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BNP PARIBAS ASSET MANAGEMENT

ENVIRONMENTAL, SOCIAL AND GOVERNANCE (ESG) SCORING FOR SOVEREIGN BOND ISSUERS

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BNP PARIBAS ASSET MANAGEMENT

The sustainable investor for a changing world

SOVEREIGN ESG SCORING: INFORMING INVESTMENT DECISIONS AND ENGAGEMENT

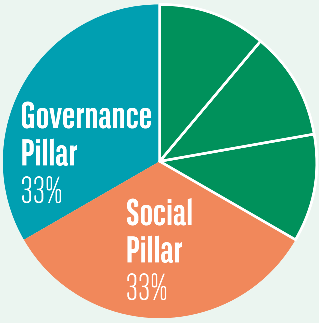
BNP Paribas Asset Management's (BNPP AM) approach to scoring issuers of sovereign bonds on their environmental, social and governance (ESG) performance is designed to support better-informed investment decisions and engagement. Our comprehensive methodology combines quantitative and qualitative inputs and draws on data from trusted providers. It is applied across 109 developed and emerging countries that currently make up our sovereign bond investment universe.

The score:

- Allows investors to compare countries with different levels of economic development
- Involves a close focus on a country's commitment to addressing climate change and its exposure to physical climate risk
- Combines insights from investment teams and input from our dialogue with regulators and policymakers

SCORING METHODOLOGY

Quantitative analysis



Environmental Pillar 33% which includes:

- 1/3 Climate mitigation x 50% + Climate Legislation x 50%
- 1/3 Physical climate risk
- 1/3 Environmental metrics

- Standardisation of ESG Indicators Performance relative to GDP and indicators' weights by income class and pillar.
- Normalisation of results for E, S, G Performance KPIs, Climate and Physical Climate Risk scores, thanks to z-scores

Qualitative analysis

BNPP AM's ESG Qualitative Overlay input provided by investment teams. Information based on interaction with policymaker on future ESG trends

Country final ESG score: ESG Rating on a 1-100 scale

ESG assessments are based on BNPP AM's proprietary methodology which integrates all three aspects of Environmental, Social & Governance

SCORE WEIGHTINGS

Pillars	Key performance indicators (KPI)	Indicators	Weight	Total pillar's weight
Environmental (E)	Environmental performance	14 themes*	11.11%	33.33%
	Climate mitigation	Temperature score Legislation score	11.11%	
	Physical climate risk	Climate change exposure	11.11%	
Social (S)	Social performance	12 themes*	33.33%	33.33%
Governance (G)	Governance performance	7 themes*	33.33%	33.33%

**Examples of ESG themes are available on the next page*. Source: BNP Paribas Asset Management, December 2023. For illustrative purposes only.

1. ESG PERFORMANCE ASSESSMENT

The ESG performance assessment combines 225 Beyond Ratings ESG KPIs within 14 environmental, 12 social and 7 governance themes to provide a comprehensive, contextual view of a country's ESG performance.

EXAMPLES OF ESG THEMES

Environmental	Social	Governance
• Energy infrastructure needs • Water scarcity • Biodiversity	• Innovation & human capital • Labour & social protection • Economic inequality	• Corruption • Political stability • Democratic life

A. ENABLING COMPARABILITY: PERFORMANCE RELATIVE TO EXPECTATIONS

To enable fair comparison among countries, the performance for each ESG indicator is calculated relative to the expected level given the country's degree of economic development. The expected level for each indicator is determined as the average per income group within five income classifications as defined by the World Bank.[1]

Calculating a country's ESG performance on a specific indicator requires identifying an expected level given the country's gross domestic product (GDP).

The expected level of an indicator is determined as its average per GDP level. Expected levels are thus calculated empirically, by building the smoothed average of the indicator's values for all countries in relation to their GDP.

1 Low Income, Lower Middle Income, Upper Middle Income, High Income non-OECD and High Income OECD.

Example: The performance of two countries with different economic development levels in terms of hospital beds

- Country A has a GDP of 1 000. Country B has a GDP of 10 000.
- For a GDP of 1 000, the expected number of beds is 10 per 100 inhabitants.
- For a GDP of 10 000, the expected number of beds is 20 per 100 inhabitants.
- Country A has 14 hospital beds per 100 inhabitants: 40% more than expected given its GDP. Country B has 18 hospital beds for 100 inhabitants: 10% fewer than expected.
- Although country B has more beds in absolute terms, the ESG performance of country A on this indicator is 40%, and of country B is -10%.

	GDP	**Number** of hospital beds per 100 inhabitants	**Expected number** of hospital beds per 100 inhabitants given the GDP	**Performance** on the Number of hospital beds per 100 inhabitants
COUNTRY A	1,000	14	10	+40%
COUNTRY B	10,000	18	20	-10%

Despite a lower number of hospital beds per 100 inhabitants for country A, its performance is better as it has more than its expected number of hospital beds per 100 inhabitants given its lower GDP, while country B has less than its expected number given its higher GDP

Source: BNP Paribas Asset Management, December 2023. For illustrative purposes only.

B. ENABLING COMPARABILITY: PERFORMANCE RELATIVE TO EXPECTATIONS

The relevance of ESG risks and opportunities for a country depends to a significant degree on its level of economic development. Therefore, the weightings of individual indicators in the overall score differ according to the country's income group.

Weightings are statistically determined through an approach that identifies how well each indicator can discriminate among countries within each income group, while having an impact on GDP.

Example: Weighting of access to electricity within environmental (E) performance assessment

Increasing access to electricity delivers more impact in lower-income countries and so is weighted more highly than for countries in higher-income groups. If a developed country underperforms relative to its peers on access to electricity, it will not significantly affect its overall ESG score.

	Access to electricity (% of population)
Low Income	2.7%
Lower Middle Income	2.2%
Upper Middle Income	1.1%
High Income – non OECD	0.7%
High Income OECD	0%

Source: BNP Paribas Asset Management, December 2023. For illustrative purposes only.

2. CLIMATE MITIGATION ASSESSMENT

Given the vital role of sovereigns in addressing climate change, the scoring methodology emphasises countries' climate commitments. The climate mitigation assessment evaluates the measures countries have in place to combat climate change. It supplements the evaluation of current climate performance, which is part of the E pillar of the ESG performance assessment.

This component combines a quantitative assessment of the country's climate ambitions with a qualitative evaluation of the laws and policies it has in place to support those ambitions.

50% CLAIM NDC temperature score	+	50% Qualitative climate legislation score

CLAIM Nationally Determined Contribution (NDC) temperature score

The *Beyond Ratings* CLAIM[2] methodology provides an assessment of the commitment of each country to the goals of the Paris Agreement. To generate a score for the country's climate ambition, it compares:

- A 2°C-compatible emissions budget for each country by 2030.

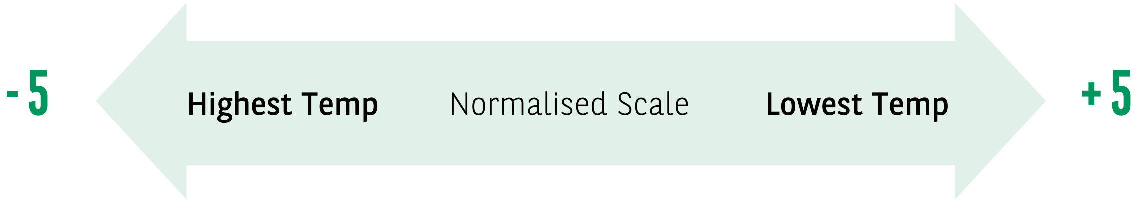
WITH

- The emissions expected for the country based on its Nationally Determined Contribution (NDC).

2 CLAIM is the Climate Liabilities Assessment Integrated Methodology. The methodology was defined in 2017 by Gaël Giraud from the CNRS, and Hadrien Lantremange, Emeric Nicolas and Olivier Rech from FTSE Russell - Beyond Ratings, in their paper "National Carbon Reduction Commitments: Identifying the most Consensual Burden Sharing".

A country's NDC is its action plan to cut emissions. Each signatory to the Paris Agreement is required to establish an NDC and update it every five years. A larger gap between the country's NDC and a 2°C-compatible emissions budget means the country has weaker climate ambitions: it is not currently committed to reducing emissions to a level consistent with limiting warming to 2°C.

The country receives a score of -5 to +5 based on the warming that would result if every country had the same ambition as the analysed country, with a score of zero indicating alignment with the 2°C target.



QUALITATIVE CLIMATE LEGISLATION SCORE

The qualitative score is designed to assess whether the country's climate ambitions are enshrined in its current laws and policies. Countries receive a score from 0 to 5, based on five key performance indicators.

Rating	Key Performance Indicators	Scoring
/1	**Number of climate laws**	1 if higher than the median number of climate laws in our countries universe, 0 otherwise
/1	**Number of climate policies**	1 if higher than the median number of climate policies in our countries universe, 0 otherwise
/1	**Ratification of the Paris Agreement**	1 if ratified, 0 otherwise
/1	**Mitigation score**	1 if climate policies involve mitigation, and 0 otherwise
/1	**Adaptation score**	1 if climate policies involve adaptation, and 0 otherwise
/5	**Qualitative climate legislation scoring**	

3. PHYSICAL CLIMATE RISK ASSESSMENT

The physical climate risk assessment evaluates the exposure of each country to climate events such as floods, storms and droughts, given the potential implications of such events for the country's physical structures, industrial processes, supply chains and critical infrastructure.

This scoring component uses Verisk Maplecroft's Climate Change Exposure Index, which provides a quantitative assessment of exposure to climate extremes and future climate change. Unlike other physical risk assessments, the Verisk Maplecroft methodology maps risk at a subnational level, enabling index users to identify exposure hotspots. It is comprised of 41 indicators, which together form four pillars.

Current climate extremes (40%)

Changes in climate extremes (20%)

Climate shifts (20%)

Changes in climate variability (20%)

4. QUALITATIVE OVERLAY

Quantitative assessment allows for efficient evaluation and comparison of a country's ESG characteristics. However, the information captured through a fixed set of indicators is necessarily imperfect.

When investment teams believe the quantitative assessment does not fully capture a country's current situation and expected evolution, an overlay based on detailed qualitative analysis and/or a dialogue with the country can be applied to the ESG score.

RATIONALE FOR QUALITATIVE ADJUSTMENTS

Qualitative adjustments are used for several defined purposes:

- Data timeliness: Sovereign ESG data typically has a 1-2 year lag. The primary use of a qualitative overlay is to capture more recent information.
- Supplementing a quantitative model: A qualitative overlay may be used to fill gaps in the ESG score, although the breadth of the quantitative model means these cases are likely to be limited.
- Correcting data points in the quantitative model: In rare circumstances, an overlay may be used where there is a disagreement with the data points employed by a data provider.

OVERLAY GOVERNANCE PROCESS

Use of the qualitative overlay is subject to a robust governance process.

Investment team proposes an ESG adjustment and supplies a clearly documented rationale

Sustainability Centre reviews request
- **Agree:** Overlay is applied
- **Disagree:** Case submitted to Sovereign ESG Overlay Committee

Sovereign ESG Overlay Committee

- Ensures alignment between BNPP AM sustainability targets and associated measures implemented by investment teams
- Addresses differences in views among investment teams on a single country
- Addresses differences in views between investment teams and Sustainability Centre on ESG qualitative overlays.

Examples: Qualitative overlays in practice

Positive E-pillar overlay: Emerging market country sets out net zero pathway

We applied a positive E-pillar overlay for Country C after its cabinet approved an updated Nationally Determined Contribution (NDC) – a set of long-term goals to cut carbon emissions and adapt to climate impacts, required to be provided and updated every five years by every country signatory to the Paris Agreement.

The updated targets include commitments to reduce the carbon intensity of the country's GDP and achieve a defined threshold of electric power capacity from non-fossil fuel targets.

Negative E-pillar overlays: Developed market countries backslide on climate

Several OECD countries announced policy changes that resulted in the application of negative overlays to their E-pillar scores.

Country D approved a new oilfield and backtracked on other policy measures supporting its transition to net zero. Following engagement, we were not convinced that the government would abide by its intermediate emissions reduction targets.

Country E reduced taxes on automobile fuel as part of a fiscal programme, leading to the acknowledgement that it would deviate from its emissions reduction pathway.

Country F remains committed to phasing out coal as a source of power by 2030, but announced plans to reactivate coal and oil-fired power plants on a temporary basis.

Reduced negative S-pillar overlay: Developed market country sets out planned improvements to migrant rights

We had applied a negative S-pillar overlay for **Country F** due to its discriminatory citizenship policy, which left those born and living with the status of 'non-citizen' with limited rights to participation in public affairs, travel within the EU, and employment in parts of the public sector.

The country has now set out plans for the integration and social inclusion of people with a migrant background. We reduced the size of the negative overlay and will continue to monitor the finalisation and implementation of the plans.

5. FINAL ESG SCORE

Combining both qualitative and quantitative inputs, we reach an ESG score ranging from one to 100, with countries ranked in deciles against peers.

Final score example: OECD country with weak overall ESG score

This OECD country is ranked in the ninth decile in its High-Income OECD peer group, with an ESG score of 50.

The country has a high degree of misalignment with the 2°C target under the CLAIM methodology and a highly negative climate mitigation score. However, positive government changes in recent years have resulted in significantly improved climate commitments, so we apply a positive overlay to the E-pillar score.

The country's performance on S-pillar KPIs is average, with notable strength in the Innovation & Human Capital KPI and weakness in several KPIs due to poor indigenous rights and concerns over the mismanagement of the Covid-19 pandemic.

The contribution of the governance pillar is negative due to several weak KPIs.

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VIEWPOINT

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