Morgan Stanley

INVESTMENT MANAGEMENT

ESG in Sovereign Fixed Income Investing: Identifying Opportunities, Correcting Biases

FIXED INCOME | GLOBAL FIXED INCOME TEAM | INVESTMENT INSIGHT | 2020

In 2019, we published our Morgan Stanley Investment Management (MSIM) Fixed Income "ESG and Sovereign Fixed Income Investing: A Better Way" approach. We highlighted our thesis that countries' sustainability performance should be evaluated in the context of their stage of development. Our methodology allowed us to avoid the systematic bias against developing countries that typically have lower absolute sustainability performance compared to more developed countries, but may well be outperforming relative to what might be expected given their GDP per capita. In our updated methodology, we introduce further enhancements to our approach, incorporating a broader range of independent Environmental, Social and Governance (ESG) data, a comprehensive assessment of sustainability momentum, flexibility to adapt the approach depending on timeframe, and an impact framework based on the UN Sustainable Development Goals (SDGs).

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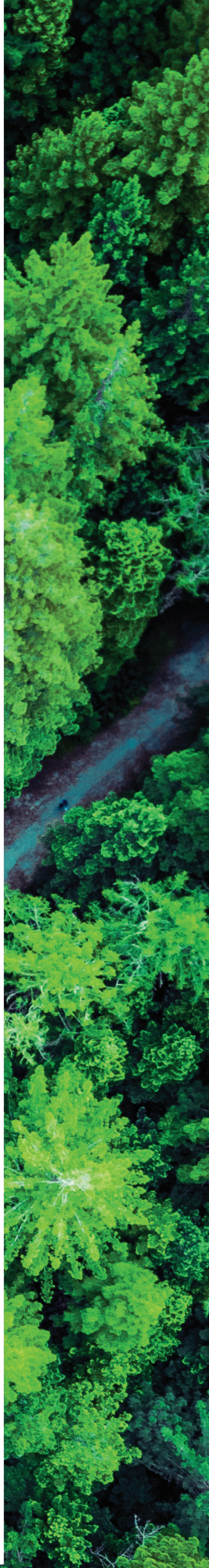


Overview

We introduce our newly enhanced Sovereign Sustainability Model *(Display 1)*, a significantly updated and comprehensive approach to evaluating ESG performance for Sovereign issuers, which is designed to enhance and inform our investment process. Our model integrates the following key elements:

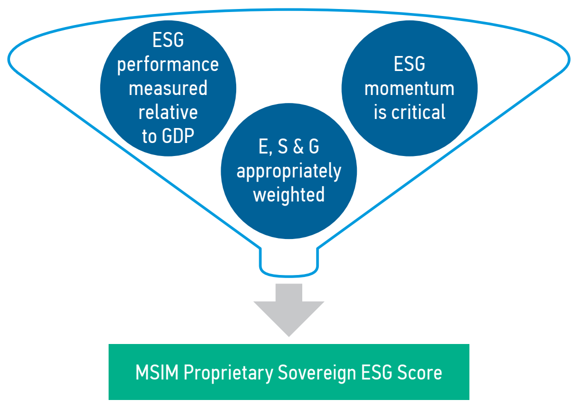
1. A materiality-based selection of ESG factors, seeking to capture metrics pertaining to a country's usage of natural resources and climate change vulnerability, human development, the quality of institutions, and rule of law across developed and emerging markets.
2. Adjustments of our E, S, G scores by GDP per capita to help remove bias against emerging markets. By adjusting against GDP per capita, we believe we can control for wealth and rank of each country based on their expected performance on ESG metrics relative to their income.
3. Incorporation of a momentum factor that combines our analysts' qualitative view with a quantitative assessment of track record.
4. Embedded flexibility to change the weights applied to E, S and G factors, acknowledging that the relative importance of these factors may vary depending on the time horizon of the debt instrument.
5. Classification of countries in our data set into five categories based on our assessment scale, from "Significant ESG Outperformer" to "Significant ESG Underperformer."
6. Adoption of the SDGs as the reference framework for interpreting countries' progress on economic and social development.

MSIM Sovereign ESG framework

Starting from underlying ESG data from independent third-party providers for 107 emerging and developed countries on an annual basis, and spanning a 20-year period,[1] we have conducted statistical analyses to develop our own proprietary indicators for the E, S and G factors that underpin economic progress and resilience of sovereign nations, and which we consider most material to the performance of their debt *(Display 2)*.

DISPLAY 1

Sovereign Sustainability Model



DISPLAY 2

MSIM Sovereign ESG Framework

ENVIRONMENT	SOCIAL	GOVERNANCE
Carbon Emissions	Life Expectancy & Health	Voice & Accountability
Climate Vulnerability	Education	Political Stability
Forestry Conservation	Living Standards	Effective Government
		Regulatory Quality
		Rule of Law
		Corruption
		Violence/Terrorism

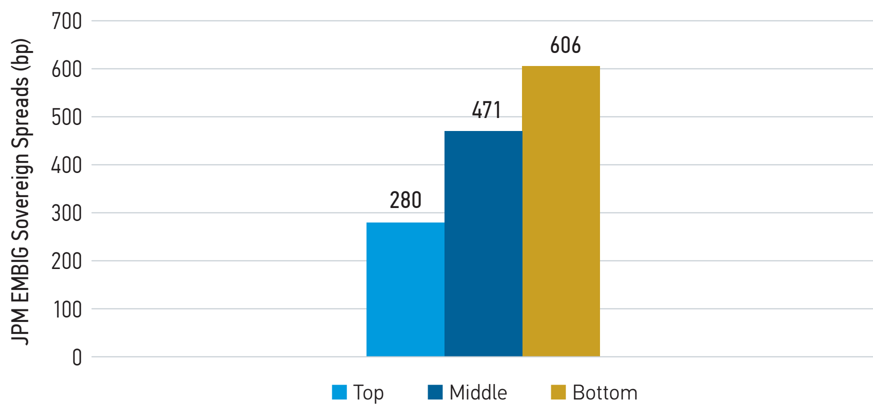
[1] Data used in the model incorporates a wide range of indicators drawn from the Official Sector, NGOs and Academic Institutions, including the UN, the World Bank Group, the Emission Database for Global Atmospheric Research (EDGAR), and the University of Notre Dame, from the period 1995 to 2018. Sources: UNDP (2019), Human Development Report 2019: Beyond Income, Beyond Averages, Beyond Today - Inequalities in Human Development in the 21st Century, UN, New York. Worldwide Governance Indicators (www.govindicators.org), The World Bank. Muntean, M., Guizzardi, D., Schaaf, E., Crippa, M., Solazzo, E., Olivier, J.G.J., Vignati, E. Fossil CO_2 emissions of all world countries - 2018 Report, EUR 29433 EN, Publications Office of the European Union, Luxembourg, 2018, ISBN 978-92-79-97240-9, doi:10.2760/30158, JRC113738. Notre Dame-Global Adaptation Index (ND-GAIN) Country Index (Chen, C.; Noble, I.; Hellmann, J.; Coffee, J.; Murillo, M.; Chawla, N. (2015), University of Notre Dame Global Adaptation Index Country Index Technical Report). The Vulnerability index measures a country's exposure, sensitivity and ability to adapt to the negative impact of climate change. ND-GAIN measures the overall vulnerability by considering vulnerability in six life-supporting sectors – food, water, health, ecosystem service, human habitat and infrastructure.

These factors reflect our in-house views of materiality for sovereign issuers, and have been selected from a broader set of ESG indicators to ensure our model is based on a robust dataset, allowing for back-testing and ensuring statistical significance in the analysis. Governance factors reflect the rule of law, quality of institutions, political stability and voice and accountability of a country, among others. The environmental factor provides information about progress on climate change mitigation, resilience to climate related risks and the usage of natural resources, and the social indicator measures the population's development in terms of education, life expectancy and standard of living.

DISPLAY 3

ESG and sovereign spreads

Average Sovereign Spreads by ESG score (percentile 30, 60 and 90)



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Higher ESG metrics are associated with lower sovereign spreads

Following the literature, there are two arguments supporting the relationship between ESG performance and sovereign bond spreads (see Capelle-Blancard et al. (2017)[2]). The first one takes into account investors' preferences for diversification, returns and ethical and moral reasons, while the second argument is that sustainability can improve financial performance and risk management by taking into account non-economic/financial factors. The authors show that countries with good ESG performance tend to have a lower probability of default and lower spreads.

Cevik and Jalles (2020)[3] find that countries that are more resilient to climate change have lower spreads relative to countries that are more vulnerable. Berg, et al. (2016)[4] shows that environmental and social factors, in contrast to governance, affect sovereign bond spreads with a lag as the impact of measures to improve these factors tend to materialize over time. Governments with a poor governance record will likely have a higher probability of sovereign default due to a weak institutional framework and/or political stability (as we have shown in our Sovereign Spread model "Revisiting Our Emerging Market Sovereign Spread Valuation Framework", Morgan Stanley Investment Management, 2018).

As shown in *Display 3*, countries with strong ESG metrics tend to have lower default risk and thus lower bond spreads. Social and Governance factors tend to have a negative correlation with sovereign spread. The relationship is less clear for the Environmental factor, which can be attributed to the observation that issues involving climate change, pollution or resource scarcity can take longer to materialize, as mentioned above.

However, we have observed that traditional credit ratings do not adequately reflect a country's sustainability performance. *Display 4* plots credit ratings against sovereign

[2] Capelle-Blancard, G., Crifo, P., Oueghlissi, R., Scholtens, B. (2017), Environmental, Social and Governance (ESG) performance and sovereign bond spreads: an empirical analysis of OECD countries. Working Paper 2017-07, Université de Paris Ouest.

[3] Cevik, S. and Jalles, J.T. (2020). This changes everything; climate shocks and sovereign bonds, REM Working Paper 0132-2020.

[4] Berg, F., Margaretic, P. and Pouget, S., (2016), Sovereign bond spreads and extra-financial information: an empirical analysis of emerging markets, Banco Central de Chile.

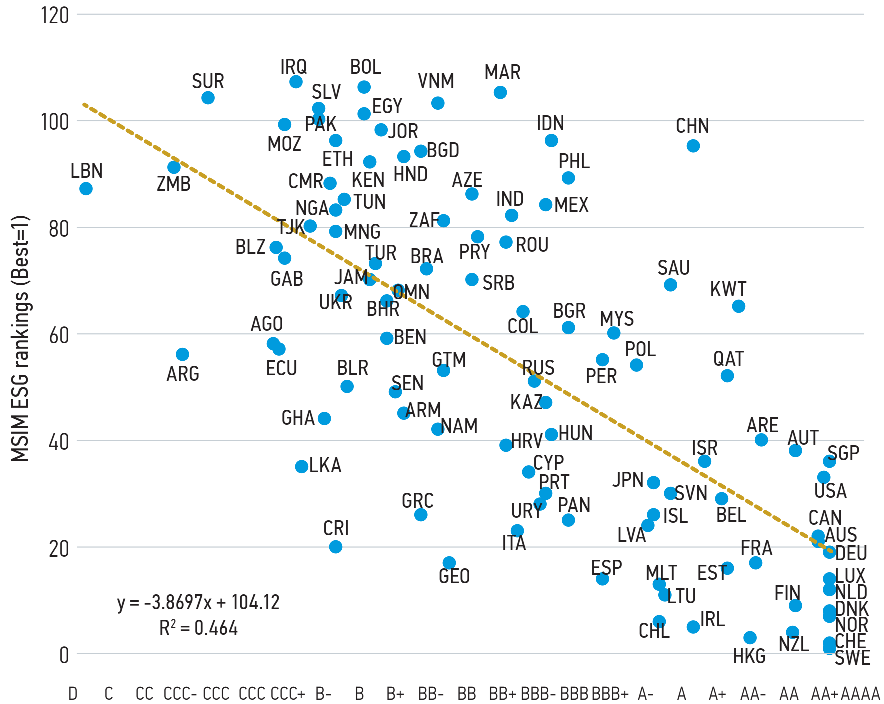
sustainability rankings, and demonstrates only a weak relationship (correlation of 0.4). We believe this further illustrates the alternative and multi-dimensional view on risk and return offered by ESG data and scores for sovereign bonds, that investors can use to complement the information currently contained in traditional credit ratings.

Investing only in high ESG scores biases against poor countries

Developed markets issuers tend to have higher ESG scores and ratings relative to their emerging markets counterparties, reflecting—in general—more advanced environmental and social standards, as well as more robust government accountability mechanisms. As a result, investing only in strong ESG performers will typically lead to poorly diversified portfolios, punishing lower rated countries that feature much larger room for ESG-related improvements. To avoid these pitfalls, our approach adjusts raw ESG scores by controlling for GDP per capita and calibrating the expected value of each factor relative to their income group.

DISPLAY 4

ESG and credit ratings



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Adjusting ESG rankings by GDP per capita

We control countries' ESG metrics for GDP per capita and adjust the rankings depending on how they score relative to their income levels. To do so, we run panel data regressions[5] to estimate the relationship between the E, S and G scores and GDP per capita *(Display 5)*. We divide the sample based on income level following the World Bank's definition for high, medium and low income.[6] The model fits the data reasonably well with all the parameters being significant and having the expected signs. We estimate countries' fitted values for E, S and G based on their income per capita and adjust the ESG rankings seeking to reward (punish) countries that out/under-perform metrics implied by their income level.

For example, this approach rewards countries featuring high ESG scores relative to income, such as Chile and Uruguay, while penalizing countries such as Kuwait and Lebanon, which underperform ESG metrics implied by their income.

The importance of momentum and controversies

Finally, we incorporate a momentum factor to take into account the rate of improvement/deterioration over time, as we believe ESG factors can be slow-moving and data may be quickly out of date or suffer from timeliness lag. Therefore, it is important to look at the overall trend to get a directional sense of a sovereign's progress. Additionally, we believe that market prices can be very sensitive to small changes on the margin. The momentum factor combines a data-driven component and an analyst-driven score. The data-driven momentum consists of a 5-year rolling z-score for each metric, rewarding (penalizing) countries whose current scores are two standard deviations above (below) their historical average. The analyst score incorporates the analyst's qualitative assessments of a country's ESG trends, such as progress on the SDG agenda, or enhanced ESG-related transparency and

[5] We estimate three regressions using a panel data approach where we regress each variable (E, S and G) against the log of GDP per capita and used GLS to control for heteroscedasticity.

[6] Countries with GDP per capita above $12,375 are classified as high income; those with income below $3,995 are classified as low income and medium income are countries with GPD per capita between $3,995 and $12,375.

investor communication. Importantly, the analyst momentum assessment also reflects sustainability-related controversies. Since these considerations are unlikely to be reflected in the data and may take time to appear, the analyst factor introduces a valuable forward-looking aspect to the process, and allows us to integrate issuer-specific insights obtained through our active ESG engagement. This can lead to a more accurate picture of ESG performance and help us identify potential ESG-related alpha generation opportunities as well as mitigate idiosyncratic ESG-related risks. The analysts' momentum/controversy scores are reviewed by the Sustainable Investing team to ensure consistency in their application across the full sovereign spectrum.

Ranking sustainability outperformers and underperformers

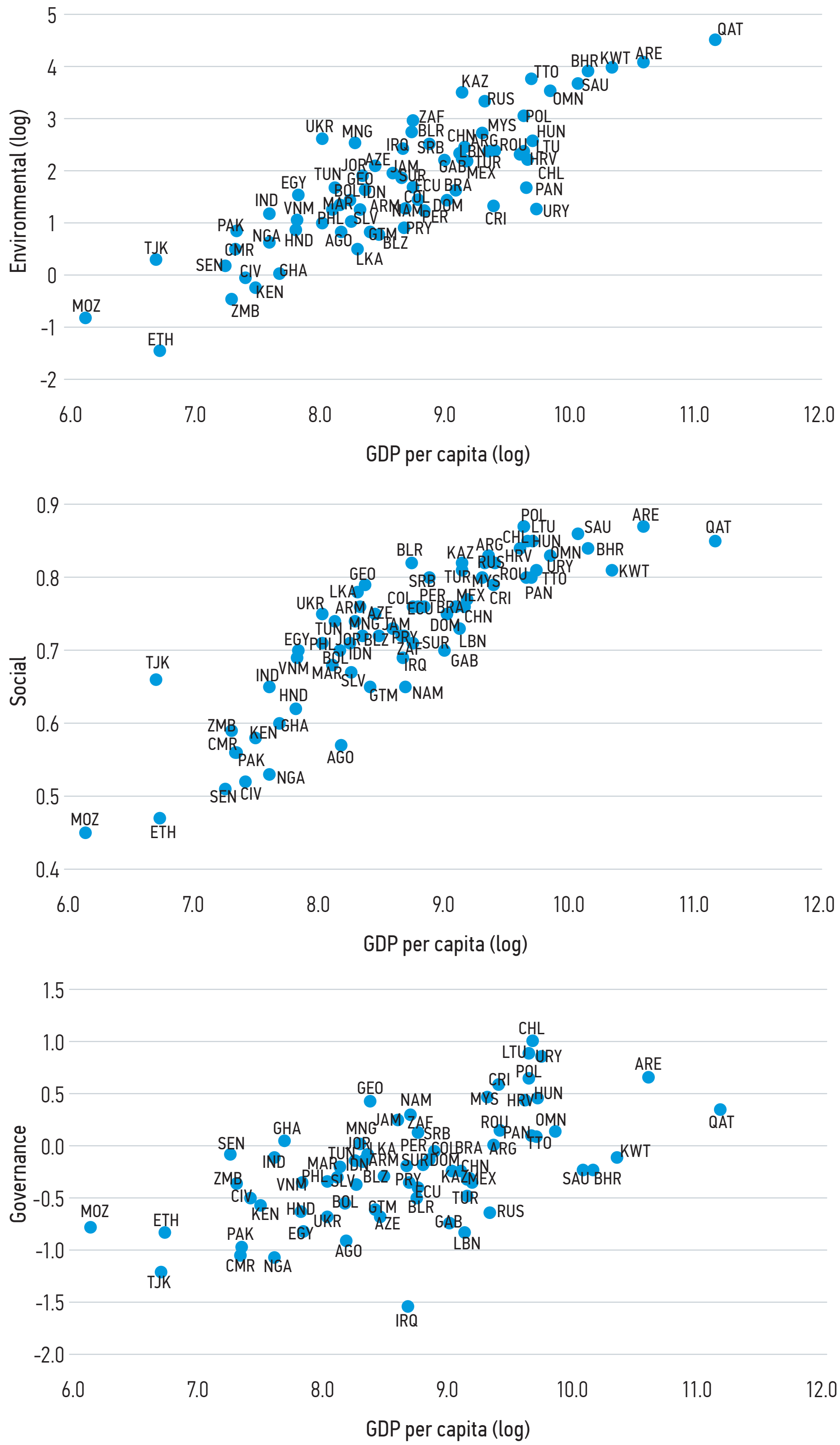
We sort the countries into five categories based on their GDP-adjusted ESG scoring relative to their peer income group, and on their forward-looking momentum, as described above. In *Display 6* we can see emerging countries such as Costa Rica and Sri Lanka among the "Significant ESG outperformers", along with developed countries such as Sweden and Switzerland.

A dynamic approach to modelling ESG

We recognize that the relative importance of ESG factors can change over time. Our base case within our model is to equal-weight E, S, and G, however we have the flexibility to vary this weighting depending on our evaluation time horizon. For example, when considering how sustainability can be linked to positive or negative outcomes for sovereigns, it could be argued that in the near term, good Governance, in the form of robust, stable and supporting political and state systems, is the most important driver of success. In the medium term, Social factors become more important, as we consider how investment in education, health and livelihoods can enhance productivity,

DISPLAY 5

Higher GDP per capita usually implies better ESG scores



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DISPLAY 6

ESG outperformers and underperformers: Five examples from each category

SIGNIFICANT ESG OUTPERFORMER	ESG OUTPERFORMER	AVERAGE ESG	ESG UNDEPERFORMER	SIGNIFICANT ESG UNDEPERFORMER
Switzerland	Iceland	Portugal	Greece	Poland
Sweden	Netherlands	Canada	Czech Republic	Romania
Costa Rica	Bulgaria	Turkey	Kazakhstan	Panama
Georgia	Serbia	Suriname	Belarus	Iraq
Sri Lanka	Kenya	Morocco	Honduras	Pakistan
Ghana	Zambia	Bangladesh	Mozambique	Nigeria

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mitigate risks of uncontrolled migration, and reduce pressure on state budgets in the case of crises. Finally, in the longer term, Environmental factors come to the fore, as the potential effects of climate change and environmental degradation become more material, with a country's progress on its decarbonization commitments expected to influence its ability to mitigate those physical and transition risks, along with their social repercussions.

Sovereign sustainability and the Sustainable Development Goals

The SDGs[7] were adopted by all of the United Nations Member States in 2015, as part of the 2030 Agenda for Sustainable Development which sets out a 15-year plan to achieve the Goals. The rationale behind the SDGs was to construct a universal framework to assess and address the challenges faced by the global population to achieve a better and more sustainable future.

The MSIM Fixed Income team has integrated this framework into our Sovereign Sustainability Model by mapping the model's ESG factors to the SDGs. By doing this, we are able to assess relative progress by the countries in our model towards sustainable development.

Integrating our Sovereign Sustainability Model into the investment process

Our Sovereign Sustainability Model provides our Research Analysts and Portfolio Managers with a multifaceted tool to inform and enhance our investment process. For example, if we observe two sovereigns with similar credit ratings trading at similar spreads, however one sovereign is classified in our rankings as a Significant ESG Outperformer while the other is a Significant ESG Underperformer, we may decide that valuations do not appropriately reflect the sustainability related risks/opportunities, and prefer to overweight the Outperformer. On the other hand, if we observe a sovereign trading cheaply in the market, rated as an ESG Underperformer in our model, but exhibiting strong positive sustainability momentum, this may be an opportunity to capture alpha, working on the thesis that spreads should compress as sustainability performance improves.

Finally, for portfolios with top-down sustainability objectives, we are able to use our ranking methodology to help construct a sovereign portfolio that is tilted towards what we consider to be the stronger performing countries and can positively contribute towards the SDGs.

Conclusion

A commitment to sustainability is a crucial part of a Sovereign's obligation to its people, and in turn is an integral part of MSIM Fixed Income's evaluation methodology when investing in sovereign debt. Our methodology seeks to put developed and emerging markets on a level playing field in terms of how we assess them through a range of comprehensive E, S and G factors. Ultimately we take the view that an improving sustainability trajectory is a positive development not only for the people of a country but also for that country's spreads, creating a strong commonality of interest between sovereign issuers, their populations and investors alike.

[7] The content of this publication has not been approved by the United Nations and does not reflect the views of the United Nations or its officials or Member States. See https://www.un.org/sustainabledevelopment/sustainable-development-goals for more details on the Sustainable Development Goals.

Risk Considerations

ESG ratings are not intended as a recommendation and are subject to change. Ratings are relative and subjective and are not absolute standards of quality. Ratings apply only to portfolio holdings and do not remove the risk of loss.

There is no assurance that a Portfolio will achieve its investment objective. Portfolios are subject to market risk, which is the possibility that the market values of securities owned by the Portfolio will decline and may therefore be less than what you paid for them. Market values can change daily due to economic and other events (e.g. natural disasters, health crises, terrorism, conflicts and social unrest) that affect markets, countries, companies or governments. It is difficult to predict the timing, duration, and potential adverse effects (e.g. portfolio liquidity) of events. Accordingly, you can lose money investing in this Portfolio. Please be aware that this Portfolio may be subject to certain additional risks.

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DEFINITIONS

A **basis point** is a unit of measure, equal to one hundredth of a percentage point, used in finance to describe the percentage change in the value or rate of a financial instrument.

The **bond spread** refers to the difference in yield between two different bonds.

The **sovereign bond spread** is the difference between the bond yields issued by a country on international markets and the yield on a comparable bond issued by a benchmark country.

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