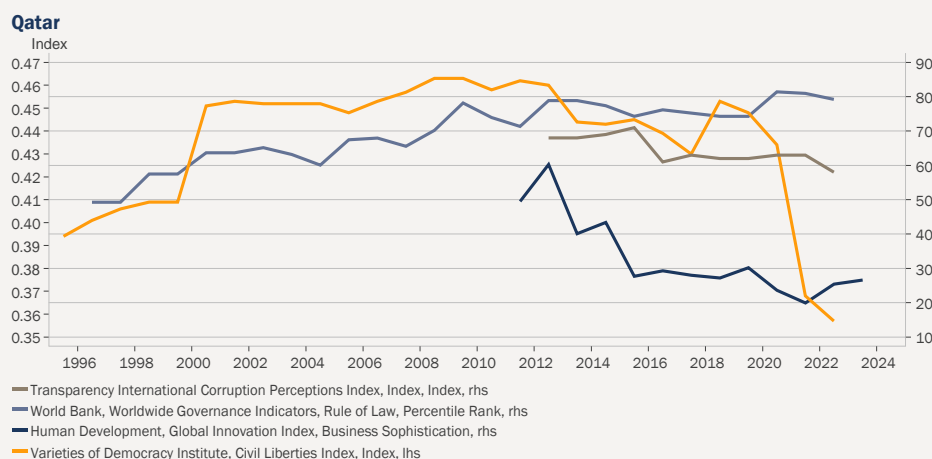
¹⁰ Global Footprint Network, <https://data.footprintnetwork.org/#/countryTrends?cn=179&type=earth>

¹¹ UNEP, <https://www.unep.org/resources/report/production-gap-report-2021>

The trend indicators (Exhibit 13) also show a mixed picture. While the rule of law and corruption levels have been relatively stable over the last ten years, the findings indicate negative momentum in civil liberties since 2020.

Whether it is freedom of association, civil society participation, or treatment of migrants, Qatar has faced criticism from human rights organisations due to the slow progress on this front. Qatar's law still discriminates against women in marriage, divorce, child custody, and inheritance¹². In the run-up to the Qatar-hosted FIFA World Cup in 2022, a series of allegations emerged in the media about the poor treatment of migrant workers¹³. In fact, the vast majority of the population consists of noncitizens with no political rights, few civil liberties, and limited access to economic opportunities. Although in 2019 the government approved labour reforms that would allow migrant workers to change employers without permission and establish a non-discriminatory minimum wage for all sectors and nationalities, analysts have warned that past reforms have not been well enforced or effective at halting the exploitation of migrant workers¹⁴.

Exhibit 13: BJSS trend indicators show a mixed picture



Source: BJSS

We use the Varieties of Democracy Institute (V-Dem) indicator for civil liberties¹⁵, which relies, amongst other data, on external experts to comment on the situation in the country. The negative trend for this indicator reflects this expert opinion.

Finally, we take a closer look at the business sophistication¹⁶ indicator, which has been showing a slight recovery post the Covid-19 pandemic. The business sophistication sub-index of the Global Innovation Index (GII) measures the quality of a country's overall business networks, including the availability of venture capital, the presence of innovative firms, and the extent of the collaboration between universities and industry¹⁷. For Qatar this sub-index shows the weakest performance contribution towards its GII score, mainly due to low

¹² Human Rights Watch, <https://www.hrw.org/world-report/2023/Country-chapters/qatar>

¹³ The Guardian, https://www.theguardian.com/football/2023/jun/15/qatar-world-cup-organisers-failed-to-protect-workers-claims-amnesty?CMP=share_btn_link, and BBC, <https://www.bbc.com/news/world-60867042>

¹⁴ Freedom House, <https://freedomhouse.org/country/qatar/freedom-world/2020>

¹⁵ Civil liberties in the V-Dem index are characterized as three types of freedoms: physical integrity rights, private civil liberties, and political civil liberties. Physical integrity rights refer to the freedom from government torture and political killings. Private civil liberties refer to freedom from forced labor, property rights, and freedoms of movement and religion. Political civil liberties refer to freedoms of association and expression.

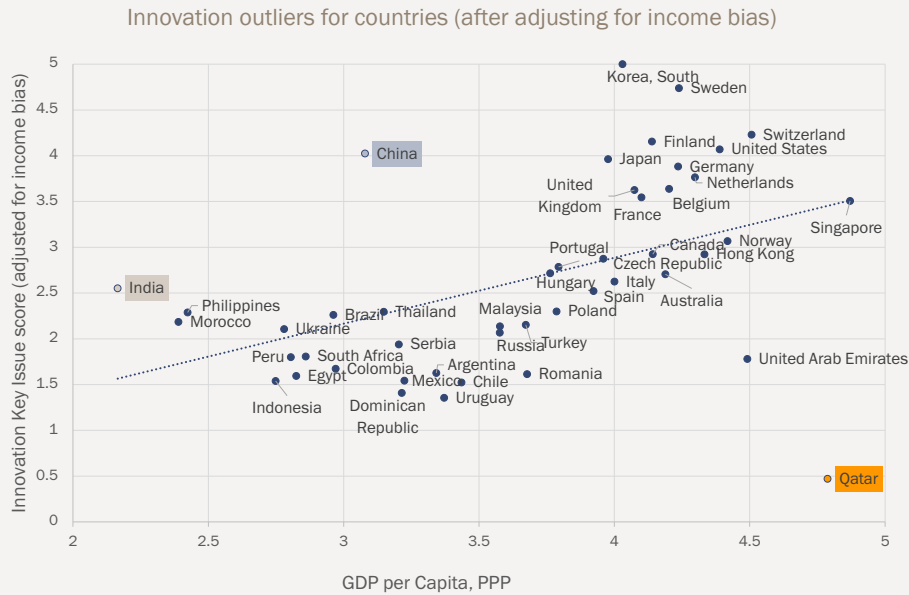
¹⁶ The business sophistication sub-index of the GII measures the quality of a country's overall business networks, including the availability of venture capital, the presence of innovative firms, and the extent of collaboration between universities and industry. World Intellectual Property Organization (WIPO), https://www.wipo.int/global_innovation_index/en/

¹⁷ WIPO, https://www.wipo.int/global_innovation_index/en/

Case Study

share of knowledge-intensive employment, low gender representation, and no reported intellectual property receipts. Furthermore, while Qatar ranks sixth among the 19 economies in Northern Africa and Western Asia, it only ranks 42nd among the 48 high-income group economies as shown in the 2022 Qatar report by GII¹⁸. This means that Qatar's performance is significantly below expectations for its level of development, which is also what we see in our analysis at BJSS (Exhibit 14).

Exhibit 14: Income-adjustment gives a better insight into which countries truly excel in innovation



Source: BJSS, Macrobond and publicly available sovereign sources, see Exhibit 4.

Note: We use natural log of five-year average (2018-2022) of GDP per capita, PPP-adjusted (current international dollars) scaled up to a 0-5 range for the y-axis, and Innovation Key Issue score adjusted for income bias in the x-axis.

¹⁸ WIPO, https://www.wipo.int/edocs/pubdocs/en/wipo_pub_2000_2022/qa.pdf

Conclusion

Most fixed income investors are aware that higher ESG scores lead to a reduction in sovereign credit risk. However, they have not been well served by available ESG data due to the lack of standardization and their limitations when comparing emerging markets with developed economies: The strong income bias of traditional country ESG performance masks relative strengths and weaknesses of individual countries against actual peers.

The new BJSS Country ESG Framework combines quantitative methodology with qualitative analysis to capture a comprehensive view of a country's ESG risks and opportunities. Covering 152 countries and incorporating 78 ESG indicators from reliable third-party sources it now corrects ingrained income bias where it is present and applicable. The resulting income-adjusted ESG scores allow for more differentiated insights and become a valuable, complementary source of information for investors to assess country risks.

Understanding how ESG factors can be best integrated into the sovereign investment process using comprehensive analytical tools is now more crucial than ever before. Updated in 2023, our approach helps compare sovereigns on an equal footing while also understanding the smaller nuances in their journey towards sustainability, as well as their specific ESG risks and trends.

Annex

Indicator sources and databases used in the BJSS Country ESG Model

- Aquastat
- Aqueduct Global Maps
- Copernicus
- EDGAR
- Energy Trilemma Index by The World Energy Council
- GBIF: The Global Biodiversity Information Facility
- Gender Inequality Index (GII) from the Human Development Reports
- Germanwatch e.V.
- Global Forest Resources Assessment by The Food and Agriculture Organization (FAO) of the United Nations
- Global Happiness Index
- Notre Dame Global Adaptation Initiative
- Potsdam Institute for Climate Impact Research (PIK) E.v.
- RepRisk, www.reprisk.com
- The Global Footprint Network
- The International Monetary Fund (IMF)
- The Sea Around Us
- The United Nations Office on Drugs and Crime (UNODC)
- The World Bank
- Transparency International
- United Nations Environment Programme (UNEP). Production Gap Report.
- V-Dem Institute (Varieties of Democracy)
- Walk Free Foundation, Global Slavery Index reports
- World Intellectual Property Report

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