

Sovereign ESG 2.0: Aligning ESG with Sustainability

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What we will cover

- Setting the stage: World Bank within sustainable finance and our work on sovereign ESG
- ESG as zeitgeist: ESG became synonymous with sustainable finance
- Sovereign ESG: state of play
- Sovereign sustainability: how countries develop
- Sovereign ESG 2.0: from ESG as an input to ESG as an output

World Bank and sustainable finance

- International organization owned by 189 member countries
- Purpose is to end extreme poverty and promote shared prosperity
- The world's largest source of development finance and expertise over 70 years with about \$202 billion in loans outstanding in almost 80 countries
- AAA issuer of \$55-65 bill a year to fund WB sustainable development activities
- Issuer of first green bond in 2007 with over US\$14 billion raised through 166 World Bank green bonds in 22 currencies
- Asset owner and asset manager of over \$185 billion across all asset classes

Our work on Sovereign ESG



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Riding the Wave:
Navigating the ESG
Landscape for Sovereign
Debt Managers

Sebastien Boitreaud, Ekaterina
M. Gratcheva, Bryan Gurhy, Cindy
Paladines, and Andrius Skarmalis



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Demystifying Variation in
Sovereign ESG Ratings:
Practical Guide for
Policymakers and Investors


Teal Emerj and Ekaterina Gratcheva



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Spatial Finance:
Challenges and
Opportunities in
a Changing World

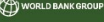


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1% Growth in Natural
Capital: Why it Matters
for Sovereign Bonds

Ekaterina Gratcheva and Dieter Wang

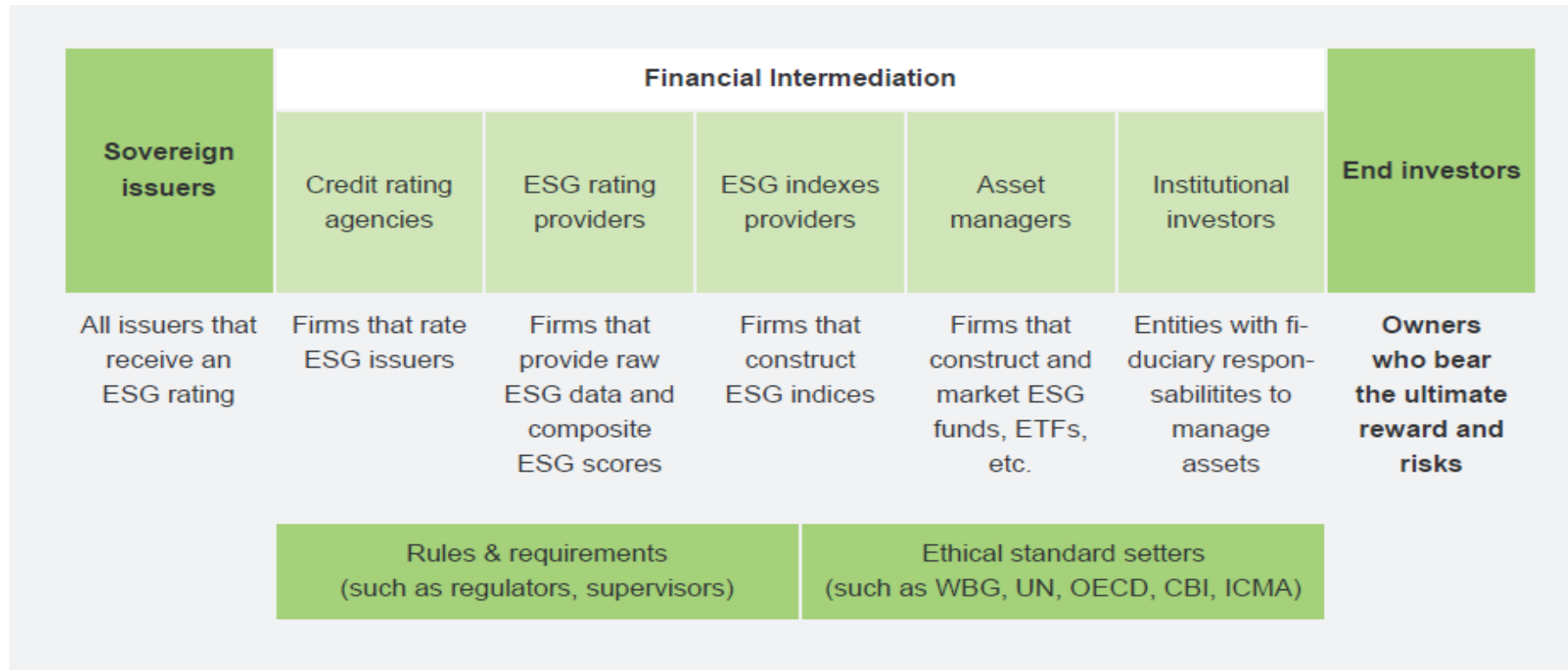




ESG as zeitgeist

Financial ecosystem is evolving

Focus on sustainability has intensified since 2015: SDGs and Paris Climate Accord

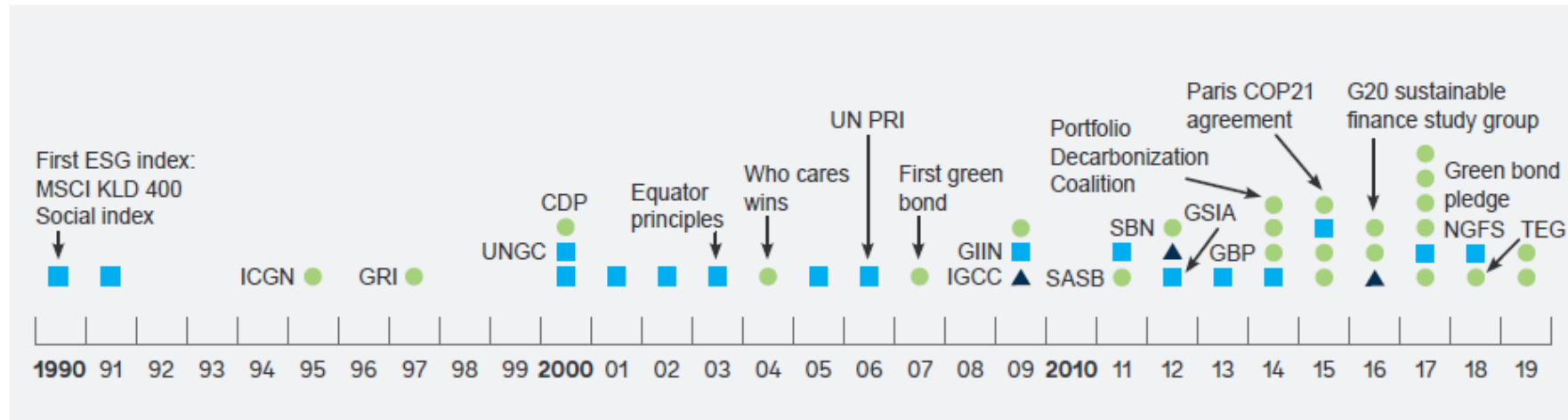


Source: World Bank staff illustration, adapted from OECD 2020, 23.

Note: CBI = Climate Bonds Initiative; ESG = environmental, social, and governance; ICMA = International Capital Market Association; OECD = Organisation for Economic Co-operation and Development; UN = United Nations; WBG = World Bank Group.

Growth in Sustainable finance has been facilitated by proliferation of stakeholders

Many standards, codes, data sources and methodologies



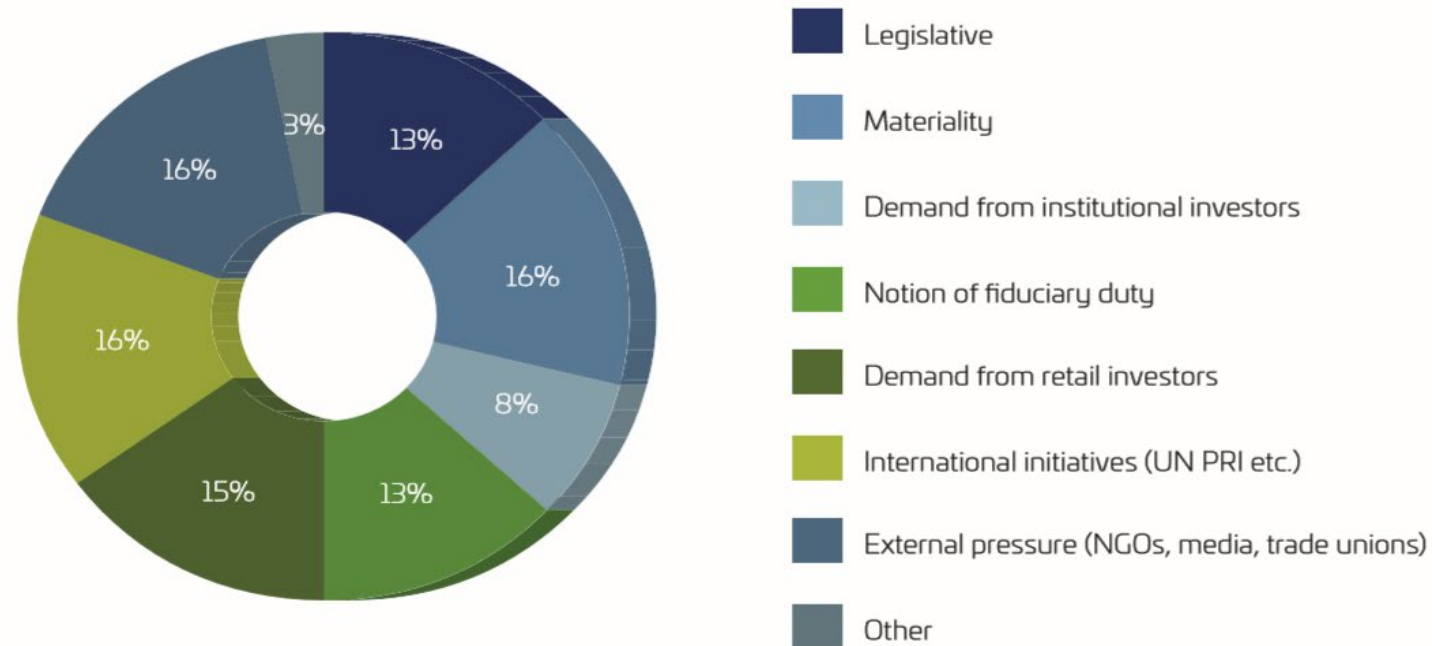
- Impact investing, responsible, and sustainable investment
- Initiatives, corporate governance, accounting, and disclosure
- ▲ Green and climate change investment associations

Source: IMF 2019, based on MSCI; Sustainability Accounting Standards Board; Refinitiv Datastream; WhoCaresWins; World Bank; and International Monetary Fund staff.

Note: CDP = Carbon Disclosure Project; COP21 = 21st Conference of the Parties; ESG = environmental, social, and governance; GIIN = Global Impact Investing Network; GBP = Green Bond Principles; GRI = Global Reporting Initiative; GSIA = Global Sustainable Investment Alliance; ICGN = International Corporate Governance Network; IGCC = Investor Group on Climate Change; NGFS = Network for Greening the Financial System; SASB = Sustainability Accounting Standards Board; SBN = Sustainable Banking Network; TEG = EU Technical Experts Group on Sustainable Finance; UNGC = UN Global Compact; UN PRI = UN Principles for Responsible Investment.

Demand for finance to play greater role in sustainability is driven by global sentiment

What is driving investor interest in ESG investing?



Source: Eurosif European Study 2018.

Based on 263 asset managers and asset owners with combined AUM of 20 trillion: est. 79% coverage

<http://www.eurosif.org/wp-content/uploads/2018/11/European-SRI-2018-Study-LR.pdf>

SRI has evolved into ESG investing

- ESG has become synonymous with sustainable finance
- ESG investing incorporates environmental, social and governance issues into the analysis, selection and management of investments
- Objectives for ESG integration have become conflated:
 - **ESG as an input:** to improve the risk/return profile of the underlying investments
 - **ESG as an output:** to contribute to measurable positive social and environmental impact



Environment

Climate change, carbon emissions, pollution, resource efficiency, biodiversity



Social

Human rights, labor standards, health and safety, diversity policies, community relations, development of human capital



Governance

Corporate governance, corruption, rule of law, institutional strength, transparency

ESG has finally come to sovereign bonds

- In 2017 GPIF (\$1.6 trill) asked for help to assess how to incorporate non-financial factors for sovereign bonds
- Since 2017 asset managers started publishing their sovereign ESG approaches (full list in “Riding the Wave”)
- ESG data providers introduced sovereign ESG methodologies and sovereign ESG scores
- In 2018 JPM introduced ESG EM sovereign bond indices
- CRAs are introducing their sovereign ESG products

TABLE C.2 - Overview of ESG rating score weightings

	E%	S%	G%
MSCI	25	25	50
Sustainalytics	15	35	50
Beyond Ratings	30	30	40
Vigeo Eiris	33	33	33
RobecoSAM	20	30	50

Sources: MSCI, Sustainalytics, Beyond Ratings, Vigeo Eiris, and RobecoSAM.

Note: E = environmental; S = social; G = governance.

TABLE C.1 - Sovereign ESG methodologies used in market bond indexes

Index	Data Providers	Data Descriptions
J.P. Morgan JESG Emerging Market Sovereign Bond indexes	Sustainalytics	Detailed structural data are used for analyzing.
	RepRisk	High-frequency data are used to complement.
FTSE Climate Risk-Adjusted Government Bond Index	Beyond Ratings	Focused on climate; scoring assesses.

Sources: MSCI, Sustainalytics, Beyond Ratings, Vigeo Eiris, and RobecoSAM.

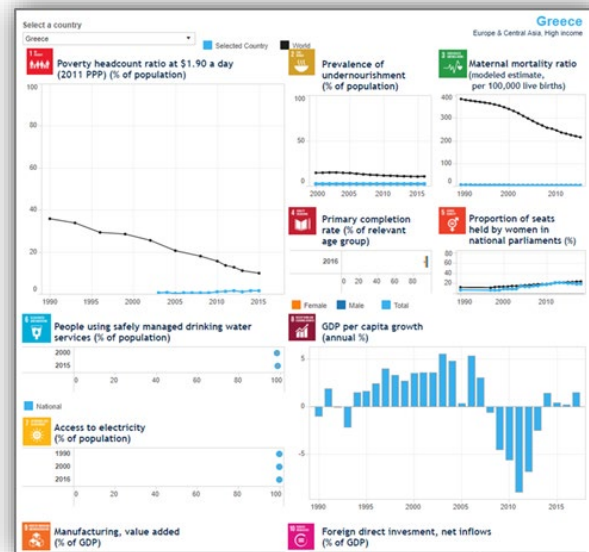
Note: ESG = environmental, social, and governance.

Sovereign ESG data portal was launched in 2019 in response to market demand

- Provides public transparent data across 139 countries and 67 metrics
- Created strong response from stakeholders: Regulators, other MDBs, asset owners, financial service providers

Check out the World Bank's
Sovereign ESG Data Portal
Data, Tools, and Guidance

<http://esgdata.worldbank.org>



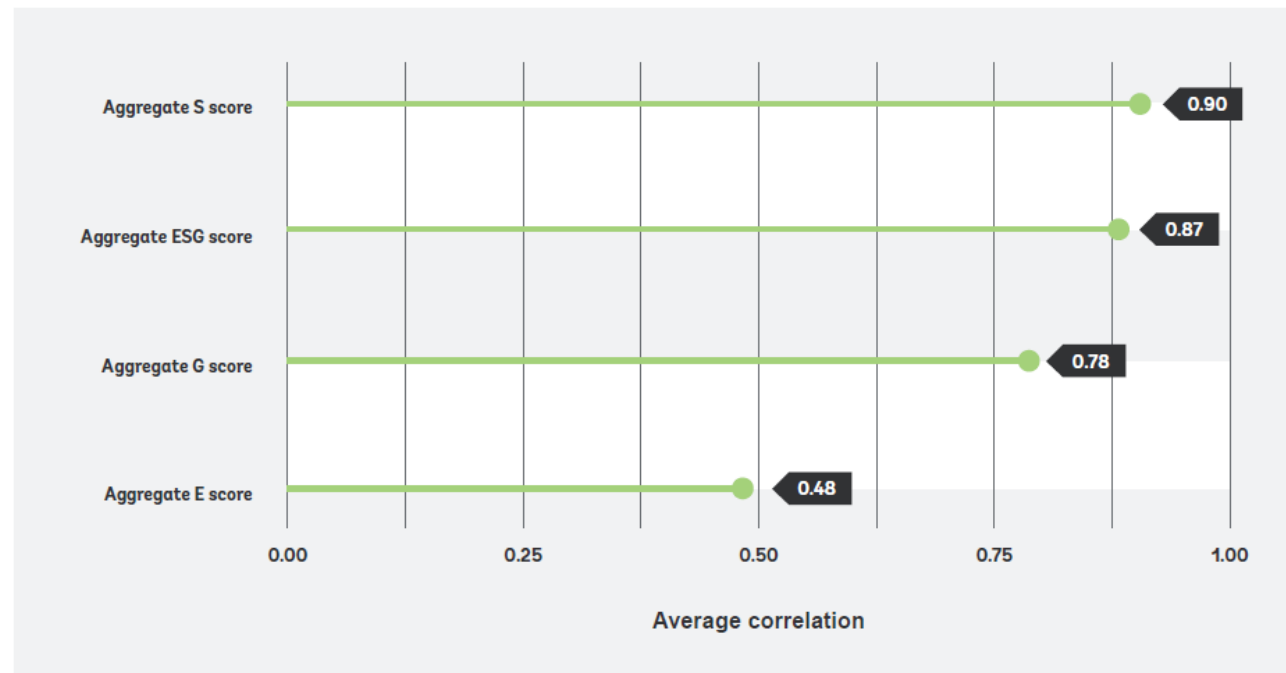
NAME	COUNTRY COVERAGE			
	SINCE201	SINCE201	SINCE201	SINCE201
Military expenditure (% of GDP)	161	160	155	146
Tuberculosis prevalence rate, low uncertainty bound (per 100,000 population, WHO)	54	0	0	0
Incidence of malaria (per 1,000 population at risk)	99	99	99	0
Diabetes prevalence (% of population ages 20 to 79)	207	207	207	207
Prevalence of obesity, male (% of male population ages 15+)	188	188	188	0
Prevalence of obesity, female (% of female population ages 15+)	188	188	188	0
Labor force with secondary education (% of total)				
Labor force with tertiary education (% of total)				
School enrollment, secondary (% net)	153	140	131	7
School enrollment, tertiary (% gross)	164	148	127	8
Maternal mortality ratio (modeled estimate, per 100,000 live births)	183	183	183	0
Pupil-teacher ratio, primary	186	168	153	11
Pupil-teacher ratio, secondary	165	143	132	8
Nurses and midwives (per 1,000 people)	168	125	67	0
Hospital beds (per 1,000 people)	155	2	0	0
Physicians (per 1,000 people)	163	126	64	0
Researchers in R&D (per million people)	103	87	61	0
Technicians in R&D (per million people)	97	67	38	0
Vulnerable employment, total (% of total employment) (modeled ILO estimate)	187	187	187	187
Unemployment, youth total (% of total labor force ages 15-24) (modeled ILO estimate)	187	187	187	187
Fixed broadband subscriptions (per 100 people)	207	205	203	0
Internet users (per 1,000 people)	52	0	0	0
Mobile cellular subscriptions (per 100 people)	203	207	207	0
Scientific and technical journal articles	196	196	196	0
Medium and high-tech exports (% manufactured exports)	147	147	147	0
Average duration of power outage (hours)	8	0	0	0
Telephone mainlines (per 1,000 people)	53	0	0	0
GDP growth (annual %)	200	199	197	187



Sovereign ESG 1.0: state of play

Sovereign ESG scores providers agree

- They also agree on S and G, but not on E
- This is in stark contrast to corporate ESG scores which diverge widely across the same ESG data providers



Sources: MSCI, Sustainalytics, Beyond Ratings, Vigeo Eiris, and RobecoSAM.

Note: E = environmental; ESG = environmental, social, and governance; G = governance; S = social.

Main reason: Sovereign ESG scores are driven by country's level of development

- 90% of sovereign ESG scores are explained by the countries' wealth



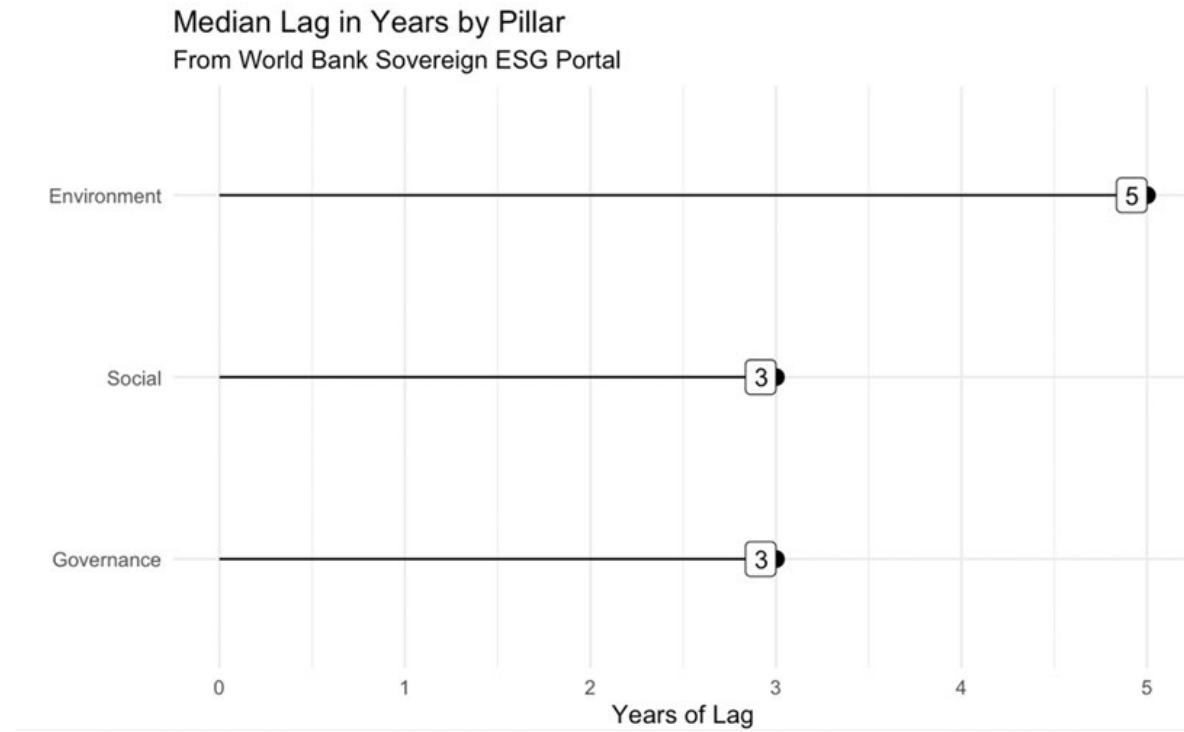
● Beyond Ratings ● MSCI ● Robeco SAM ● Sustainalytics ● Vigeo Eiris

Source: MSCI, Sustainalytics, Beyond Ratings, Vigeo Eiris, and RobecoSAM.

Note: GNI = gross national income. The z-score describes the position of the raw score in relation to the mean, measured in standard deviation units.

...but also challenges with underlying data

New approaches (e.g. satellite data) are promising but require significant investments (costs and skills) and computing power

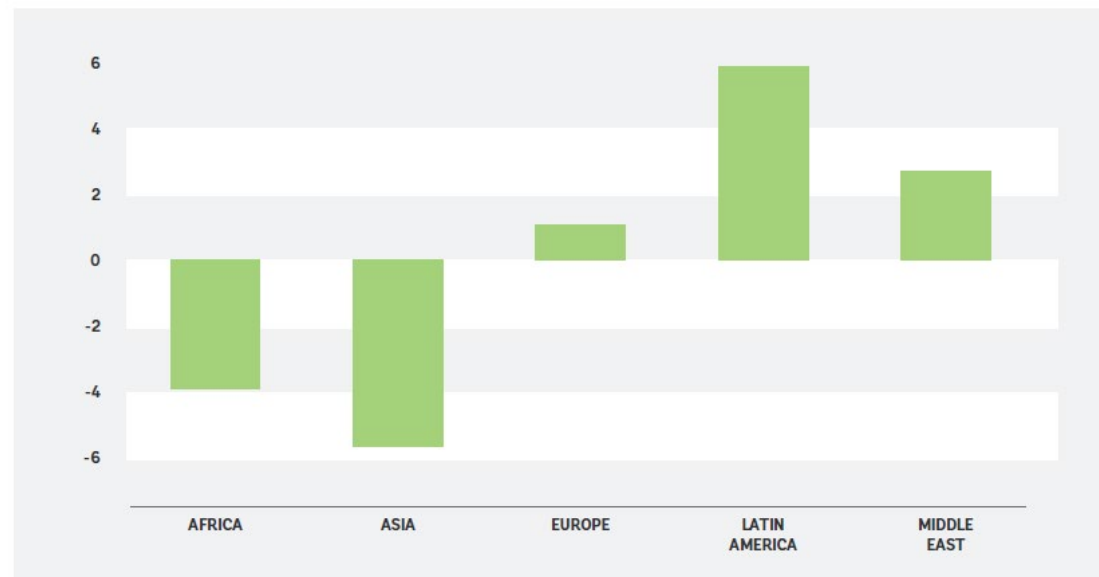


Source: WWF-World Bank, 2020, “Spatial Finance: Challenges and Opportunities in a Changing World”.

As a result, EMDEs are disadvantaged when in most need of finance for development

- JP Morgan Sovereign ESG adjusted index that drives flows to EMDEs overweighs wealthier countries at the expense of lower income countries
- Sovereign ESG methodologies are proposed to be integrated in the EU regulation from 2021

FIGURE A.1 Ratio of JPMorgan EMBIG index to comparable ESG-adjusted index, by region



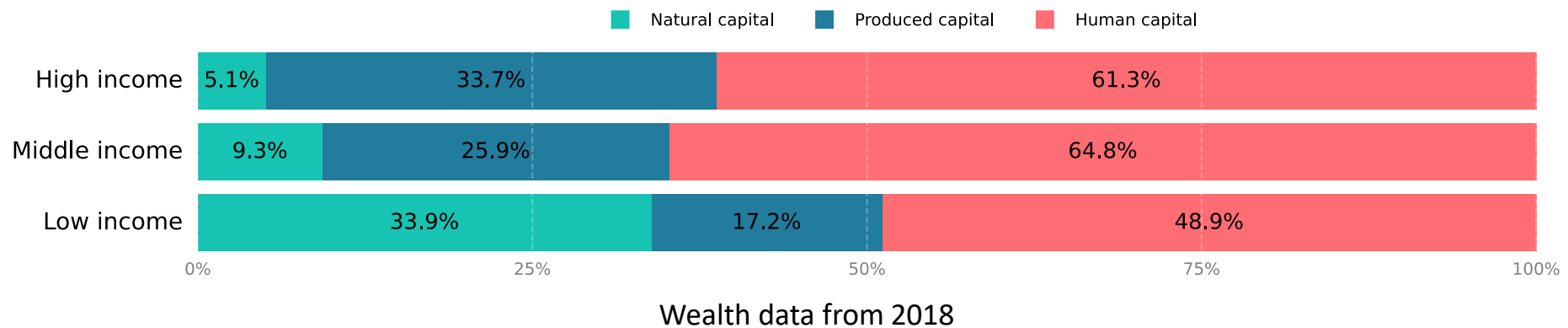
Source: J. P. Morgan.
Note: EMBIG = Emerging Markets Bond Index Global.



Sovereign sustainability: how countries develop

Economic development

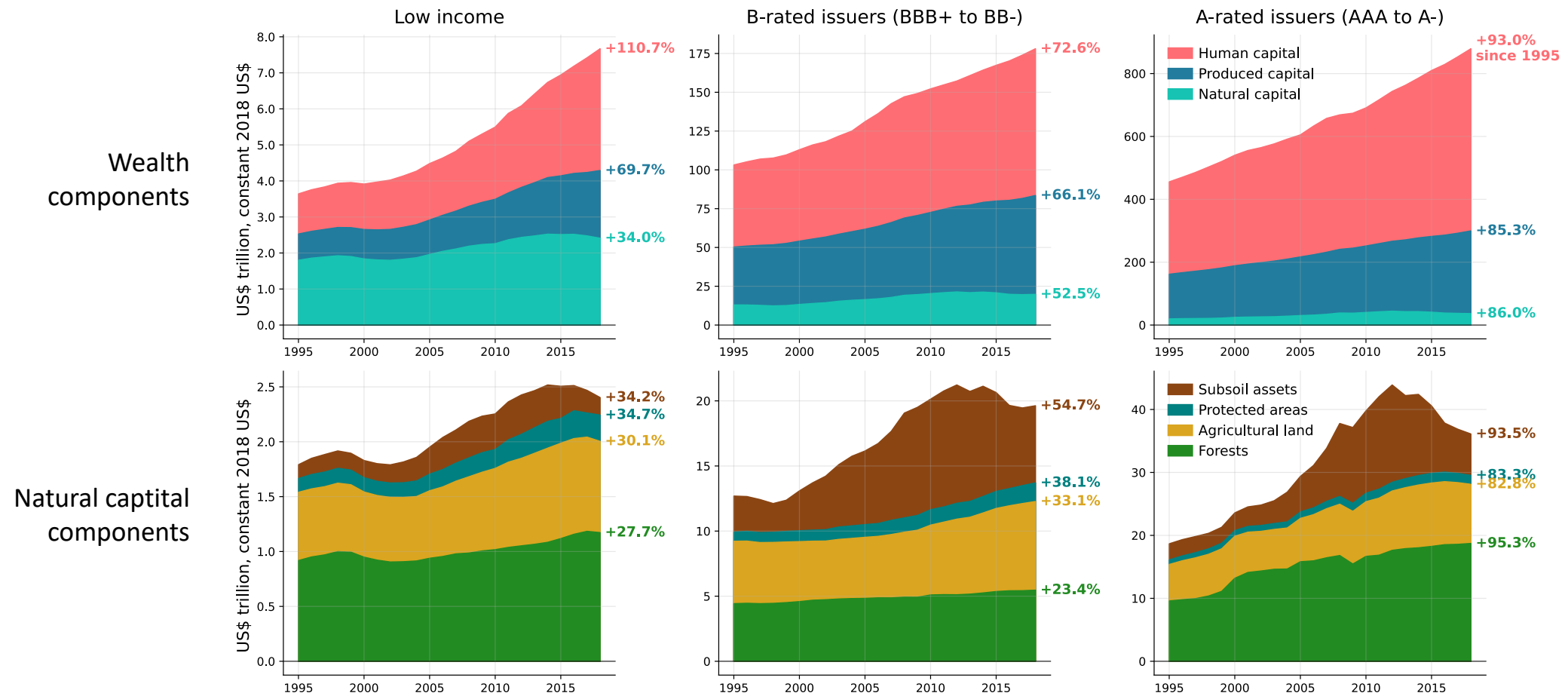
“The share of natural capital gradually declines as countries graduate from low- to middle- and high-income status.” *Lange et al., 2018, “The changing wealth of nations 2018: Building a sustainable future”*



What is wealth data?

In short: wealth = discounted “life-time earnings” of an asset. Life-time duration depends on extraction vs. regeneration rate. Wealth is a forward-looking measure of growth potential.

How the wealth of nations changed since 1995

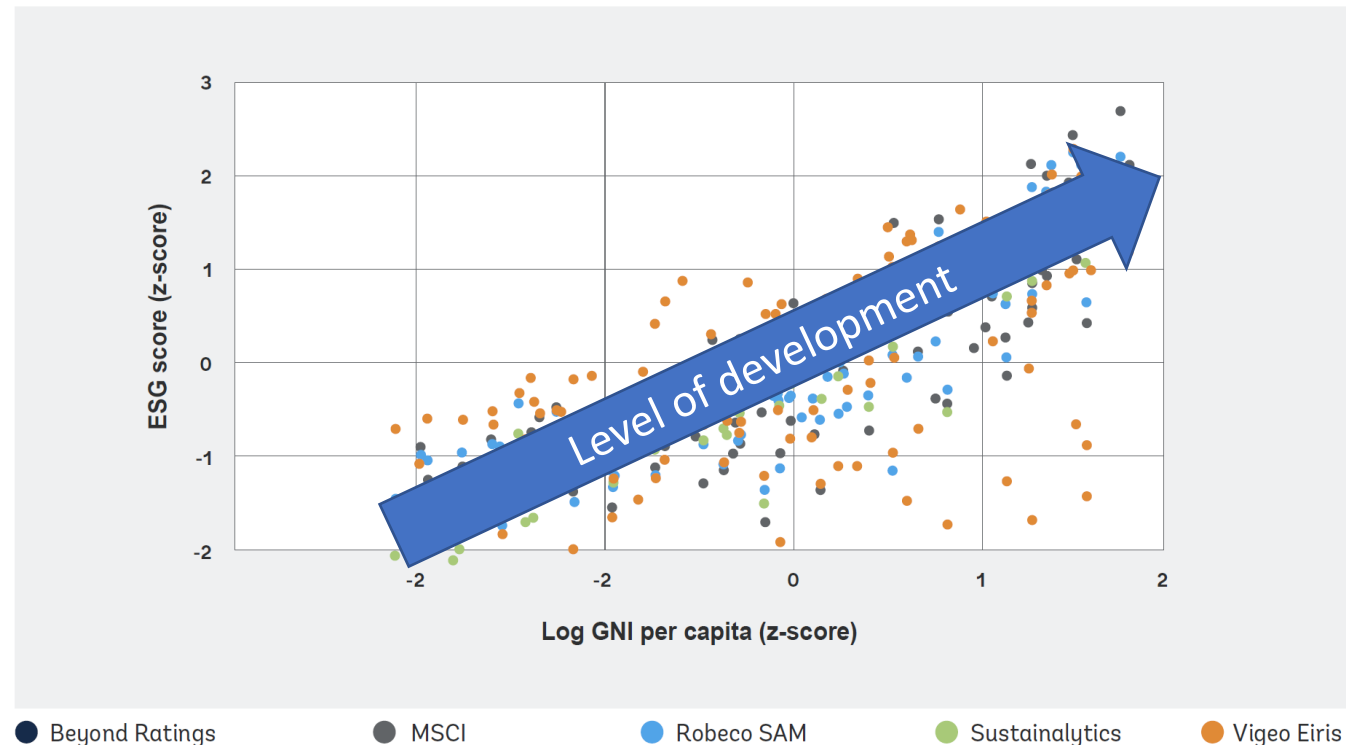


Source: World Bank, 2021, "Natural Capital and Sovereign Bonds."

Ingrained income bias affects sovereign ESG comparison across countries

>>>

FIGURE C.2 - Relationship between sovereign ESG scores and countries' wealth, all ESG providers



Source: MSCI, Sustainalytics, Beyond Ratings, Vigeo Eiris, and RobecoSAM.

Note: GNI = gross national income. The z-score describes the position of the raw score in relation to the mean, measured in standard deviation units.

Source: World Bank, 2020, "Riding the Wave: Navigating the ESG Landscape for Sovereign Debt Managers."



Sovereign ESG 2.0: from ESG as an input to ESG as an output

Key issue for Sovereign ESG 1.0: *ingrained income bias*

ingrained

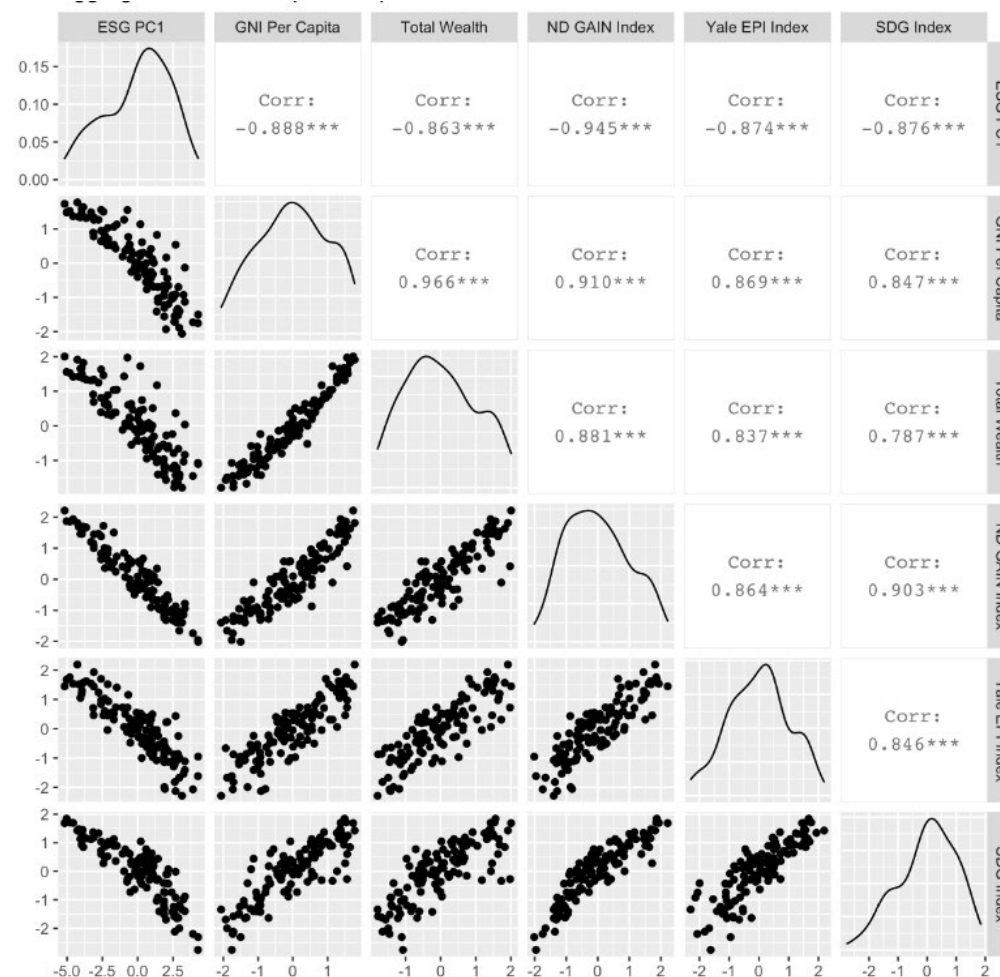
1. (of a habit, belief, or attitude) firmly fixed or established; **difficult to change**.
2. (of dirt or a stain) **deeply embedded** and thus difficult to remove.

Definitions from Oxford Languages

Not only an econometric or epistemological problem

Since the level of income is the result of human history over long-term,
there is nothing a country can do in the short-run to affect it

All existing indices covering various ESG aspects (E, SDG, etc.) are affected by *ingrained income bias*



Addressing challenges with sovereign E data with



Focus on sovereign E has been increasing

Need to overcome E data issues:

- Low frequency: 5-year frequency
- High time-to-market: Average lag 5+ years
- Most recent value varies across countries

We are exploring solutions with

Earth observation data from European Space Agency

- Higher frequency
- Objective
- Global coverage

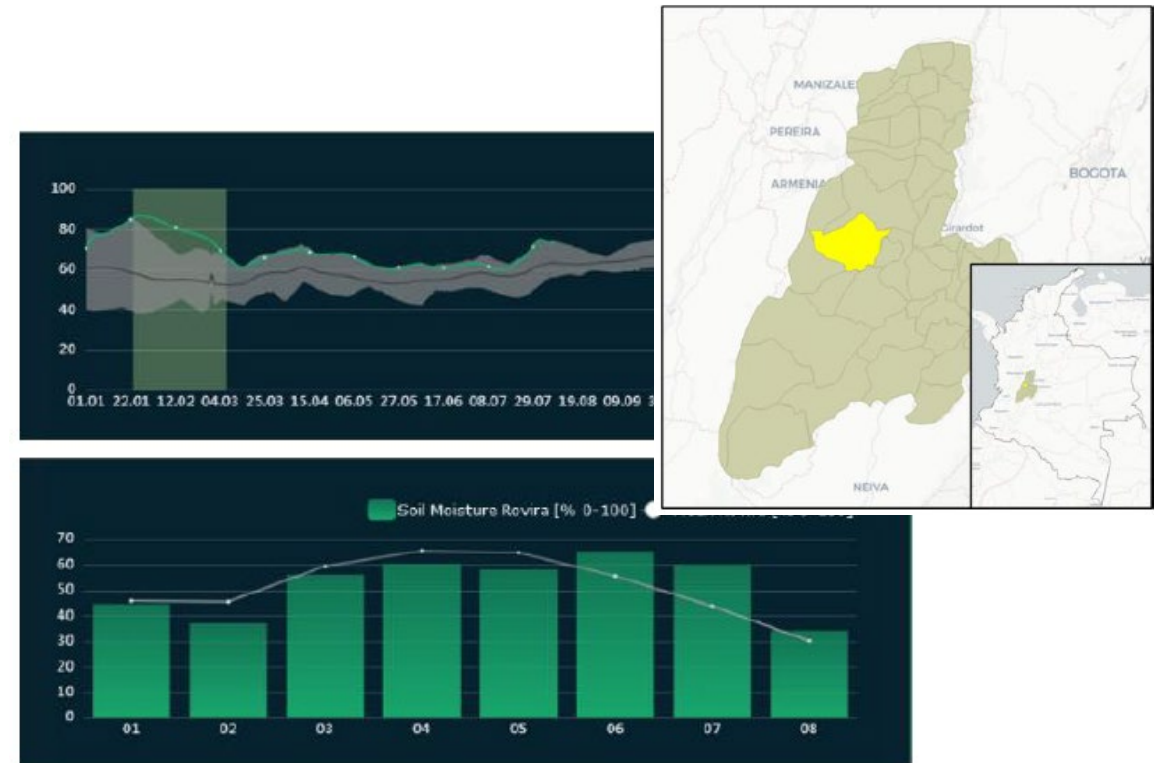


FIGURE 16 The vegetation condition index in two maize growing provinces of Colombia for 2020. Diagrams were taken directly from the web application.

An opportunity to rethink sovereign ESG

- Recognizing the **ingrained income bias** helps us rethink sovereign ESG scores.
- Although biased, the existing ESG 1.0 scores are not uninformative: they represent the **long-term view**.
- ESG 2.0 scores to be based on the technique to present complementary **short-term view**.

ESG 2.0

Main characteristics

- Evidence-based, bias-corrected
- Emphasizes recent, short-run efforts
- Factors in non-financial materiality
- By construction comparable across countries
- Can be decomposed into constituents of wealth

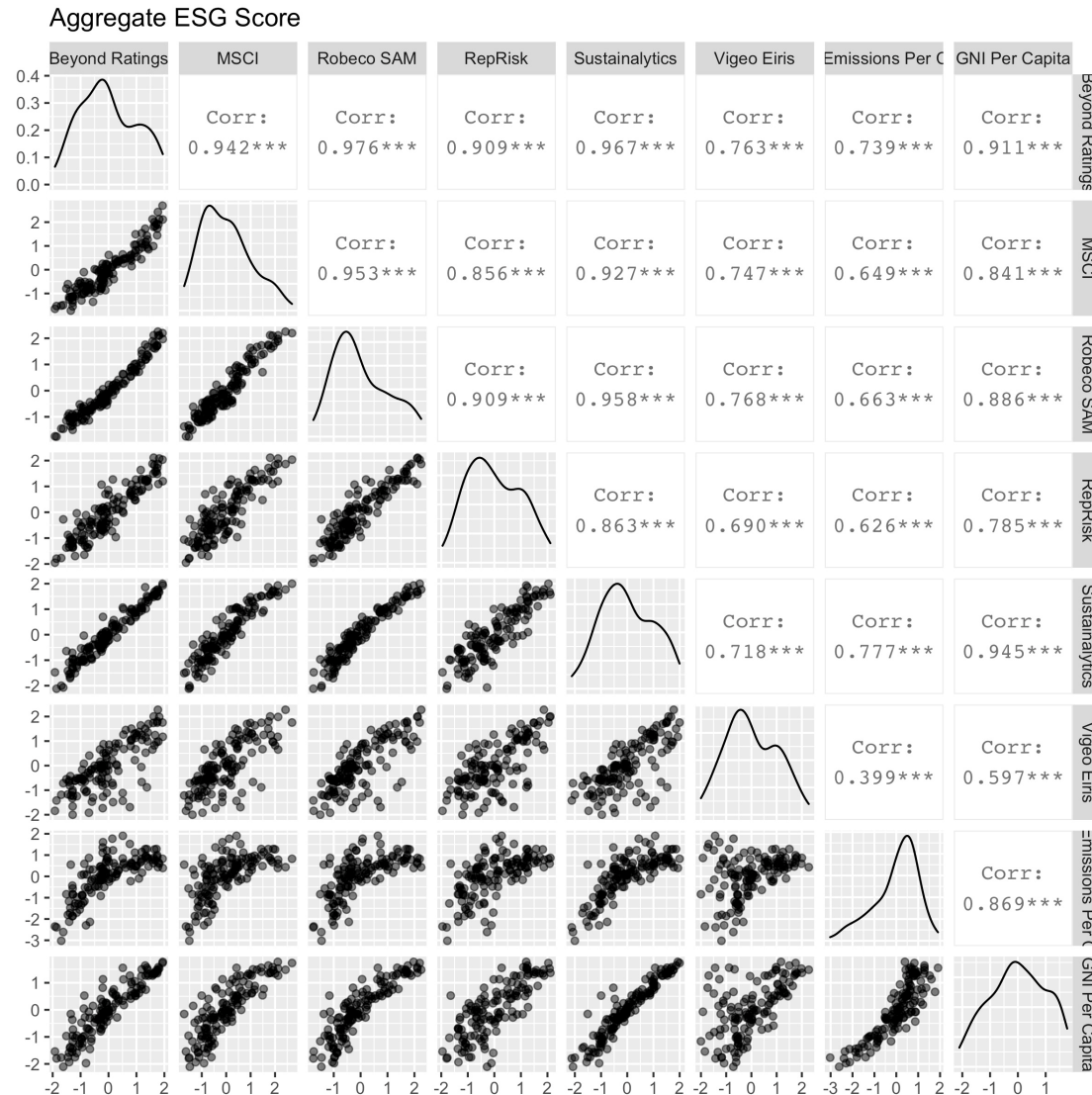
Additional characteristics

- Incorporate subjective, expert-opinions
- Higher (monthly) frequency



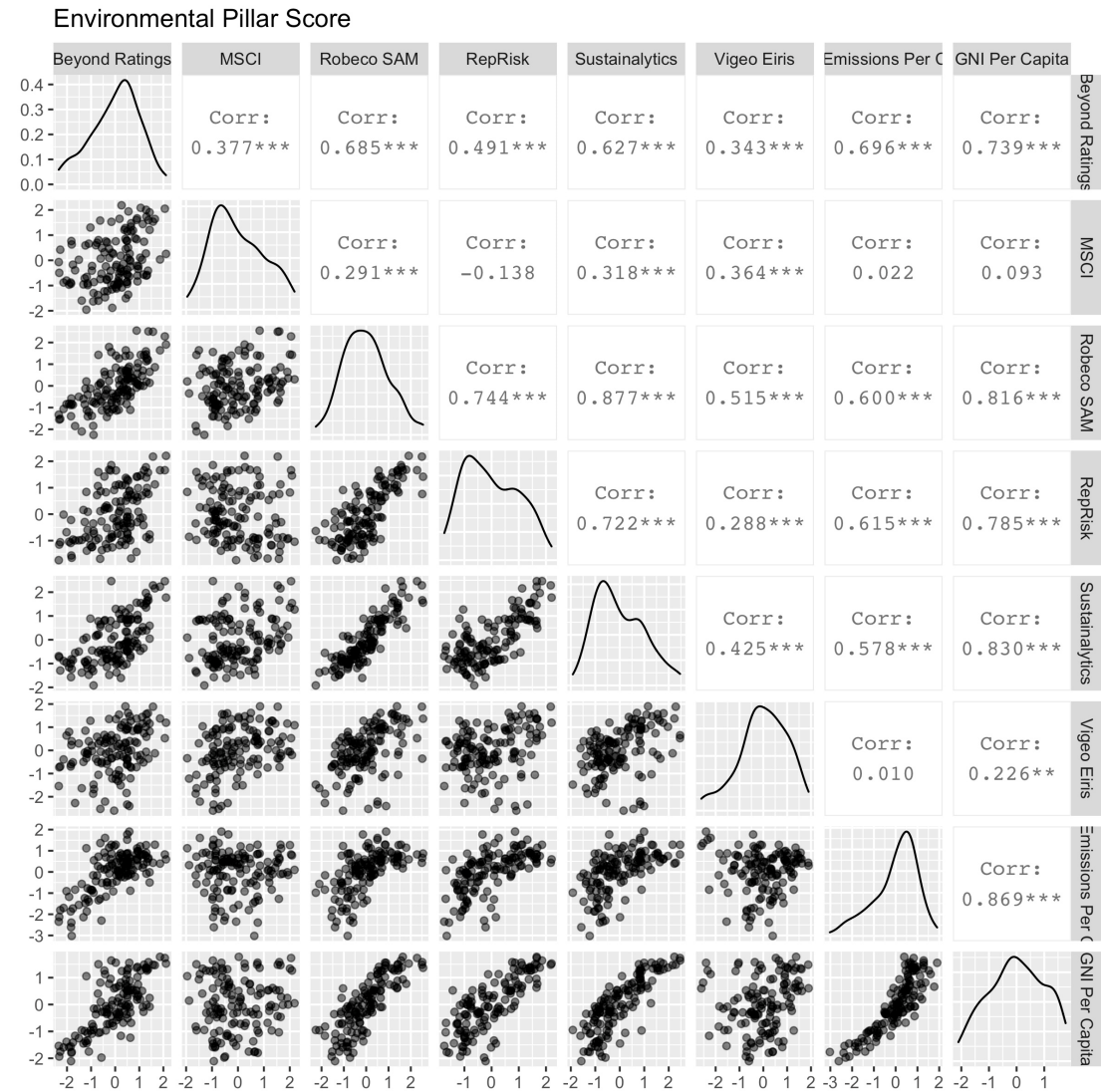
Annex

Sovereign ESG scores and national wealth



Source: World Bank, 2021, "Demystifying Variation in Sovereign ESG Ratings: Practical Guide for Policymakers and Investors."

Sovereign E and national wealth



Source: World Bank, 2021, "Demystifying Variation in Sovereign ESG Ratings: Practical Guide for Policymakers and Investors."

Demystifying Machine Learning Approaches in Sovereign ESG

- Sovereign ESG data suffers from large data gaps and lags
- Machine learning approaches offer the promise of helping improve data coverage and timeliness.
 - Natural Language Processing (NLP) offers the ability to analyze large volumes of text data in real time.
 - Deep Learning based approaches can help transform geospatial data into timely sovereign-level environmental indicators.
- However, they are not a panacea, and can have significant limitations when analyzing data on a sovereign level.
- Upcoming research plans to provide a practical guide for policymakers and investors for understanding the strengths and limitations of machine learning approaches to sovereign ESG data.



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