Sovereign Bonds:

ESG Credit Ratings

About this report

Sovereign Bonds & ESG

November 2023

Acknowledgements

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About the Global Sustainable Competitiveness Index (GSCI)

The GSCI measures the mutual integrative state of development, competitiveness and sustainability, based on 131 quantitative performance data indicators derived from international organisations (World Bank, UN, IMF). It is based on the 5 pillars of sustained competitiveness: Natural Capital, Resource Intensity/Efficiency, Social Capital, Intellectual Capital, and Governance. The GSCI serves and an alternative measurement of national success to the GGDP, and as a strength-weakness analysis for decision makers, both internal and external. It is the currently most comprehensive country performance index available.

About SolAbility

SolAbility is an independent sustainability think-tank with a fairly successful history in sustainable management implementation in large corporations.

SolAbility is the publisher of the Global Sustainable Competitiveness Index and the maker of 3 DJSI Super-Sector Leaders.

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1 Executive Summary

For the purpose of this report, a fictional ESG credit rating based on the Global Sustainable Competitiveness Index was compared to the currently used conventional credit ratings as published by the big rating agencies – Moody's S&P, and Fitch. The comparison shows significant differences:

ESG Sovereign Bond Rating

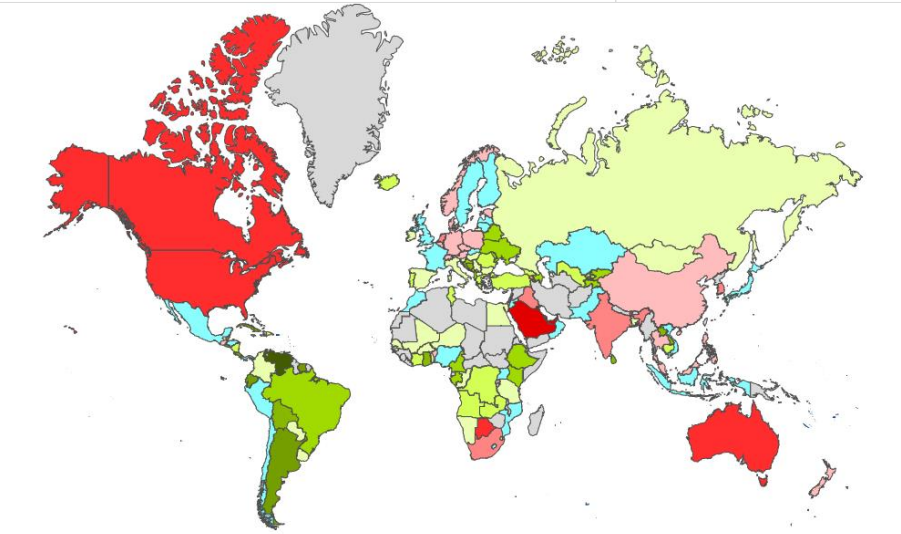
Current Rating > ESG

ESG = Current Rating

ESG Rating > Current

Current ratings of the Middle East, but also the US, China and India seem unrealistically high.

The current ratings for some of the lesser developed countries is too low.



- ***ESG-adjusted ratings and conventional ratings show significant differences.*** Under a sustainability-adjusted credit rating, countries with high reliance on exploitation of natural resources would be rated lower, while some of the lesser developed countries with a healthy fundament (biodiversity, education, governance) would receive higher ratings.
- ***Sovereign bond ratings do not sufficiently reflect the non-tangible risks and opportunities*** associated with specific nation-economies
- Sovereign bond ratings show a high correlation to GDP/capita levels. ***Poor countries are due higher interest rates than rich countries.***
- Sovereign bond ratings can facilitate a negative circularity: bad credit ratings lead to higher cost of capital and debt servicing, which in turn led to bad credit rating.

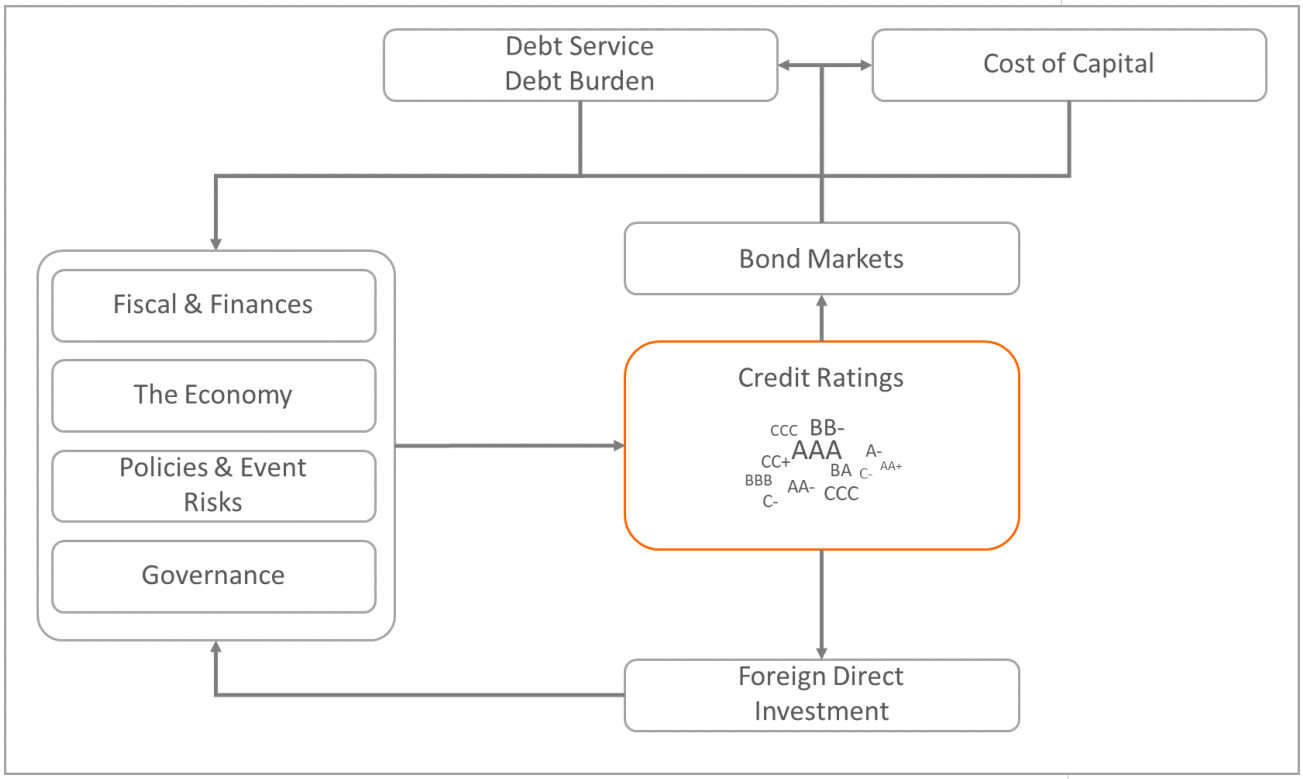
Sovereign bond ratings, which define interest rates that countries have to pay on credits, loans and debt – still do not sufficiently integrate ESG considerations, despite recent exploration of the ESG theme by the large rating agencies. "Social and environmental aspects are considered too weak" in influencing government capability and willingness to meet financial demands. However – it can be argued that the contrary is the case: conventional sovereign credit ratings fail to identify and do not sufficiently reflect risks AND opportunities inherited in the specifics of each country.

2 Introduction

2.1 The Negative Circle Caused by Credit Ratings Developing Nations

Credit rating define the interest a country has to pay on loans, state bonds – and therefore have a huge impact on the investment freedom as well as capital cost of a country. It is therefore a very important parameter for every economy – it defines the level of capital cost for new investments (whatever the nature of those investment may be), and the level of debt servicing. Debt servicing accounts for a significant part of state revenues in the heavily indebted countries. On the other side of the equitation, credit ratings also affect the risks an investor is willing to take in overseas investments.

Sovereign risk ratings are calculated by a number of rating agencies, most notable by the "three sisters": Moody's S&P, and Fitch. The ratings of these three players therefore have an immense impact on the cost of capital of a specific country.



Conventional credit ratings are calculated based on a mix of economic, political and financial risks – mainly current risks. However, current risks - like GDP - do not do not reflect the framework that creates the current situation.

2.2 Insufficient Risk Coverage in Current Sovereign Ratings

The rating methodologies tend to focus on current fiscal, financial, governance and ideological risks. This can lead to a negative (or positive) cycle: Bad credit rating leads to higher cost of capital and higher debt burden. Higher debt and debt servicing obligations in turn leads to bad credit rating, or vice-versa in the case of wealthier nations with sound state revenues and budgets. Low credit rating therefore is a double punishment, in particular for the developing nations.

Credit ratings do not look at or consider the underlying fundamentals – the ability and motivation of the workforce, the health and well-being and the social fabric of a society, the physical environment (natural and man-made), resource usage and efficiency, or school indicators – the sum of which determines a nations competitiveness going forward. Credit ratings describe the symptoms, but they do not reflect the root causes. It is therefore questionable whether credit ratings truly reflect all investment risks associated with a specific country.

The Global Sustainable Competitiveness Index is based on quantitative (i.e. subjective) indicators. It takes into account not only the financial value of the economic output, but also the state of the country in terms of natural capital, resource intensity, education and innovation level, and governance performance indicators. The GSCI measures the performance of what makes the outcome.

The GSCI is calculated based on 131 measurable quantitative indicators, normalised by relevant measurements, evaluating both the latest performance as well as the performance (trend) over time of the indicator. For further information on the GSCI and its methodology, please refer to the GSCI website.

3 ESG vs. Conventional Credit Rating

In order to test sovereign bond ratings against sustainability, average country ratings are compared to a virtual sustainability-adjusted credit rating based on the Global Sustainable Competitiveness Index (GSCI).

For comparability, the scores of the GSCI have been converted to ratings equivalent to credit ratings - a sustainable credit rating. The sustainability-adjusted credit rating consists of the average conventional rating and the GSCI rating, each weighted at 50%.

The generated grades are compared to the average credit rating of Moody's, S&P, and Fitch.

3.1 Rating criteria: sovereign bond ratings vs. GSCI

3.1.1 Sovereign Bond ratings

The sovereign bond rating market is dominated by just three main providers, Moody's, S&P, and Fitch. All three of them use different methodologies, but similar structures. They are based on similar rating frameworks and criteria, namely cantered around 4 key themes:

- Governance
- Finances & balance sheets
- Economic output development
- The political and regulatory framework, including event risks

The naming of those pillars differs, and individual criteria also differ. However, all current credit ratings highly weight monetary numbers, in particular GDP-related numbers, government finance numbers, and market numbers. The non-quantitative criteria are less clearly defined in publicly available documentation. Some are based on external evaluation (such as the World Bank Government Efficiency indicators or the WEF Competitiveness Index. The latter is itself a perception survey): Other indicators are based on qualitative agency staff evaluation – a qualitative evaluation of policies, frameworks, numbers, developments and expectations.

Qualitative indicators based on a value-free framework that is consistently applied can represent a useful reflection of performance. The thinking behind the framework needs to be completely value free, free of thinking based on economic beliefs or expectations. However, qualitative criteria require a definition of "good" and "bad", and therefore cannot guarantee absolute objectiveness. However, some cases of rating adjustments following political changes or decisions in the past suggest that the definitions of "good" and "bad" applied by the three large rating agencies are not completely free of ideological thinking.

Sovereign bond ratings structure:

Convectional credit ratings are based on 4 main themes. All themes include qualitative as well as qualitative criteria and indicators.

Pillar	Key measurements
Governance, Institutions	Quantitative, payment track record
	Qualitative, extern & internal indicators
Economic development	Quantitative output numbers & development (GDP)
	Qualitative, internal & external indicators
Finance & balance sheets	Quantitative, debt and payments
	Qualitative,
Policy framework & event risks	Quantitative, bank sector, liquidity
	Qualitative, political environment & risks

3.1.2 Model comparison

The Global Competitiveness Model is based on 5 pillars, aiming to cover & evaluate performance of all elements that make economic development (the root). Conventional ratings are based on 4 areas of results. Conventional credit ratings rate the outcome (the end-result) – the GSCI the root cause of the outcome.

For more information on the Global Sustainable Competitiveness Methodology, please refer to the GSCI website.

3.1.3 Criteria comparison: conventional ratings vs. sustainability rating

The criteria comparison is based on the country-level extension of the ESG (Environment, Societal, Governance) model to an ESGE (Environment, Society, Governance, Economy) model

		Sovereign ratings		Sustainable ratings	
Pillar	Issue	Coverage	Criteria	Coverage	Criteria
Environment	Renewable resources		-		Water, land
	Non-renewable resources		-		Commodities
	Biodiversity		-		Forest, fertility, species
	Resource efficiency		-		Resource efficiency
	Pollution		-		Pollution levels (air, soil)
	Climate change vulnerability		-		Emissions, exposure to risks
Social	Health		-		Availability, cost
	Equality		Wealth inequality "Might affect rating"		Gender, income, wealth
	Communities		-		Public services,
	Security		"Might affect rating"		Crime statistics
	Violence		Violent conflicts		Violent conflicts, human rights
Governance	Institutions		Governance efficiency		Governance efficiency
	Fiscal		Spending, debt, …		Debts
	Allocation balance		"Might affect rating"		Balance of gov. budget allocation
	Budget balance		Spending discipline		Spending balance related to economic phase
	Corruption		External indexes		External indexes
	Infrastructure		Indexes		Investments, coverage, quality
	Freedom		"Might affect rating"		Press freedom, Human rights
Economy	Education		-		Performance indicators
	Innovation		-		Performance indicators
	Economic development		Sector balance		Sector balance, business developments
	Financial markets		Banking sector, others "Might affect rating"		Exposure to financial market risks, bubbles
	GDP performance		GDP absolute, per capita, trend, …		GNI absolute, per capita, trend

Not covered

Covered

Hardly covered

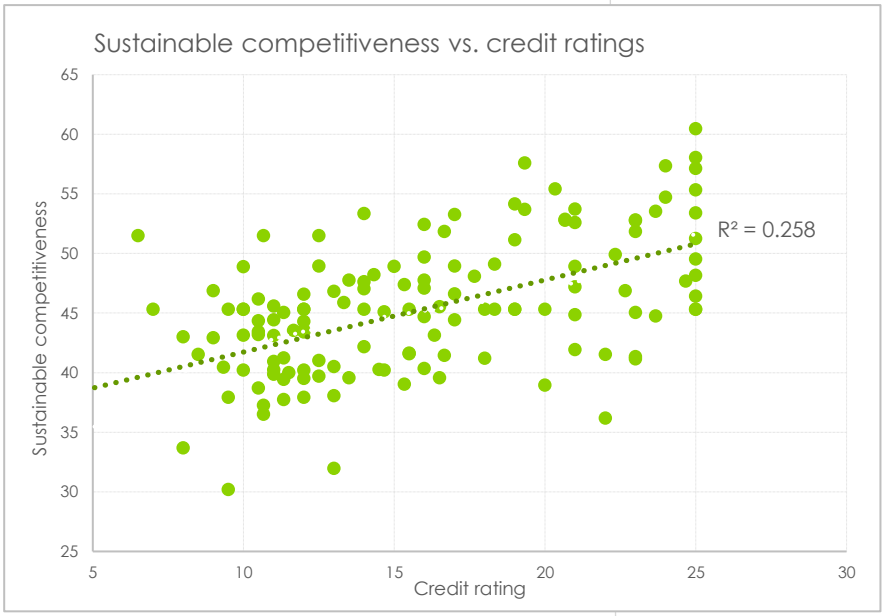
Partly covered

Under the assumption that a country-evaluation and credit rating should integrate sustainability, i.e. the non-financial performance that makes or prevents financial performance, then the coverage of conventional sovereign bond ratings only cover a small part of the full performance and associated risks of individual countries..

3.1.4 Empiric Correlations: conventional & sustainable ratings, GDP

Correlations: GSCI and Sovereign Bond ratings

While there seems to be a slight initial correlation between credit ratings and GSCI ratings, (higher sustainability equals positive credit rating) on first sight, there are too many exceptions to be considered correlating. The empiric correlation is 25%. For some countries there is a fairly visible correlation – e.g. the wealth nations of Scandinavia, where credit ratings correlate strongly with GSCI ratings. However, for too many economies, in particular of developed countries, high credit rating is not reflected in high sustainable competitiveness score. The lack of correlation strongly suggest that ***sovereign bond ratings do not fully reflect risks*** and opportunities of and associated with individual nation-economy, in particular long-term risks.

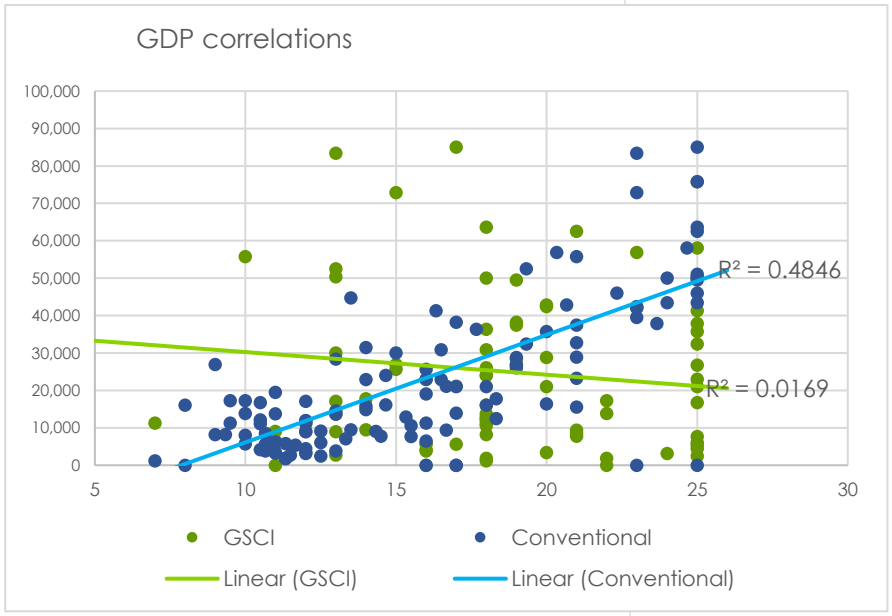


GSCI vs sovereign credit ratings show no correlation, indicating insufficient coverage of sustainability risks in current methodologies

Correlations to GDP performance

Correlation analysis shows that conventional ratings are to nearly 50% tied to GDP performance – not surprising given the weight allocated to GDP-based indicators in sovereign bond ratings. GSCI ratings on the other hand show a very limited correlation to GDP levels.

The high correlation to GDP levels of conventional sovereign bond ratings indicate that sovereign bond ratings do not reflect the full extent of opportunities and risks associated with individual country performance. It also means that poor countries generally receive lower ratings: ***poor countries have to pay higher interest rates than rich countries***.



Conventional ratings show strong correlation to GDP: poor countries have lower ratings

3.2 Significant differences in ratings

The GSCI has not been developed to reflect credit and default risks, and therefore cannot be a direct comparison. We therefore have created a virtual sustainability-adjusted sovereign bond rating. The sustainability adjusted rating is equally based on the GSCI rating and the average of Fitch, Moody's, and S&P.

Compared to the conventional ratings of Moody's, S & P, and Fitch, the sustainability-adjusted credit ratings show some significant differences. Some countries would see credit ratings upgrades. Other countries would be downgraded under a fictional credit rating based on the Sustainable Competitiveness Index.

The US and Australia would be significantly downgraded, while countries that have low credit ratings mostly due to political reasons (Greece, Argentina), would receive more favourable ratings. A significant number of lesser developed, poorer countries (measured in GDP) would receive higher ratings due to availability of natural capital, lower resource intensity, and the future development potential.

Rating differences for selected countries:

Country	**Credit Rating** (average of Moody's, S&P, Fitch)	**GSCI Rating**	**Level Difference**	**Sustainability-Adjusted Rating**	**Level Difference**
Australia	AAA	A	-5	AA	-2
Bolivia	B	BBB	6	BB	3
Brazil	BB	BBB+	5	BBB−	3
Canada	AAA	A+	-4	AA	-2
China	A+	A	-1	A+	0
Denmark	AAA	AA+	-1	AAA	0
France	AA	AA	0	AA	0
Germany	AAA	AA−	-3	AA+	-1
Ghana	CCC+	BB+	7	B+	4
India	BBB−	BB−	-3	BB+	-1
Indonesia	BBB	BBB+	1	BBB+	1
Ireland	AA−	AA	2	AA−	1
Italy	BBB	A+	4	A−	2
Japan	A+	AA	2	AA−	1
Kuwait	A+	B	-10	BBB−	-5
Luxembourg	AAA	A+	-4	AA	-2
Malaysia	A−	BBB−	-3	BBB	-2
Maldives	B−	BB+	6	B+	3

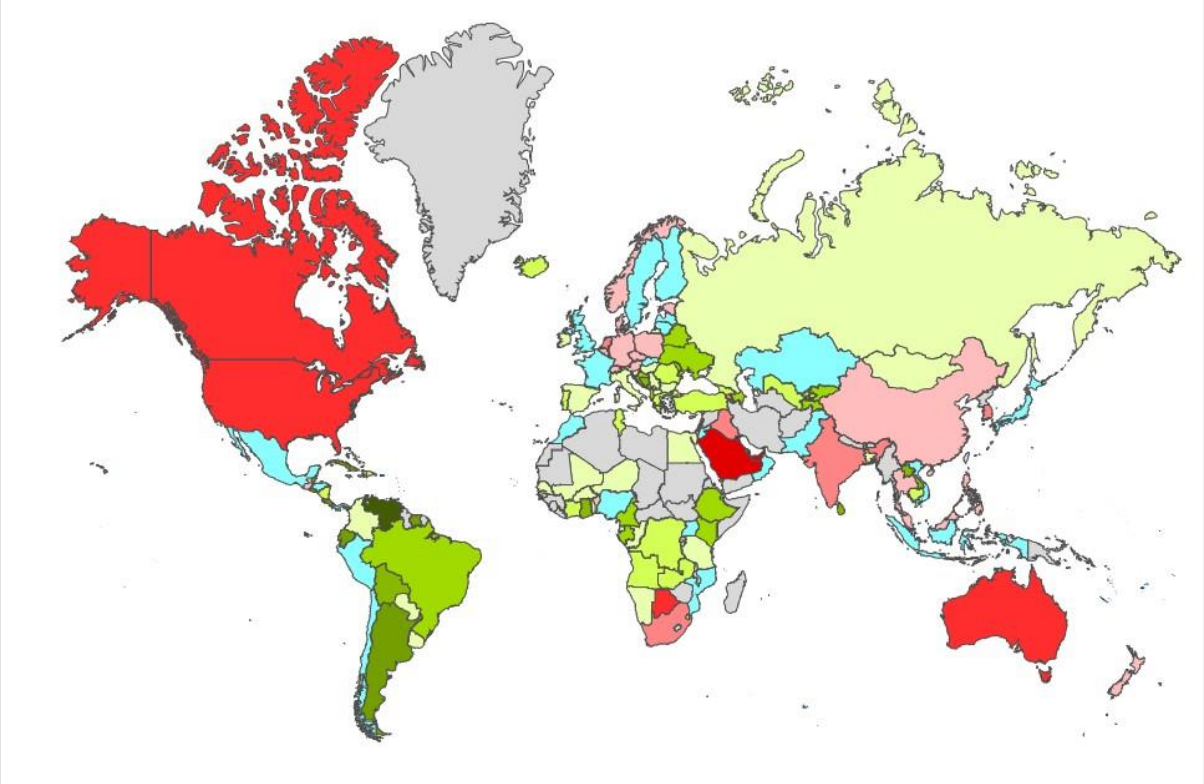
Current, sustainability and sustainability-adjusted ratings of selected countries

Please refer to the tables for all county rating comparisons.

3.3 Sustainability-adjusted rating differences world map

However, what is most interesting is the World map of upgrades and downgrades of individual countries based on the virtual sustainability-adjusted credit rating (see World map below): oil-rich Middle Eastern countries (Saudi Arabia, Kuwait, etc.) would be significantly downgraded several levels, while most countries in South America, Eastern Europe and Central Africa would receive a credit rating upgrade.

The Global Map – which countries would benefit from sustainability-adjusted credit ratings, and which countries would have to pay higher interest rates



Differences between current credit ratings and sustainability-adjusted credit ratings: green indicates higher rating (i.e. lower interest rates), red lower rating (i.e. higher interest rates); blue indicates no difference between current rating and sustainability-adjusted credit rating

Differences of current conventional ratings and sustainability-adjusted ratings: red is lower, green higher rating; blue is neutral. For grey countries, sovereign bond ratings are not available

The World map shows a distinctive trend – mostly countries whose current financial wealth is based to a significant part on the exploration of non-renewable resources have a lower rating, would have to pay higher interest rates on their debts, in particular the oil-rich nations in the Middle East. Eastern Europe as well as South America (except Chile) would do better under sustainability-adjusted credit ratings and occur lower interest rates. A number of African countries, mainly in sub-Saharan tropical Africa, would also see their credit rating increase.

4 Implications & Conclusions

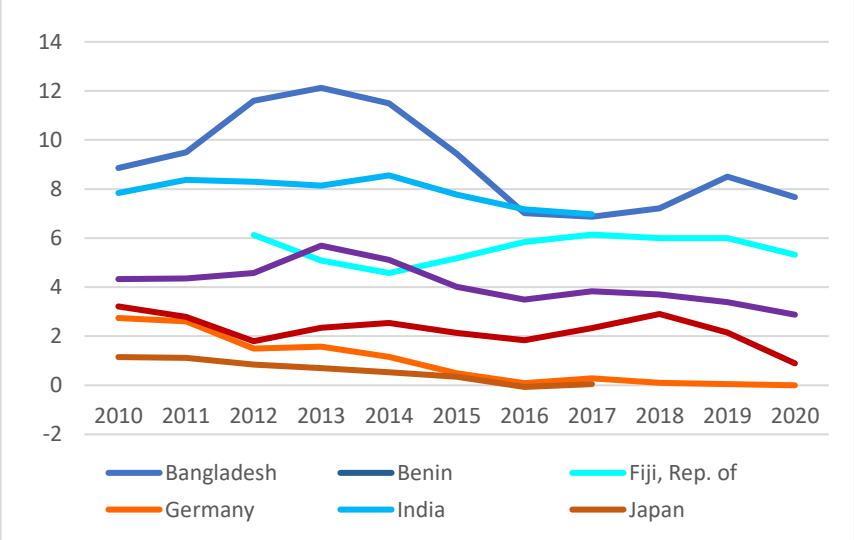
4.1 Implications

The failure of integrating the fundamentals of country competitiveness has two major implications – for investors (creditors) on one hand, and for the debtors (countries) on the other hand:

- Credit rating ***do not fully reflect risks*** – environmental and social risks, as well as opportunities arising from innovation are insufficiently covered by current sovereign bond ratings.
- Interest rates for sovereign bonds differ significantly from country to country – the comparison with ESG-adjusted ratings suggests that due to insufficient credit rating quality, ***some countries pay too high interest***, others too low.

Sovereign credit ratings are based on economic output figures, and financial stability indicators, here and there adjusted by qualitative indicators that might (or might not) affect the final ratings. This approach is intended to calculate the country risk default, on which the interest (risk) rate on loans credits and bonds are calculated. However, such indicators *do not sufficiently cover all risks* – namely the risks inherited in an unbalanced economy (e.g. oil-rich nations), and also do not account for environmental risks (e.g. water and pollution constraints), as well as risks associated with social upheaval. In addition, they do insufficiently cover the opportunities that come with investments in education.

The lack of coverage of sustainability factors in evaluating credit worthiness not only insufficiently covers the risks, it also leads to *a distortion of credit ratings*. Countries with low GDP – both absolute and per capita – are automatically punished with higher interest rates: developing countries have to pay significantly higher interest on their debt than developed economies: the poor countries have higher capital cost than rich countries. Nepal or India, for example, pay the three times as much interest as the US, and even more compared to Germany.



Average cost of new credits for selected countries: developed nations – here Germany and the US – have to pay much lower interests than developing countries, slowing the development of under-developed countries.

Form a development perspective, the current form applied in sovereign bond ratings is a barrier to development. Development requires investment in education, infrastructure, and health. The high interest rates developing economies have to pay on credits therefore make development more difficult and more costly compared to economies that already are developed.

4.2 Conclusions

Sovereign bond ratings define the interest rates a country has to pay on credits and debt. The ratings therefore have a high impact on country finances.

There has been welcome, visible and accelerating movement within the financial industry as a whole. Some form of "ESG"-integration into investment risk/opportunity evaluation and investment decisions is now mainstream in the asset management World.

The same applies now also to the major credit rating agencies. In the past, ESG considerations - social and environmental aspects - were "considered too weak" in influencing government capability and willingness to meet financial demands. Luckily, this seems to have changed significantly over the last few years. However, it is not yet clear how and to what extend they tend to fully integrate ESG considerations in their rating frameworks and methodologies, bot for corporate ratings and sovereign bond ratings namely for project risk evaluation and corporate ratings.

At this point in time, sovereign bond ratings - which define interest rates that countries have to pay on credits, loans and debt – still do not sufficiently integrate ESG considerations.

The comparison of current sovereign bond ratings and a sustainability-adjusted county credit ratings shows significant differences. Countries whose wealth is based on exploitation of natural resources would receive a significant lower credit rating. May developing nations would receive higher ratings (and therefor lower interest rates) based on their development potential.

- Sovereign bond ratings show a high correlation to GDP/capita levels. ***Poor countries have to pay higher interest rates than rich countries.***
- ***Sovereign bond ratings do not reflect the non-tangible risks*** and opportunities associated with nation economies
- ***Sustainable adjusted ratings and conventional ratings show significant differences.*** Under a sustainability-adjusted credit rating, countries with high reliance on exploitation of natural resources would be rated lower, while poor country with a healthy fundament (biodiversity, education, governance) would receive higher ratings.

GDP is the result of thousands of little pieces in an immense machinery, including "the intangibles". Credit ratings have to reflect the underlying factors that define the future development and capability of a country to generate and sustain wealth. It is high time that credit ratings fully include ESG/sustainability factors in their risk calculations.

5 Country list: sovereign bonds vs. sustainable adjusted ratings

Country	**Credit Rating** (average of Moody's, S&P, Fitch)	**Sustainability-Adjusted Rating**	**Level Difference**
Albania	BB−	BBB	4
Andorra	A−	A−	0
Angola	B	B+	1
Argentina	CCC+	BB	6
Armenia	BB−	BB+	2
Aruba	BBB	BB	-3
Australia	AAA	AA+	-2
Austria	N/A	n/a	0
Azerbaijan	BBB−	BB+	-1
Bahamas	BB−	BB−	0
Bahrain	BB−	B+	-1
Bangladesh	BB	BB+	1
Barbados	B	BB	3
Belarus	CCC−	BB−	6
Belgium	AA	AA	0
Belize	CCC+	BB−	4
Benin	BB−	BB−	0
Bermuda	AA−	B+	-10
Bolivia	B+	BB+	3
Bosnia and Herzegovina	B+	BB+	4
Botswana	A	BBB−	-4
Brazil	BB+	BBB	3
Bulgaria	BBB+	A−	1
Burkina Faso	B−	B	1
Cambodia	B+	BB	2
Cameroon	B+	BB	2
Canada	AAA	AA+	-2
Cape Verde	B	B+	1
Cayman Islands	AA	BB−	-10
Chile	A+	A	-1
China	AA−	AA−	0
Colombia	BBB	BBB+	1
Congo	B	BB−	2
Costa Rica	B+	BBB	5
Croatia	A−	A	1
Cuba	CCC−	B+	5
Cyprus	BBB	BBB+	1
Czech Republic	AA	AA	0
Denmark	AAA	AAA	0

Country	Credit Rating (average of Moody's, S&P, Fitch)	Sustainability-Adjusted Rating	Level Difference
Dominican Republic	BB	BB+	1
Ecuador	B−	BB	5
Egypt	B+	B+	0
El Salvador	CCC+	BB−	4
Estonia	AA	AA	1
Ethiopia	CCC+	B+	3
Fiji	BB−	BBB−	3
Finland	N/A	n/a	0
France	AA+	AA+	0
Gabon	B	BB−	3
Georgia	BB+	BBB	2
Germany	AAA	n/a	-1
Ghana	B−	BB−	4
Greece	BB+	BBB+	3
Guatemala	BB+	BB	-1
Honduras	BB−	BB	1
Hong Kong	AA+	A+	-3
Hungary	BBB+	A−	1
Iceland	A+	AA	2
India	BBB	BBB−	-1
Indonesia	BBB+	A−	1
Iraq	B	CCC+	-2
Ireland	AA	AA	1
Isle of Man	AA	AA−	-1
Israel	AA−	A+	-1
Italy	BBB+	A	2
Ivory Coast	BB	BB+	1
Jamaica	BB−	BB−	0
Japan	AA−	AA	1
Jordan	BB−	BB−	0
Kazakhstan	BBB+	BBB+	0
Kenya	B+	BB	2
Kuwait	AA−	BBB	-5
Kyrgyzstan	B	BB+	4
Laos	CCC	B	3
Latvia	A+	AA−	1
Lebanon	C	CCC	3
Lesotho	B+	B+	0
Liechtenstein	AAA	AA	-3

Country	Credit Rating (average of Moody's, S&P, Fitch)	Sustainability-Adjusted Rating	Level Difference
Lithuania	A+	AA−	1
Luxembourg	AAA	AA+	-2
Macedonia	BBB−	BBB	1
Malaysia	A	BBB+	-2
Maldives	B	BB−	3
Mali	CCC+	B−	1
Malta	AA−	A+	-1
Mauritius	BBB	BBB+	1
Mexico	BBB+	BBB	-1
Moldova	B	BB+	4
Mongolia	B+	BB	2
Montenegro	BB−	BB+	3
Morocco	BBB−	BBB−	0
Mozambique	B−	B	2
Namibia	BB	BB	1
Netherlands	AAA	n/a	-1
New Zealand	N/A	AA+	-1
Nicaragua	B	BB	3
Niger	B	B+	1
Nigeria	B	BB−	2
Norway	AAA	AAA	0
Oman	BB+	BB	-1
Pakistan	B−	B	1
Panama	BBB+	BBB+	0
Papua New Guinea	B+	BB−	1
Paraguay	BBB−	BBB	1
Peru	BBB+	A−	1
Philippines	BBB+	BBB+	0
Poland	A+	A+	1
Portugal	A−	A+	2
Puerto Rico	C	B−	5
Qatar	AA	A−	-4
Republic of the Congo	B−	B	2
Romania	BBB	A−	2
Rwanda	BB−	BB	1
San Marino	BB+	BBB+	3

Country	Credit Rating (average of Moody's, S&P, Fitch)	Sustainability-Adjusted Rating	Level Difference
Saudi Arabia	AA−	A−	-3
Senegal	BB	BB	1
Serbia	BBB−	BBB	1
Seychelles	BB	BB	0
Singapore	AAA	AA	-3
Slovakia	A+	AA−	1
Slovenia	A+	AA−	2
Solomon Islands	B−	BB+	5
South Africa	BB+	BB	-1
South Korea	AA+	AA+	0
Spain	A	A+	1
Sri Lanka	CCC−	B	4
St Vincent and the Grenadines	B	BB	3
Suriname	CCC	BB−	5
Swaziland	B	B	0
Sweden	AAA	AAA	0
Switzerland	AAA	AAA	0
Tajikistan	B	BB−	2
Tanzania	B+	BB	2
Thailand	A−	A−	0
Togo	B+	BB−	2
Trinidad and Tobago	BB+	BB	-1
Tunisia	B−	B+	2
Turkey	B+	BB+	3
Uganda	B+	BB−	1
Ukraine	CCC+	BB	5
United Arab Emirates	AA+	A	-4
United Kingdom	AA	AA+	1
Uruguay	BBB+	A−	1
Turkmenistan	BB−	B+	-1
Uzbekistan	BB	BB+	2
Venezuela	C	B−	5
Vietnam	BB+	BBB	2
Zambia	CCC−	CCC+	2

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