

A PRACTICAL GUIDE TO ESG INTEGRATION IN SOVEREIGN DEBT

THE SIX PRINCIPLES

PREAMBLE TO THE PRINCIPLES

As institutional investors, we have a duty to act in the best long-term interests of our beneficiaries. In this fiduciary role, we believe that environmental, social, and governance (ESG) issues can affect the performance of investment portfolios (to varying degrees across companies, sectors, regions, asset classes and through time). We also recognise that applying these Principles may better align investors with broader objectives of society. Therefore, where consistent with our fiduciary responsibilities, we commit to the following:

- 1 We will incorporate ESG issues into investment analysis and decision-making processes.
- 2 We will be active owners and incorporate ESG issues into our ownership policies and practices.
- 3 We will seek appropriate disclosure on ESG issues by the entities in which we invest.
- 4 We will promote acceptance and implementation of the Principles within the investment industry.
- 5 We will work together to enhance our effectiveness in implementing the Principles.
- 6 We will each report on our activities and progress towards implementing the Principles.



PRI's MISSION

We believe that an economically efficient, sustainable global financial system is a necessity for long-term value creation. Such a system will reward long-term, responsible investment and benefit the environment and society as a whole.

The PRI will work to achieve this sustainable global financial system by encouraging adoption of the Principles and collaboration on their implementation; by fostering good governance, integrity and accountability; and by addressing obstacles to a sustainable financial system that lie within market practices, structures and regulation.

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EXECUTIVE SUMMARY

Despite its size and importance, the sovereign debt market has been the subject of less *systematic* environmental, social and governance (ESG) consideration than other investment asset classes. However, appetite for ESG integration is growing among investors, with a rising number appreciating that ESG factors can and do affect sovereign debt valuations.

This guide is designed to help PRI signatories integrate ESG factors into the research and analysis of sovereign issuers and the construction of sovereign debt portfolios. It is intended for ESG specialists, sovereign debt analysts and fixed income (FI) portfolio managers as well as investment consultants. It includes lists of useful data sources, practitioner case studies and a comparison of how the application of ESG techniques can differ between emerging and developed markets, with Argentina and France as examples.

WHY INTEGRATE ESG FACTORS INTO SOVEREIGN CREDIT ANALYSIS?

Sovereign bond investors already integrate some ESG metrics into research, valuations and asset selection, while some financial and macroeconomic indicators have an ESG component. However, *systematic* ESG integration is rarely applied to sovereign debt analysis, due to a lack of consistency in defining and measuring material ESG factors, limits to data availability and generally less-developed sovereign debt ESG integration tools and techniques. Furthermore, because sovereign debt was traditionally considered a risk-free asset class, there has been a tendency to underestimate the importance of ESG integration relative to other FI asset classes.

Despite these barriers, there is a growing case for ESG integration in sovereign bond investment, with the global financial crisis reminding investors of the limitations of conventional thinking, and academic and industry research increasingly identifying relationships between ESG factors and sovereign bond risk and pricing. There is also an increasing focus on how environmental and social factors impact valuations, despite investors generally agreeing that governance factors have the greatest impact.

WHAT ARE THE KEY ESG FACTORS?

Identifying ESG factors relevant to sovereign debt markets is challenging and, given the dynamic nature of ESG issues, it is not possible to draw up a definitive list. Investors need to consider time horizons and materiality, in light of policy and institutional stability, and the level of financial flexibility sovereigns have to withstand environmental, social or external shocks. They also need to take into account the interdependency between many ESG factors, and the fact that a sovereign's economic performance, and the ability of its government to repay debt, is different from that of a company.

Nonetheless, on a positive note, a number of material ESG-related quantitative and qualitative indicators are publicly available and can be integrated into sovereign bond analysis.

- **Governance** has traditionally been regarded as the most material ESG factor for sovereign debt and has been extensively incorporated into credit rating models and valuations. Investors can seek measures of a country's political stability, government and regulatory effectiveness, institutional strength, levels of corruption and the rule of law.
- **Social** factors can also be material in sovereign credit analysis due to the importance of human capital as a key determinant of economic growth. Measures of demographic change, education, living standards, income inequality and social cohesion can inform sovereign bond valuations.
- **Environmental** factors have typically been less analysed by sovereign debt investors, although this is changing as the physical and economic impacts of climate change and resource constraints become more evident. Investors are increasingly considering measures of natural resource availability, physical risk from climate change and other natural disasters, energy transition risk and energy security.

WHAT TOOLS AND TECHNIQUES ARE USEFUL FOR ESG INTEGRATION?

Investors are beginning to develop a range of tools and techniques to measure and integrate ESG factors into sovereign debt research, valuation and portfolio construction on a *systematic* basis. Some of these refine existing processes and approaches, while new techniques are also emerging.

This guide draws on the ESG Integration Framework, developed jointly by the CFA Institute and the PRI, to consider how investors might integrate ESG factors into their sovereign debt investment¹. It covers research, security valuation and portfolio management:

- **Investment research level:** Investors may consider undertaking in-house country-level ESG research and developing materiality frameworks. This process can result in red-flag indicators, watch lists, and centralised research dashboards that are easily accessible across teams. Such research is also useful to establish whether engagement with issuers is necessary and, if so, which form (individual or collaborative) it should take.
- **Security level:** Investors may consider carrying out ESG-integrated credit analysis, including internal credit assessments and relative rankings, as well as relative value and spread analysis. Some investors also adjust forecasted financials and ratios in light of ESG analysis. Sensitivity and scenario analyses can also be useful.
- **Portfolio level:** Investors may assess the combination of ESG factors at the portfolio level to inform portfolio construction and to better manage risk exposure.

NEXT STEPS

The report is based on guidance from an expert working group, a 2018 CFA Institute and PRI ESG integration study, which surveyed 1,100 practitioners globally, and extensive desk research. It complements other PRI guidance on integrating the PRI's six Principles into investment practices and active ownership.²

In particular, this report builds on a 2013 PRI primer.³ Since then, awareness among practitioners regarding this topic has increased significantly and investment practices have evolved. This report captures recent progress and provides guidance. However, important questions remain unanswered and more work is needed to understand the investment implications of rapidly evolving ESG risks as measurements, assessment tools and techniques improve.

For example, it remains to be seen how ESG integration can play a role in the context of highly liquid debt markets, where investors are often obliged to hold specific bonds when benchmarking an index or because of credit rating constraints. Also, the role and limitations of ESG engagement in a sovereign context need to be further explored and clarified. Finally, this paper deliberately does not discuss thematic bonds, such as green bonds, in order to avoid mixing the concept of assessing ESG factors from a pure risk perspective for any sovereign bond with the concept of impact investing (or raising capital for a specific purpose).

1 CFA Institute and PRI (2018). [Guidance and case studies for ESG integration – equities and fixed income](#).

2 See www.unpri.org/investor-tools.

3 PRI (2013). [Sovereign bonds: spotlight on ESG risks](#).

FOREWORD

The global sovereign bond market is one of the largest asset classes within fixed income.⁴ Sovereign bonds are considered lower risk assets than other types of debt instruments or equities, as governments can raise taxes and print money to service their local currency-denominated debt. However, they are not immune to credit spread widening or default risks on foreign-denominated debt, nor, as we saw during the eurozone crises, is sovereign bond market dislocation a risk only for emerging markets. The past quarter-century has even seen the odd default in isolated but well-publicised circumstances. Traditional sovereign credit analysis should therefore be supplemented with the integration of ESG factors, as it is just as important to identify the full range of risks for sovereign bonds as it is for equities and corporate debt.

However, relatively few investors integrate ESG factors *systematically* into their sovereign debt portfolios. A recent study on the global state of ESG integration found that this is due in part to a lack of understanding among investors of how to integrate ESG issues into sovereign debt analysis.⁵ This research prompted the PRI to set up a group of experienced practitioners to produce this report.

It sets out ESG factors that are material for sovereign debt, useful data sources and integration techniques, and it provides practical examples and case studies of how investors are addressing ESG in sovereign debt investment. We hope that the report helps to enhance the understanding of the applicability of ESG integration to sovereign bonds and promotes responsible investing more broadly.

I am delighted to have supported and been involved in the PRI's Sovereign Working Group. Colchester Global Investors believes countries with higher ESG standards tend to produce better economic outcomes, more stable debt and currency paths, and are typically associated with better risk-adjusted returns for clients.



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⁴ [Global Debt of \\$244 Trillion Nears Record Despite Faster Growth](#), Chibuike Oguh and Alexandre Tanzi, Bloomberg, 15 January 2019.

⁵ CFA Institute and PRI (2018). [Guidance and case studies for ESG integration – equities and fixed income](#).

DRIVERS OF GROWTH IN ESG INTEGRATION

This section outlines some of the key drivers of ESG integration into sovereign bond analysis: risk-return considerations, client demand and regulatory change.

- Some ESG factors are not new to sovereign bond investors. However, their integration is not usually systematic.
- There is an increasing body of academic and industry research highlighting the materiality of ESG factors in the analysis of sovereign debt.
- A 2018 CFAI-PRI study found that risk management and client demand are perceived as the key drivers for further integration of ESG factors into FI analysis.
- Most market participants view governance as the key ESG factor for sovereign bond valuations, followed by social issues. However, the impact of environmental issues is expected to increase over time.

At an estimated US\$66 trillion at the end of 2018,⁵ sovereign debt accounts for a large share of global assets under management (AUM). By extension, sovereign debt is among the most important asset classes for PRI signatories – in 2019, sovereign, sub-sovereign and agencies (SSA) FI investment amounted to more than US\$18 trillion, or 21% of the total US\$86 trillion in signatories' AUM.

While investments in emerging market (EM) sovereign debt are typically used to generate attractive returns and provide portfolio diversification, allocations to developed market (DM) bonds have often been considered relatively free of credit risk and a means to preserve capital during volatile markets and periods of economic uncertainty, especially US Treasuries and German Bunds. However, the global financial crisis of 2008-09 and the subsequent eurozone debt crisis reminded investors of the limitations of conventional thinking. For example, since 2007 the number of sovereign borrowers rated AAA by the credit rating agency S&P Global Ratings has dropped from 20 to 12 – a mere 9% of all rated nations – while the number of countries rated below investment grade has risen from 49 to 62.⁶

Investors use a wide range of financial and macroeconomic indicators in research and analysis. Many can be labelled ESG or have an ESG component. For example, effective governance, expressed through strong institutions and effective regulatory regimes; social factors, such as ageing societies and labour market structures; and environmental metrics, such as energy security, can all have macroeconomic and fiscal implications. However, a systematic integration of material ESG factors in investment analysis and investment decision-making is rarely practiced due to a lack of consistency in defining and measuring material ESG factors; challenges related to data quality and availability; less developed sovereign debt ESG integration tools and techniques compared with equities and corporate bonds. We explore these barriers and discuss potential solutions later in this report.

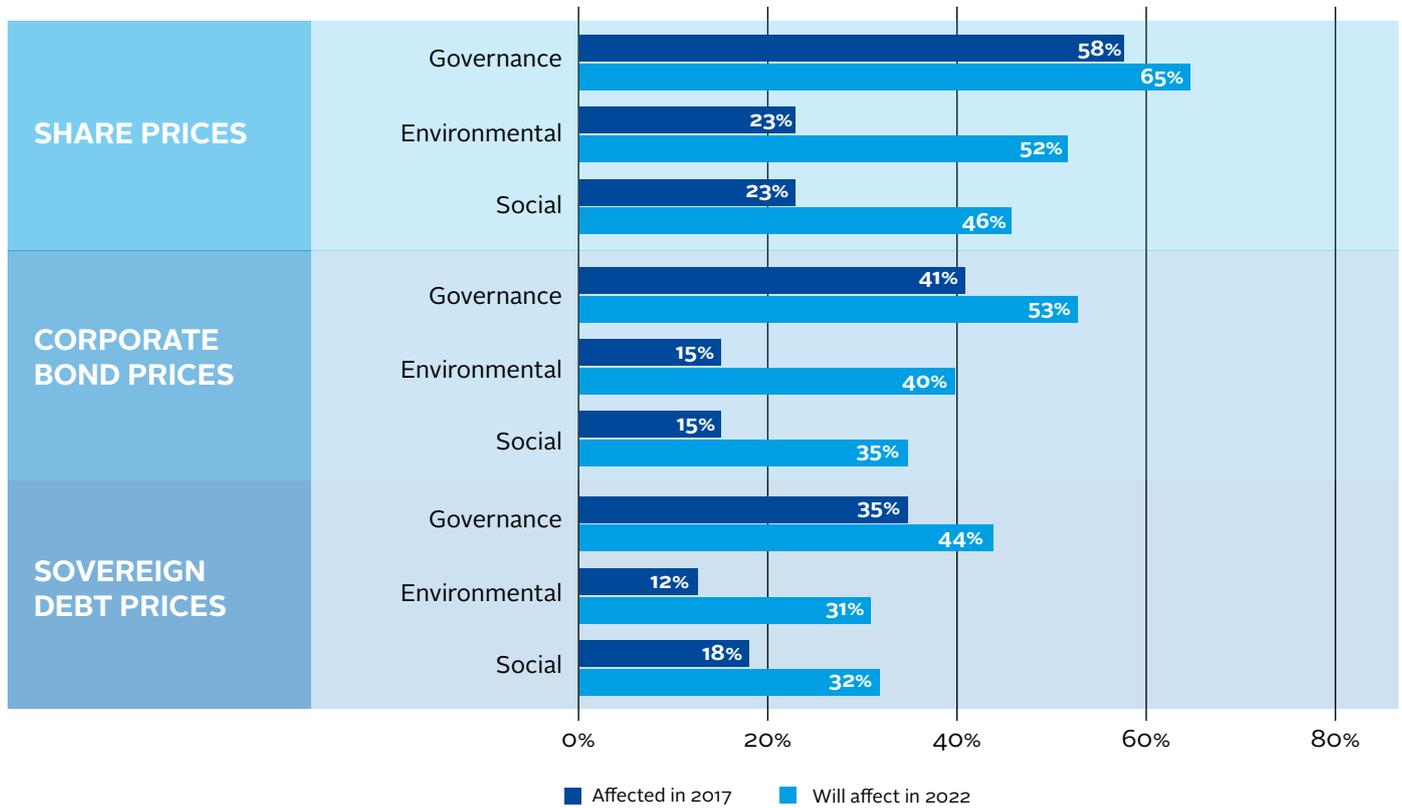
Despite these obstacles, there is a growing case and appetite for structured ESG integration, since traditional sovereign credit risk analysis appears to inadequately reflect emerging pressures, such as the social aspects of rising inequality and migration flows, growing resource scarcity, the physical effects of climate change and risks stemming from the transition to a low-carbon and climate-resilient future. The drivers for further ESG integration and the development of such tools and techniques are clearly strengthening.

Investment practitioners who have been integrating ESG factors in sovereign analysis believe ESG data points can help to explain macroeconomic performance and bond valuations. In a 2018 CFA Institute and PRI ESG integration study, which surveyed 1,100 practitioners globally (the PRI-CFAI study), a significant number of investors considered ESG issues to affect sovereign bond valuations and expected that this effect will grow over time.⁷ Respondents believed that social issues have a larger influence on sovereign debt pricing than environmental issues, in contrast with perceptions regarding equity and corporate bond prices. The survey also found that market participants expected the impact of environmental issues to increase and the gap between social and environmental issues to close over the coming years (see Figures 1 and 2).

⁶ Bank for International Settlements. [Debt securities statistics](#).

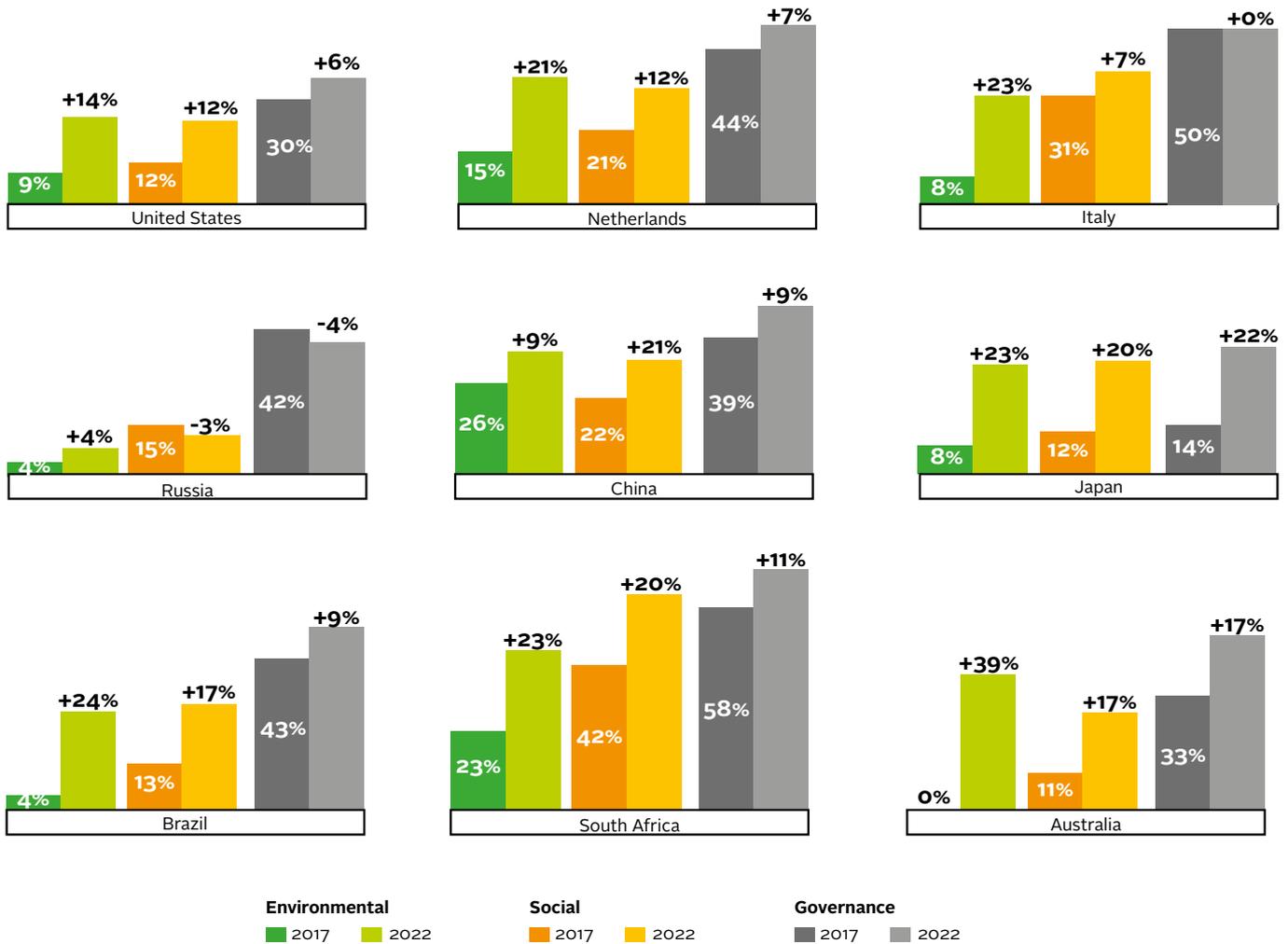
⁷ [Supranational debt issuance more than doubles in a decade](#), Kate Allen, Financial Times, 9 August 2017.

Figure 1. The impact of ESG issues on security prices: aggregated market participants' views.* Source: CFA Institute and PRI⁸



* Percentages represent respondents who answered 'often' or 'always'. Base: All respondents who invest in equity and/or equity-related instruments (961); All who invest in FI and/or FI-related instruments (747).

Figure 2. The impact of ESG issues on sovereign debt prices: market participants' views in a selection of capital markets.
Source: CFA Institute and PRI⁹



In a similar fashion, academic and industry research is increasingly identifying a relationship between ESG factors and sovereign bond risk and valuations (see [Appendix](#)). Key academic findings include the following:

- Sovereigns with higher or improving aggregate ESG performance tend to have lower default risk, lower credit default swap spreads and lower cost of debt.¹⁰

- Greater data transparency results in more reliable macroeconomic and financial data, improving access to international capital markets and lowering spreads for emerging economies.¹¹
- Good governance is correlated with higher GDP per capita and GDP growth.¹²

⁹ Op. cit. in footnote 1.

¹⁰ See for example Imperial College Business School, SOAS University of London, and UN Environment (2019). [Climate Change and the Cost of Capital in Developing Countries](#). Duyvesteyn et al. (2017). [Political risk and expected government bond returns](#). Berg et al. (2016). [Sovereign bond spreads and extra-financial performance: an empirical analysis of emerging markets](#). Capelle-Blancard et al. (2016). [ESG Performance and Sovereign Bond Spreads: An Empirical Analysis of OECD Countries](#). Crifo et al. (2014). [Measuring the effect of government ESG performance on sovereign borrowing cost](#).

¹¹ IMF (2017). [The Effects of Data Transparency Policy Reforms on Emerging Market Sovereign Bond Spreads](#).

¹² Asian Development Bank (2014). [Do Governance Indicators Explain Development Performance? A Cross-Country Analysis](#).

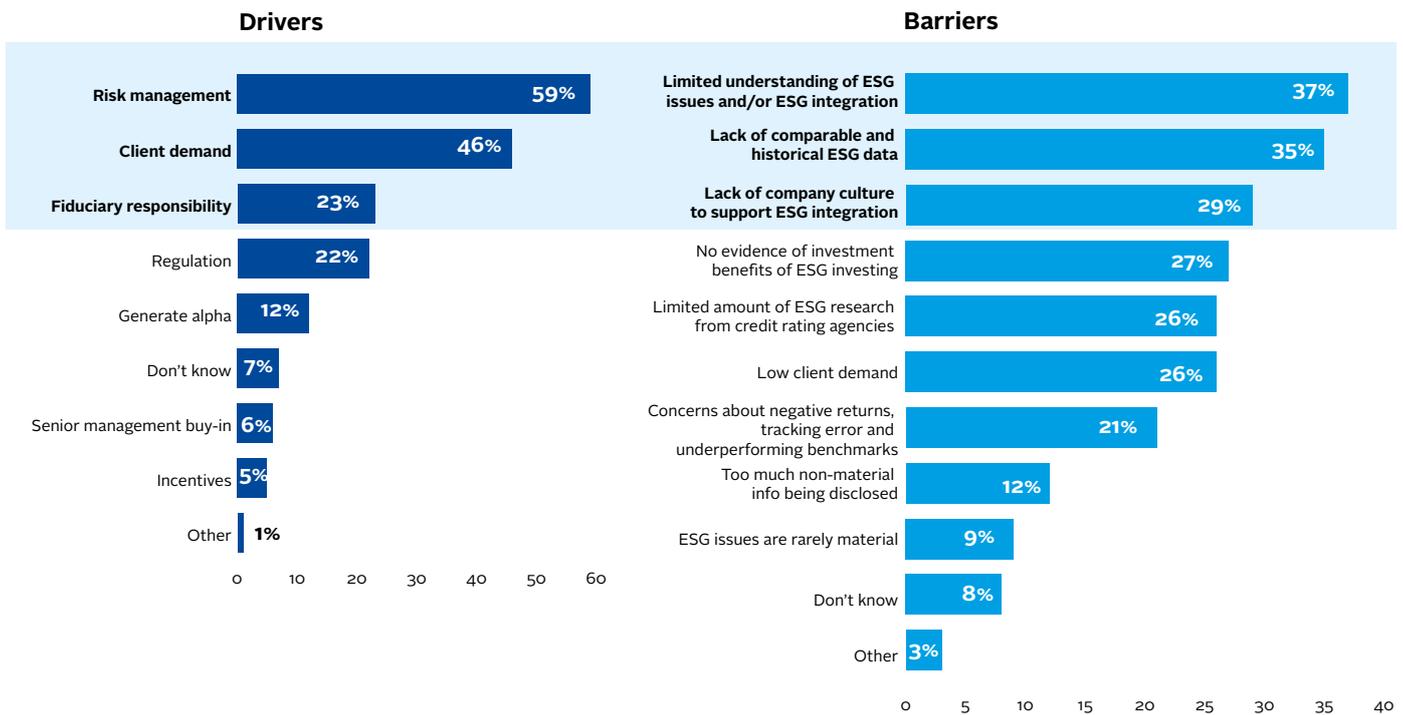
More recently, the three leading global credit rating agencies have all published notes explaining how ESG factors may impact credit risk assessment and how they are considered in their methodologies,¹³ with some smaller, regional credit rating agencies also making greater efforts towards transparency.¹⁴ Furthermore, ESG-related research is expanding rapidly and has been made available on the respective credit rating agency's ESG web pages. Most of the recent progress is documented in the reports of the [PRI's ESG in Credit Risk and Ratings Initiative](#). Publications that are particularly noteworthy are also included in the [Appendix](#).

Increasing interest in ESG has also been driven by asset owners such as pension funds, insurance companies, central banks and sovereign wealth funds looking to incorporate ESG factors across all asset classes, and by investment

managers responding to client demand. Some of these asset owners are, in turn, motivated by the wishes of their ultimate beneficiaries, many of whom are increasingly concerned about the environmental and social impacts of their investments.

Finally, the policy and regulatory landscape has also changed significantly since the 2008-09 financial crisis, with many financial regulators increasing their scrutiny of ESG considerations. Policy makers around the world are introducing measures to support the integration of ESG factors into the investment process, such as stewardship codes, anti-corruption legislation and disclosure requirements, although adherence to these is often voluntary.¹⁵ The CFAI-PRI study ranked the key drivers and barriers as perceived by market participants in FI markets (see Figure 3).¹⁶

Figure 3. Main drivers of and barriers to ESG integration in FI investments: market participant views.* Source: CFA Institute and PRI



* Base: All respondents who cover equity and/or equity-related instruments (961); all who cover FI and/or FI related instruments (747). Percentages represent those who thought each item was a main driver/barrier; survey respondents could choose more than one answer.

13 See [Capturing environmental, social and governance risk in credit ratings](#), 7 November 2017, Fitch Ratings; [Moody's approach to assessing ESG in credit analysis](#), 25 October 2017, Moody's Investors Service; and [How does S&P Global Ratings incorporate environmental, social, and governance risks into its ratings analysis](#), 21 November 2017, S&P Global Ratings.

14 PRI (2019). [ESG credit risk and ratings – from disconnects to action areas](#).

15 A map of global responsible investment policy is available at the PRI Regulation Map. See <https://www.unpri.org/sustainable-markets/regulation-map>.

16 While the survey question focused on FI investments in general, many of the drivers and barriers that apply to ESG integration in sovereign bond analysis are similar to those affecting all FI assets.

IDENTIFYING ESG FACTORS

This section outlines a sample of potentially material ESG factors, data sources and case studies showcasing the analysis of ESG issues in practice, as well as an in-depth comparison of how the application of ESG techniques can differ between EMs and DMs, with Argentina and France as examples.

- As listed in Tables 1, 3 and 4, publicly available ESG indicators can be integrated into existing sovereign credit analysis.
- Identifying material ESG factors over appropriate time horizons is complicated. Frameworks such as the SASB Materiality Map, which equity and some corporate bond investors use, do not exist for sovereign debt investors.
- There is an important and unanswered question as to how much value ESG integration contributes to the analysis of benchmark debt instruments such as US Treasuries, German Bunds and Japanese government bonds.
- Governance and some social factors have traditionally been regarded as the most material factors and have been partially incorporated in credit rating models and valuations.
- Emerging environmental pressures such as climate change have received less attention but may become increasingly material for sovereign issuers.
- A key difference between EMs and DMs is the level of financial flexibility sovereigns have to withstand external shocks.

ACCOUNTING FOR THE COMPLEXITY OF ESG FACTORS

ESG integration is the explicit and systematic inclusion of material ESG factors in investment analysis. In sovereign credit analysis, material factors are those that affect the ability of a country to meet its debt obligations, and therefore also affect the market valuations of its bonds. Debt sustainability trajectories depend on macroeconomic performance, policy and institutional strengths as well as the presence of buffers to absorb shocks. Therefore, identifying and selecting material ESG factors is arguably the most difficult component of integrating these factors into sovereign credit analysis, and is fundamentally more complex than doing so for a company. One reason for the difficulty in identifying material ESG factors is that such factors are often interrelated. A country's governance profile can help exacerbate, prevent or mitigate social and environmental shocks. There is also overlap between environmental factors and social factors. For instance, projects and initiatives which aim to improve environmental conditions can directly impact social conditions.

Despite these challenges, it is useful to map relevant factors for the analysis, even if a definitive list is neither possible nor desirable, as the materiality of a particular factor may change over time. Frameworks that have been developed to help equity and corporate bond investors identify material ESG factors, such as the Global Reporting Initiative, the Task Force on Climate-related Financial Disclosures and the Sustainability Accounting Standards Board (SASB) do not exist for sovereign bonds, although our discussions with market participants indicate that many would welcome a similarly structured addition to the analysis toolkit. As a result, the most advanced practitioners currently resort to building frameworks in-house.

Once relevant ESG factors have been identified (including whether they are present or potential), an important variable that affects their materiality is the time horizon over which they may materialise. For example, climate change poses potentially material risks to the ability of a sovereign to repay its debt or to its economic structure over different time horizons. From a macro perspective, physical climate-related risk can manifest itself through different channels. For example, increasing weather volatility and extremes threaten to disrupt infrastructure, agriculture, tourism and water supply, with potentially material economic implications for national economies and public accounts. These risks have implications at the issuer level but also for individual bond issues with different maturities and denominations in local or hard currency. Finally, when assessing ESG factors, it is important to distinguish whether they are linked to a specific event (in which case, the probability of a re-occurrence may also need to be estimated), or to a macro trend, or whether they are policy-driven.¹⁷

Alongside materiality considerations, it should be noted that sovereign ESG integration also has practical limitations. German Bunds, Japanese government bonds and US Treasuries have a traditional benchmarking role. Furthermore, they represent sizable components of traditional high-quality government bond indexes, for which there are no easy substitutes. It is therefore difficult to effectively apply ESG integration to these markets within either active or passively managed portfolios, although admittedly ESG indices for sovereign bonds are beginning to emerge (such as JPMorgan's ESG EMBI Global Diversified Index, S&P's ESG Pan-Europe Developed Sovereign Bond Index, and FTSE Climate Risk-Adjusted World Government Bond Index).

17 Some of these issues are addressed more in detail in the PRI trilogy '[Shifting perceptions: ESG, credit risk, and ratings](#)', which highlights that materiality and time-horizon considerations in FI are more multi-dimensional than for equities.

18 UNEP FI and Global Footprint Network (2012). [ERISC: A New Angle on Sovereign Credit Risk Report](#).

Finally, these sovereign bonds are often also used to meet short-term funding requirements and for collateralisation, duration management and regulatory (Basel III and Solvency II¹⁸) purposes, or have reserve status as in the case of US Treasuries.

In the following sub-sections, we have compiled a non-definitive list of governance, social and environmental factors and data sources, with some inevitable overlap. Factors are arranged in order of their perceived relevance for investors.

GOVERNANCE FACTORS

Sound governance – characterised by a stable institutional setting and effective policies and regulations – typically underpins a solid economy. Governance has traditionally been regarded as the most material ESG factor and has been extensively incorporated into credit rating models and valuations. ESG factors such as levels of corruption and regulatory frameworks can be useful indicators when reviewing sovereign issuers' governance and implications for creditworthiness.

Common governance factors relevant to sovereigns can be grouped into the following categories:

- **Institutional strength:** strength of institutional and regulatory frameworks; independence of institutions; quality and availability of public data; prevalence of corruption; rule of law; ease of doing business; and business climate.
- **Political stability:** political rights and civil liberties; political upheaval and violence in society; freedom of expression; press freedom; and freedom of information and speech.
- **Government effectiveness:** quality of bureaucracy and administration; policy planning and implementation capabilities; and independence of the civil service from political interference.
- **Regulatory effectiveness:** efficiency of regulatory systems and policy implementation; predictability of policy making; ease of doing business; and business climate.

- **Rule of law:** property rights; institutional and regulatory framework; and independence of the judiciary.
- **Corruption:** accountability and transparency of institutions; money laundering/illicit financial flows.

The relationship between governance factors and economic performance has been explored in academic and industry studies. For example, an IMF study noted that levels of corruption have negative implications for government revenues – a relationship that exists within both EMs and DMs.¹⁹ The same study also linked levels of corruption with educational attainment, showing that test scores for school-aged students tend to be lower in more corrupt countries. Similarly, the study found that corruption undermines the effectiveness of social spending. It showed that both these relationships have negative implications for economic growth and development and can therefore have implications for a sovereign's cost of capital.

It is possible to identify a range of freely available indicators that can be used to measure and track various governance factors (see Table 1).

¹⁹ [Tackling corruption in government](#), Vitor Gaspar, Paolo Mauro and Paulo Medas, IMF blog, 4 April 2019.

Table 1. A sample of freely available governance data sources (illustrative and non-exhaustive list)*

Headline indicator	Source	Description
Corruption Perceptions Index	Transparency International	Provides perceptions by businesspeople and country experts of levels of corruption in the public sector.
Ease of Doing Business Index	World Bank	Ranks economies according to the ease of doing business, measured by how easily a local firm can be created and run.
The Economic Complexity Index (ECI) and the Product Complexity Index (PCI)	The Observatory of Economic Complexity	Measures the relative knowledge intensity of an economy or a product.
Fragile States Index	Fund for Peace	Measures pressures that push states towards failure, supporting political risk assessment and early warning of conflict.
Freedom in the World Scores	Freedom House	Reports annually on political rights and civil liberties, composed of numerical ratings and descriptive text for each country and a select group of territories.
Global Competitiveness Index	World Economic Forum (WEF)	A framework and a corresponding set of indicators for three principal categories (sub-indexes) and 12 policy domains (pillars) influencing competitiveness.
Global Peace Index	Institute for Economics and Peace	Ranks states and territories according to their level of peacefulness.
Resource Governance Index	Natural Resource Governance Institute	Measures the quality of resource governance in 81 countries that together produce the majority of the world's oil and gas and a significant proportion of minerals.
Press Freedom Rankings	Reporters Without Borders	Measures the degree of journalistic freedom, combining qualitative analysis with quantitative data on abuses and acts of violence against journalists.
Women, Business and the Law (WBL)	World Bank	Measures gender inequality in the law and identifies barriers to women's economic participation.
Worldwide Governance Indicators	World Bank	Covers six broad dimensions of governance: Voice and Accountability; Political Stability and Absence of Violence; Government Effectiveness; Regulatory Quality; Rule of Law; and Control of Corruption.

*Some of these measures overlap with social and environmental indicators.

The following case studies outline examples of how various asset managers have analysed factors such as regulatory effectiveness, rule of law and corruption as part of their investment processes.

CASE STUDY: GOVERNANCE FACTORS

ASSESSING REGULATORY EFFECTIVENESS

Author | Matthew Graves, CFA, Western Asset Management

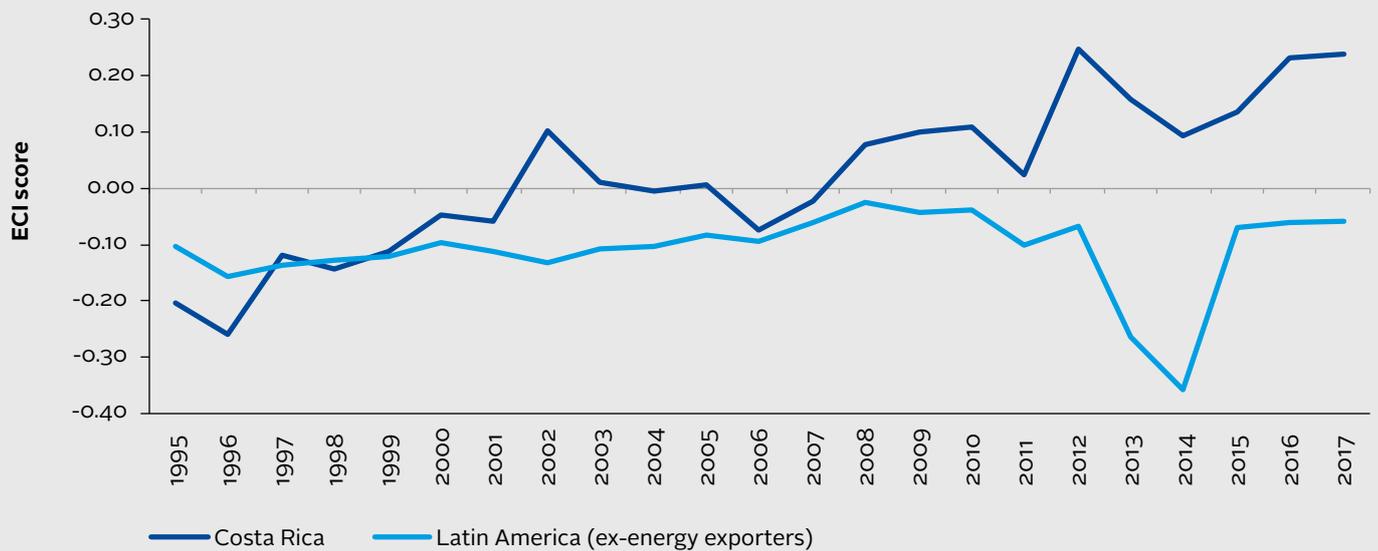
Operating region	Total AUM	Sovereign debt AUM
Global	US\$442 billion ²⁰	US\$93.5 billion ²¹

In 1990, Costa Rica revised its legal framework governing participation in its free-trade zones by making them more flexible and open to a broader array of products. These changes reflected a deliberate effort on the part of the Costa Rican government to attract greater levels of foreign direct investment (FDI) and deepen the country's value-added export capacity.²² Subsequently, Costa Rica's economy has undergone a structural transformation. The country's export mix has become more diversified, with a much greater share of external receipts flowing from higher value-added products.²³ Its free-trade zones have played a determinative role in this process,²⁴ which we can see in its steadily improving Economic Complexity Index (ECI) score, a measure of the relative knowledge intensity of an economy (see Figure 4).²⁵ Notably, this period has also been

characterised by consistent increases in per capita income, which have outpaced the broader Latin American region (see Figure 5). Ultimately, getting the rules right in its free-trade zones played a major role in Costa Rica's successful effort to structurally transform its economy and improve its economic resilience.

High per capita income levels, consistent economic growth and strong FDI inflows provide key pillars of support to Costa Rica's debt profile and external balances. These credit strengths all derive, at least in part, from Costa Rica's success in moving its economy up the economic value-chain and have played a key role in anchoring investor support for the country's bonds over time.

Figure 4. Costa Rica has moved up the export value-chain over time, 1995-2017. Sources: Haver Analytics, Observatory for Economic Complexity



²⁰ As of 31 May 2019.

²¹ Ibid.

²² Monge-González, R., Rosales-Tijerino, J. & Arce-Alpizar, G. (2005). *Cost-Benefit Analysis of the Free Trade Zone System: The Impact of Foreign Direct Investment in Costa Rica*. OAS Trade, Growth and Competitiveness Studies.

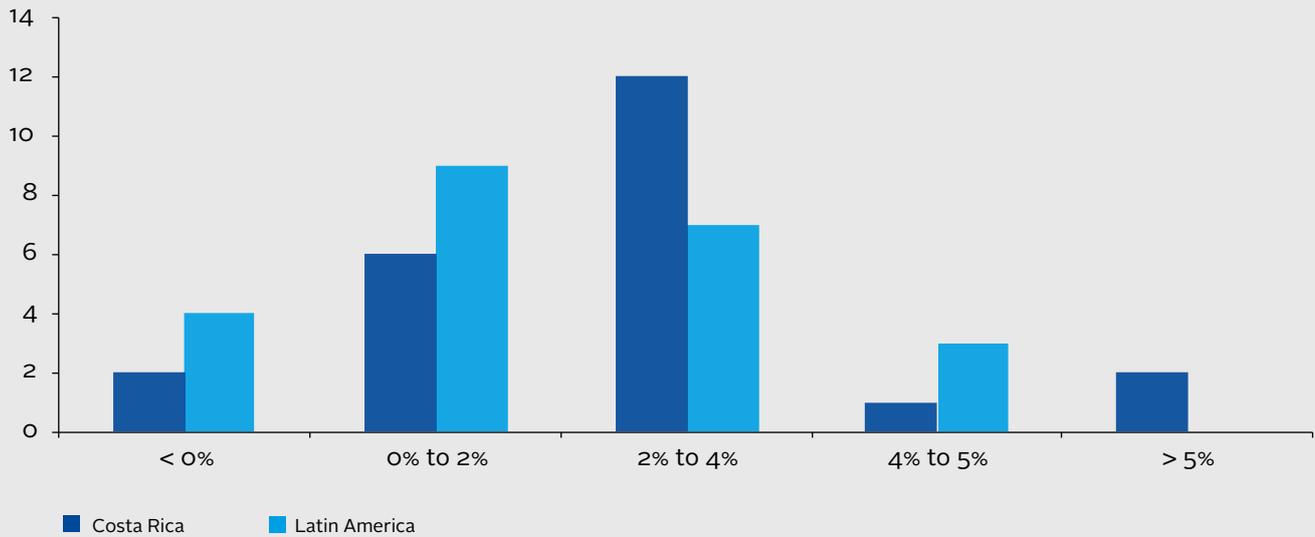
²³ OECD (2018). *FDI Spillovers in Costa Rica: Boosting Local Productivity Through Backward Linkages*. OECD Economic Survey of Costa Rica: Research Findings on Productivity, 43-78, OECD Publishing, Paris.

²⁴ Op. cit. in footnote 22.

²⁵ Hausmann, R., Hidalgo, C. et al. (2014). *The Atlas of Economic Complexity: Mapping Paths to Prosperity*. MIT.

Figure 5. The Costa Rican economy has enjoyed strong and sustained growth relative to regional peers. Sources: Haver Analytics, World Bank Development Indicators, Western Asset Management

GDP per capita, 1995-2017 (y/y pct. change, real PPP basis)



CASE STUDY: GOVERNANCE FACTORS

ASSESSING THE RULE OF LAW

Authors | Kristin Ceva, CFA and Vladimir Milev, Payden & Rygel Investment Management

Operating region	Total AUM	Sovereign debt AUM
Global	US\$114.2 billion ²⁶	US\$50.9 billion ²⁷

The political crisis in Sri Lanka in late 2018 provides a good example of the positive material impact that adherence to the rule of law can have on sovereign debt markets. Following a particularly turbulent few months of political competition, in October Sri Lanka's president illegally appointed a new prime minister, and then, when it became clear his gambit was not working, called for new elections the following month. The Supreme Court subsequently struck down the president's actions and, in the middle of December, restored the status quo. This type of constitutional crisis is quite uncommon in developed markets and tends to have market-negative outcomes in emerging market countries. In this case, the country's adherence to the rule of law led to a rare and favourable market outcome.

The initial market reaction to the political crisis led to a sharp increase in the country's borrowing costs (as measured by dollar-pay spread to Treasuries), highlighting investor anxiety over the strength of the country's institutional framework. The timely subsequent resolution led to a decline in borrowing costs of a similar magnitude, in a sign of investor relief that Sri Lanka's institutions ultimately worked as designed.

²⁶ As of 31 March 2019.

²⁷ Ibid.

CASE STUDY: GOVERNANCE FACTORS

ASSESSING CORRUPTION

Authors | My-Linh Ngo and Lucy Byrne, BlueBay Asset Management LLP

Operating region	Total AUM	Sovereign debt AUM
Global	US\$60.1 billion ²⁸	approx. US\$22.2 billion ²⁹

Corruption is a material ESG and investment risk for many sovereign markets, including Argentina. However, in this case, we consider the country's trajectory on this issue as positive, with a trend towards reducing corruption risk (see Table 2). Corruption has been a particular challenge in Argentina under populist left governments, such as the Kirchner administration. However, the current Macri government has made progress in introducing more transparency to public procurement and investigating allegations of corruption. In our view, while corrupt practices may frequently make the headlines, this is precisely because they are now being actively investigated and addressed.

So, while discussion of corruption in Argentina illustrates the scale of the problem, it also suggests a genuine push for improvement, although we appreciate there is a lot more that remains to be done. If this progress can be extended beyond the national elections in October 2019, we would expect sovereign spreads to narrow.

Table 2. Argentina's Corruption Perceptions Index score, 2012-2018. Source: Transparency International*

CPI score 2018	CPI score 2017	CPI score 2016	CPI score 2015	CPI score 2014	CPI Score 2013	CPI Score 2012
40	39	36	32	34	34	35

*CPI uses a scale of 0 to 100, where 0 is highly corrupt and 100 is very clean.

²⁸ As of 31 March 2019.

²⁹ Ibid.

SOCIAL FACTORS

Social factors can also be material in sovereign credit analysis due to the importance of human capital as a key determinant of economic growth. Measuring and monitoring social factors – such as the composition of the workforce, education, health and economic wellbeing – provides insight into economic growth and government revenues. Some social indicators, such as demographics, living standards and healthcare spending, are commonly used in sovereign debt analysis. The relevance of this category is supported by research such as that undertaken by the OECD, which shows a correlation between falling income inequality and faster economic growth.³⁰

Social factors relevant to sovereign issuers can be grouped into the following categories:

- **Demographic change:** population trends; age distribution; and rates of immigration.
- **Education and human capital:** availability of and access to education; quality of educational attainment; and employment rights.
- **Living standards and income inequality:** respect for human rights (including the right to life, the right to freedom of association and the right to health); measures of poverty and income inequality; gender inequality; unemployment rates; public sector wages; availability of and access to healthcare, personal safety and housing; food security and obesity.
- **Social cohesion:** political freedom and representation; levels of trust in institutions and politicians; social inclusion and mobility; prevalence of civic organisations; degree of social order; and capacity of political institutions to respond to societal priorities.

There is a range of freely available indicators that can be used to measure and track various social factors (see Table 3).

³⁰ [Inequality hurts economic growth](#), OECD press release, 9 December 2014.

Table 3. A sample of freely available social data sources (illustrative and non-exhaustive list)*

Headline indicator	Source	Description
Better Life Index	OECD	Compares well-being across countries, based on 11 measures of quality of life and living conditions that the OECD has identified as essential.
Energy Trilemma Index	World Energy Council	Ranks countries on their ability to provide sustainable energy through three dimensions: energy security; energy equity (accessibility and affordability); and environmental sustainability.
The Gini Coefficient of Income Inequality	OECD	Based on the comparison of cumulative proportions of the population against cumulative proportions of income they receive, ranging between 0 in the case of perfect equality and 1 in the case of perfect inequality.
Global Peace Index	Institute for Economics and Peace	Ranks states and territories according to their level of peacefulness.
Human Capital Index	World Bank	Measures the amount of human capital that a child born today can expect to attain by age 18, given prevailing risks of poor health and poor education.
Human Development Index (HDI)	United Nations Development Programme	Measures average achievement in key dimensions of human development: a long and healthy life, being knowledgeable and having a decent standard of living, based on normalized indices for each dimension.
SDG Index	Sustainable Development Solutions Network	Assesses countries' distance to achieving the Sustainable Development Goals (SDGs).
Social Progress Index	The Social Progress Imperative	Provides a comprehensive measure of real quality of life, independent of economic indicators, designed to complement rather than replace economic measures such as GDP.
World Development Indicators	World Bank	Compiles statistics about global development and the fight against poverty.
Worldwide Governance Indicators	World Bank	Covers six broad dimensions of governance: Voice and Accountability; Political Stability and Absence of Violence; Government Effectiveness; Regulatory Quality; Rule of Law; and Control of Corruption.
World Inequality Database	International Network of Researchers	A database of the historical evolution of the distribution of income and wealth, both within and between countries.

*Some of these measures overlap with governance and environmental indicators.

The following case studies outline examples of how various asset managers have analysed factors such as education, human capital and demographic changes as part of their investment processes.

CASE STUDY: SOCIAL FACTORS

ASSESSING EDUCATION AND HUMAN CAPITAL

Authors | Kristin Ceva, CFA and Vladimir Milev, Payden & Rygel Investment Management

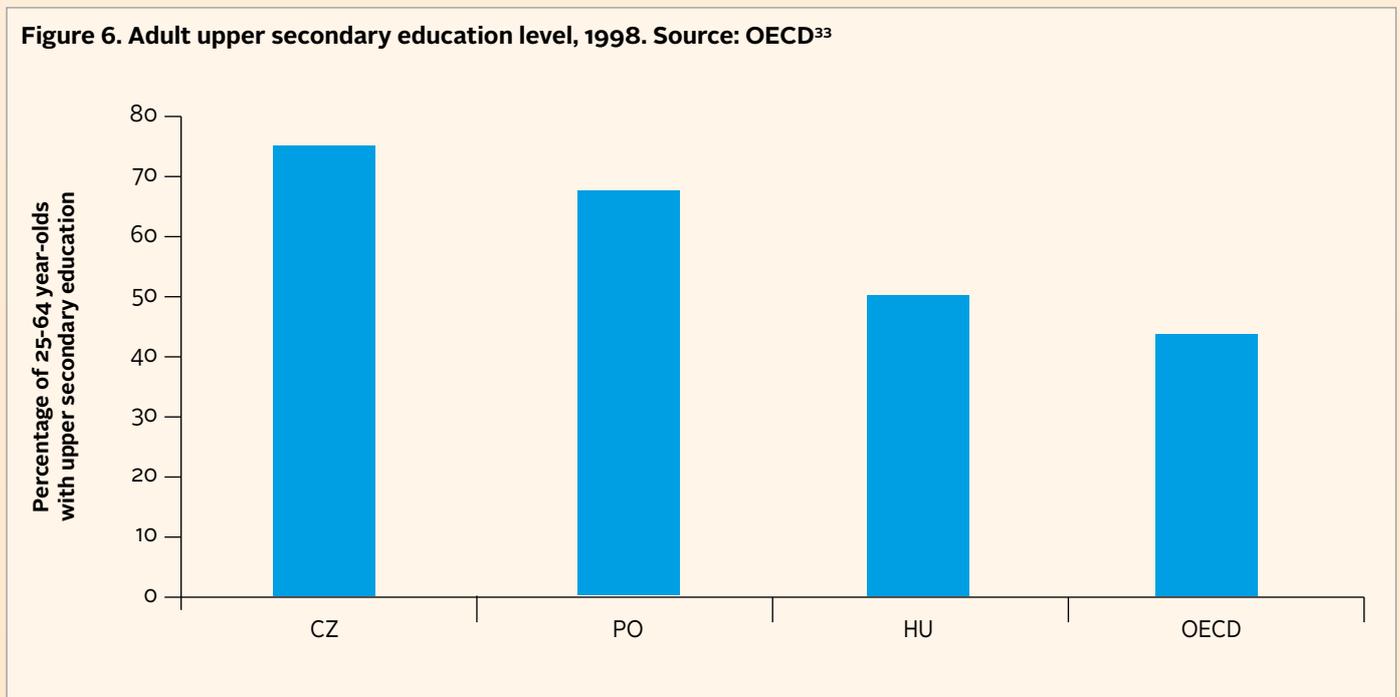
Operating region	Total AUM	Sovereign debt AUM
Global	US\$114.2 billion ³¹	US\$50.9 billion ³²

Human capital availability and high levels of (technical) education had a material impact on the economic model of several Central and Eastern European economies in their transition from communist to capitalist systems. In the years after the fall of communism, most countries in the region had a surplus of educated workers. The percentage of adults aged 25-64 with upper secondary education, for example, was just over 50% in Hungary, 67% in Poland and 75% in the Czech Republic, versus the average of 44% across the OECD in 1998 (see Figure 6).

During the countries' transition, however, many workers became unemployed as economic output shrunk and factories closed. Western European manufacturers recognised the potential benefit of a low-cost, highly-qualified workforce and started to make significant investments in productive capacity in countries in the region.

This investment led to material changes in those countries' economic models and macroeconomic trajectories. The increase in manufacturing capacity supported GDP growth and ultimately improved sovereign creditworthiness. Together with other factors (such as EU accession), this has led to lower borrowing costs for countries in the region (all else being equal). It should be noted, however, that those countries' sensitivity to the eurozone business cycle has also increased, leading to a higher correlation during periods of elevated market volatility (such as the eurozone crisis), which can temporarily lead to higher borrowing costs.

Figure 6. Adult upper secondary education level, 1998. Source: OECD³³



³¹ As of 31 March 2019.

³² Ibid.

³³ OECD (2019). Adult education level indicator.

CASE STUDY: SOCIAL FACTORS

ASSESSING DEMOGRAPHIC CHANGE

Author | Claudia Gollmeier, CFA, Colchester Global Investors

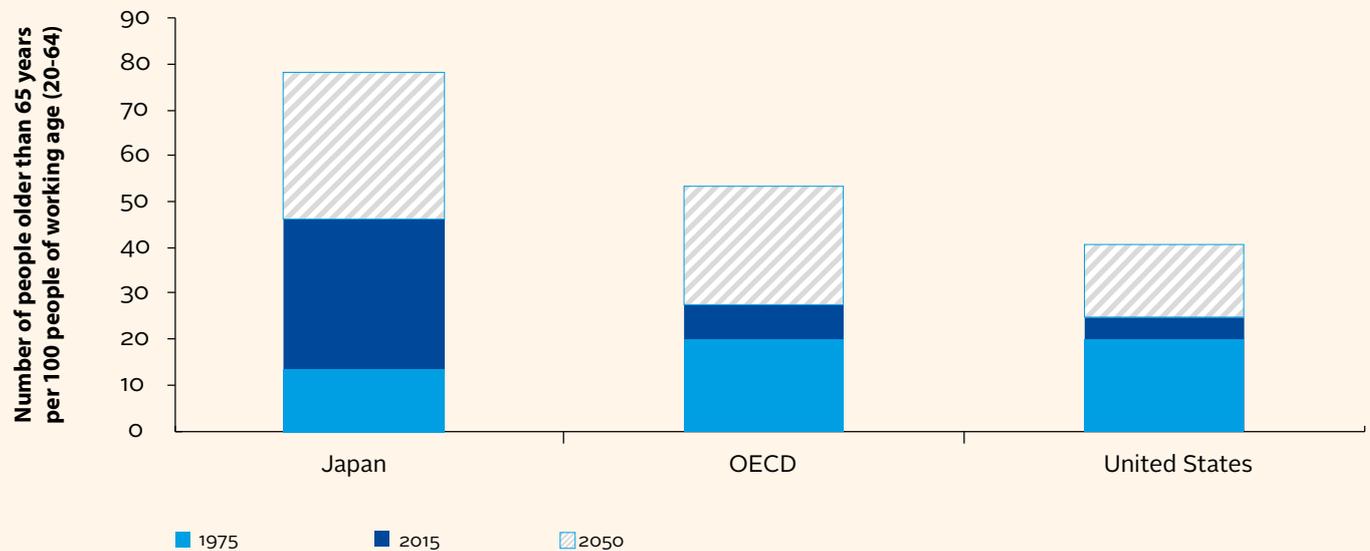
Operating region	Total AUM	Sovereign debt AUM
Global	US\$45.41 billion ³⁴	US\$45.41 billion ³⁵

Japan's working population has been declining. As of 2015, its old age dependency ratio – defined as the number of people older than 65 years per 100 people of working age (20-64) – had increased from 12.7 in 1975 to 46.2, compared with 24.6 in the United States (see Figure 7). These figures are expected to rise to 77.8 and 40.3 by 2050, respectively.

In the absence of government policies (e.g. promoting immigration and increasing consumption taxes) the shrinking workforce will challenge productivity, future economic growth and government finances.

These fiscal challenges will likely be compounded by age-related spending (for example, on pensions and healthcare provision) and potentially 'crowd out' ESG-supportive policies and expenditures (e.g. on education, environmental infrastructure, etc.). Current fiscal action may therefore be required to ensure that the ageing population in Japan does not potentially undermine its medium- to long-term debt and fiscal position and potentially increase funding costs.

Figure 7. Old-age dependency ratio, 1975-2050. Source: United Nations World Population Prospects, 2017 revision



³⁴ As of 31 March 2019.

³⁵ Ibid.

ENVIRONMENTAL FACTORS

Environmental factors can also pose material risks to sovereign performance, although they have been less integrated by investors in the past compared with governance and social factors. However, the importance of environmental factors is expected to grow in the coming years with the increasing physical and socio-economic impacts of climate change and resource constraints. As noted above, ESG factors are often interdependent. For example, a 2019 report by the International Renewable Energy Agency argued that the fundamental changes currently taking place in the global energy system will affect almost all countries and have wide-ranging geopolitical consequences.³⁶

Environmental factors of relevance to sovereign issuers can be grouped into the following categories:

- **Natural resources:** the availability and quality of biodiversity, water, air and soil; and land use (urban, agricultural and forests).
- **Physical risks:** the physical effects of climate change (such as weather volatility, sea-level rise) and natural disaster risks (volcanic eruptions and earthquakes).
- **Energy transition risk:** regulatory factors and technological developments associated with the global energy transition to a less carbon-intensive global economy.
- **Energy security:** the availability and management of (non)-renewable energy resources; and resource depletion.

A range of freely available indicators can be used to measure and track various environmental factors (see Table 4).

CLIMATE CHANGE – A SPECIAL CASE?

The physical impacts of climate change can affect sovereign issuers over multiple time horizons. For example, public accounts could be impacted by extreme weather conditions reducing agricultural output, impacting balances of payments and boosting food prices. Where these developments are coupled with high levels of poverty and income inequality, food shortages and higher food prices can trigger protests and political instability, with implications for sovereign debt valuations.³⁷ Supply-side shocks due to climate change could also cause inflationary pressures and changes in real interest rates.³⁸ Over the long term, the effects of climate change, such as rising sea levels impacting highly populated regions, could result in human capital displacement, higher government expenditure and lower growth.

Transition risk is also an important consideration. Most countries will need to significantly restructure their economies to reduce greenhouse gas emissions to meet their commitments under the Paris Agreement.³⁹ The cost and disruption of this restructuring will depend on the sovereign's economic reliance on fossil fuel reserves, the national energy mix and its carbon intensity. Further research is needed to map more explicitly the transmission mechanisms between a country's carbon dependence, its economic performance and its creditworthiness. However, countries that already have relatively low-carbon economies might be expected to face fewer regulatory, market or economic pressures when undergoing the reforms required to meet climate targets.

The energy transition will particularly impact sovereigns that generate significant government revenues from hydrocarbons. Many commentators now expect demand for oil to peak in the next 10-15 years as a result of changes in regulations, technology and consumer demand, with potentially significant impacts on government revenues within petro-economies.⁴⁰ Countries with a high dependence on oil revenues may be able to mitigate these potential impacts by diversifying away from fossil fuels. In contrast, the energy transition may benefit the balance of payments of oil-importing countries who are able to diversify fuel sources to lower-carbon options.

³⁶ International Renewable Energy Agency (2019). [A New World: The Geopolitics of the Energy Transformation](#).

³⁷ UNEP FI, Global Footprint Network (2016). [ERISC PHASE II: How food prices link environmental constraints to sovereign credit risk](#).

³⁸ UNEP FI (2019). [Changing course: a comprehensive investor guide to scenario-based methods for climate risk assessment, in response to the TCFD](#).

³⁹ The Paris Agreement's central aim is to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5°C. Additionally, the agreement aims to increase the ability of countries to deal with the impacts of climate change, and to make finance flows consistent with low carbon emissions and a climate-resilient pathway.

⁴⁰ Moody's Investors Service (2018). [Sovereigns – Hydrocarbon exporters – Carbon transition manageable for most; significant credit pressure in event of more ambitious transition](#).

Table 4. A sample of freely available environmental data sources (illustrative and non-exhaustive list)*

Headline indicator	Source	Description
Aqueduct Water Risk Atlas	World Resources Institute	Tracks where and how water risks and opportunities are emerging worldwide.
Climate Action Tracker	New Climate Institute, Ecofys, Climate Analytics	Measures progress towards the globally agreed upon aim of holding warming well below 2°C, and pursuing efforts to limit warming to 1.5°C.
Climate Change Performance Index	Germanwatch, the New Climate Institute and the Climate Action Network	Monitors countries' climate protection performance.
Ecological Footprint	Global Footprint Network	Measures the ecological assets a country requires to produce the natural resources it consumes and to absorb its waste, and the productivity of a country's ecological assets.
Environmental Democracy Index	World Resources Institute	Measures the degree to which countries have enacted legally binding rules that provide for environmental information collection and disclosure, public participation across a range of environmental decisions and fair, affordable and independent avenues for seeking justice and challenging decisions that impact the environment.
Environmental Performance Index	Yale University Center for Environmental Law & Policy	Ranks countries on 24 performance indicators across 10 issue categories, covering environmental health and ecosystem vitality.
Environmental Performance Reviews (EPR)	OECD	An OECD programme to support countries' progress towards their environmental and sustainable development objectives.
Energy Trilemma Index	World Energy Council	Ranks countries on their ability to provide sustainable energy through three dimensions: energy security; energy equity (accessibility and affordability); and environmental sustainability.
Resource Governance Index	Natural Resource Governance Institute	Measures the quality of resource governance in 81 countries that together produce 82% of the world's oil, 78% of its gas and a significant proportion of minerals, including 72% of its copper.
SDG Index	Sustainable Development Solutions Network	Assesses countries' distance to achieving the SDGs.
ND-GAIN data	Notre Dame Global Adaptation Initiative	Summarises a country's vulnerability to climate change and other global challenges in combination with its readiness to improve resilience.
WorldRiskIndex	Bündnis Entwicklung Hilft, United Nations University's Institute for Environment and Human Security	Considers exposure to extreme natural events such as earthquakes or cyclones, and a country's capacity to respond to such events.

*Some of these measures overlap with governance and social data.

The following case studies outline examples of how various asset managers have analysed factors such as natural resources, energy security and energy transition risk as part of their investment processes.

CASE STUDY: ENVIRONMENTAL FACTORS

ASSESSING NATURAL RESOURCES

Authors | Bonnie Wongtrakool, CFA and Matthew Graves, CFA, Western Asset Management

Operating region	Total AUM	Sovereign debt AUM
Global	US\$442 billion ⁴¹	US\$93.5 billion ⁴²

Despite a steady rate of urbanisation over the past two decades, Indonesia’s rural population remains significant: 120 million people, or 45% of the population, still live in rural areas. For rural Indonesians, particularly those earning very low incomes, the agricultural sector serves as an important means of livelihood, employing nearly one-third of the population,⁴³ with a heavy concentration in smallholder farming.⁴⁴ Indonesia’s geography allows for the production of a diverse array of crops, including rice – Indonesia is the world’s third-largest producer – and cash crops, including palm oil, rubber and coffee.⁴⁵

Palm oil is the country’s most important agricultural export, constituting 9.6% of Indonesia’s total goods exports.⁴⁶ The production of palm oil also employs a significant number of people in Indonesia’s rural areas.⁴⁷ Smallholder palm oil production, in particular, connects rural communities to global markets, providing an important source of income that would be otherwise difficult to replicate. At the same time, smallholder participation in the palm oil industry has made the challenge of halting the most environmentally damaging production practices more complex.⁴⁸

The risks stemming from these agricultural practices are twofold:

- The impact on the broader smallholder farming population and the production of traditional agricultural products can be material as a result of increased air pollution, waterway pollution and population displacement;⁴⁹ and
- Due to the carbon intensity of ‘non-sustainable’ palm oil production, palm oil biofuel’s status as a renewable energy resource has come under fire in key consumer markets, including most notably the European Union, which resolved to phase out by 2030 biofuels that contribute significantly to deforestation.⁵⁰

Indonesia’s government has made efforts to improve the management of its natural capital and address these risks. In 2011 the government instituted the Indonesian Sustainable Palm Oil (ISPO) requirement for palm oil plantations and mills.⁵¹ The Ministry of Agriculture, in 2014, established the Indonesian Palm Oil Platform (InPOP), in a bid to address some of the sustainability gaps that existed after the implementation of ISPO, and to better coordinate sustainability efforts at all levels of the industry.⁵² In another encouraging development, Indonesian officials recently announced their plans to permanently ban the conversion of primary natural forests and peatlands for palm oil, pulp and logging concessions.⁵³

41 As of 31 May 2019.

42 Ibid.

43 According to the World Bank’s most recently published World Development Indicators, 30.5% of the Indonesian labour force works in agriculture.

44 United Nations Food and Agricultural Organization (2018). [Small Family Farms Country Factsheet](#).

45 Ibid.

46 Observatory of Economic Complexity, [Indonesia country profile](#).

47 European Parliamentary Research Service, [Palm oil: economic and environmental impacts](#), February 2018.

48 UN Development Programme, [Indonesia Palm Oil Platform Newsletter](#), Issue 1 Year 15.

49 The International Council on Clean Transportation (2016). [Ecological impacts of palm oil expansion in Indonesia](#).

50 [European Parliament resolution of 4 April 2017 on palm oil and deforestation of rainforests](#), adopted 4 April 2017, [EU sets limits on palm oil in biofuels as trade war looms](#), Bloomberg, 13 March 2019.

51 ISPO-RSPO (2015). [Joint Study on the Similarities and Differences of the ISPO and the RSPO Certification Systems](#).

52 For background information on InPOP, including details on the 2018 National Action plan, see the [FokSBI website](#) and UN Development Programme, [Indonesia Palm Oil Platform Newsletter](#), Issue 1 Year 15.

53 [Indonesia to fix temporary ban on new forest clearing for plantations and logging](#), Hans Nicholas, Mongabay.com, 11 June 2019, reproduced on [www.eco-business.com](#).

While implementation of ISPO standards and other restrictions on primary forest conversion was initially weak, the Indonesian government has improved its capacity to enforce restrictions in recent years. Indeed, data from Global Forest Watch show a decline in tree cover loss from 2017-18 relative to the three years prior.⁵⁴

In future, Indonesia will need to balance its support between maintaining palm oil employment and exports, protecting traditional smallholder agriculture and aligning palm oil production to best meet global consumption trends. Given the importance of palm oil to both the economy and the environment, Indonesia's ability to address these objectives will help define the country's growth trajectory.

From a market perspective, diversified and sustainable sources of economic growth – particularly in industries that employ an important cross-section of the Indonesian labour force – should help support spread levels and ensure lower risk premia over the medium-term.

⁵⁴ [Global Forest Watch, Indonesia dashboard.](#)

CASE STUDY: ENVIRONMENTAL FACTORS

ASSESSING ENERGY TRANSITION RISK

Author | Yvette Klevan, Lazard Asset Management

Operating region	Total AUM	Sovereign debt AUM
Global	US\$211.5 billion ⁵⁵	-

The availability and management of energy resources can be a critical and material factor for sovereign credits. We believe the energy revolution will not only provide positive environmental benefits but will also have a significant effect on the investment landscape. In recent years, investment in wind, solar and other renewable energy technologies has grown fast and this momentum is expected to continue in the future, particularly in Europe, China and India. Even in the United States, renewable energy represents over 15% of power generation. For many countries, the energy transition provides a unique opportunity to build or shift energy sources which can accomplish both environmental and social goals, and also potentially reduce energy costs, since sunshine and wind are free.

Morocco is taking advantage of naturally abundant sunshine to create several large solar farms with a goal of producing over 42% of its electrical power from renewable energy by 2020.

Prior to this endeavour, Morocco relied on imported fossil fuels for approximately 97% of its energy consumption. As these solar farms are completed, they reduce the cost of importing fossil fuels, which is a positive fiscal development. Not only do these projects make Morocco more energy independent, but they are also reducing carbon emissions, creating employment for local workers and setting an important example to other countries in Africa and beyond (see Table 5, Figures 8 and 9).

We believe that countries that can reduce emissions, move towards energy independence and adapt to or mitigate climate change will be more likely to prosper in the future, with positive credit implications.

Table 5. Morocco ranks highly on the Climate Change Performance Index, 2019. Source: Climate Change Performance Index⁵⁶

Country	CCPI	Rank*
Sweden	76.28	3
Morocco	70.48	4
Lithuania	70.47	5
Latvia	68.31	6
United Kingdom	65.92	7
Switzerland	65.42	8
Malta	65.06	9
India	62.93	10
Norway	62.80	11
Finland	62.61	12

*None of the countries achieved positions one or two, as no country is doing enough to prevent dangerous climate change.

⁵⁵ As of 31 March 2019.

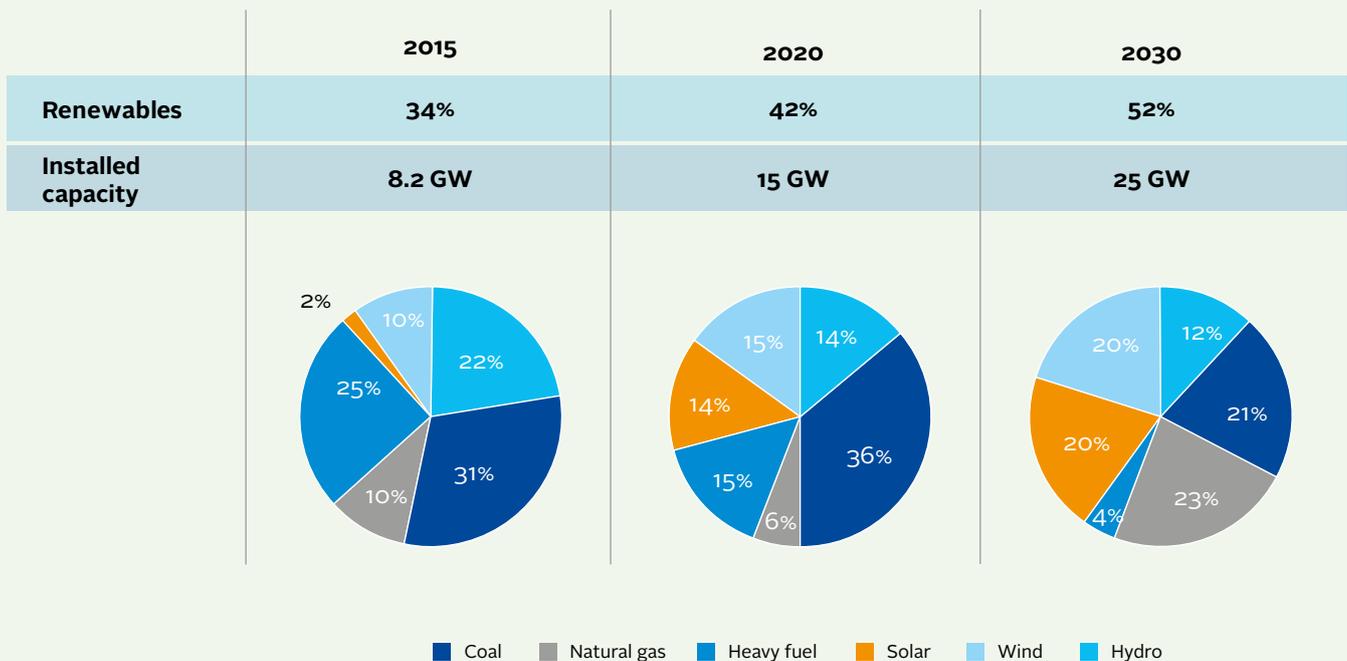
⁵⁶ Germanwatch, NewClimate Institute, Climate Action Network International (2019), [Climate Change Performance Index Results 2019](#).

Figure 8. Morocco is one of only two countries with a plan to reduce its greenhouse gas emissions to keep warming below 1.5°C. Source: Climate Action Tracker*

CRITICALLY INSUFFICIENT	HIGHLY INSUFFICIENT	INSUFFICIENT	2°C COMPATIBLE	1.5°C PARIS AGREEMENT COMPATIBLE	ROLE MODEL
4°C+ world	<4°C world	<3°C world	<2°C world	<1.5°C world	<<1.5°C world
Russian Federation	Argentina	Australia	Bhutan	Morocco	
Saudi Arabia	Canada	Brazil	Costa Rica	The Gambia	
Turkey	Chile	EU	Ethiopia		
USA	China	Kazakhstan	India		
Ukraine	Indonesia	Mexico	Philippines		
	Japan	New Zealand			
	Singapore	Norway			
	South Africa	Peru			
	South Korea	Switzerland			
		UAE			

* Climate Action Tracker covers all the biggest emitters and a representative sample of smaller emitters covering about 80% of global emissions and approximately 70% of global population.

Figure 9. Morocco: Electricity capacity targets. Sources: RES4MED, Lazard Asset Management*



* Renewables will increase up to 42% by 2020 and 52% by 2030 (as of 2018).

CASE STUDY: ENVIRONMENTAL FACTORS

ASSESSING ENERGY SECURITY

Author | Claudia Gollmeier, CFA, Colchester Global Investors

Operating region	Total AUM	Sovereign debt AUM
Global	US\$45.41 billion ⁵⁷	US\$45.41 billion ⁵⁸

In addition to sharing a border, Norway and Russia also share similar balance sheet characteristics. Both are oil- and gas-rich countries, have relatively low government debt, healthy external positions (e.g. current account surpluses and relatively high foreign currency reserves) and significant sovereign wealth funds (see Table 6).

Table 6. Selected key economic indicators (% of GDP unless stated) in 2017. Sources: IMF, Norwegian Petroleum, Norway Ministry of Finance, Russia Ministry of Finance, Colchester Global Investors

	Russia	Norway*
General government revenues	33.3	63.2
of which oil-related	7.3	6
General gross government debt	15.5	43
Current account	2.2	6.7
FX reserves	22.3	17.1
Sovereign wealth fund	4.9	303.3
Resource Governance Index ranking**	50	1

* Mainland GDP

** Ranking out of 89 (1st – best; 89th – weakest)

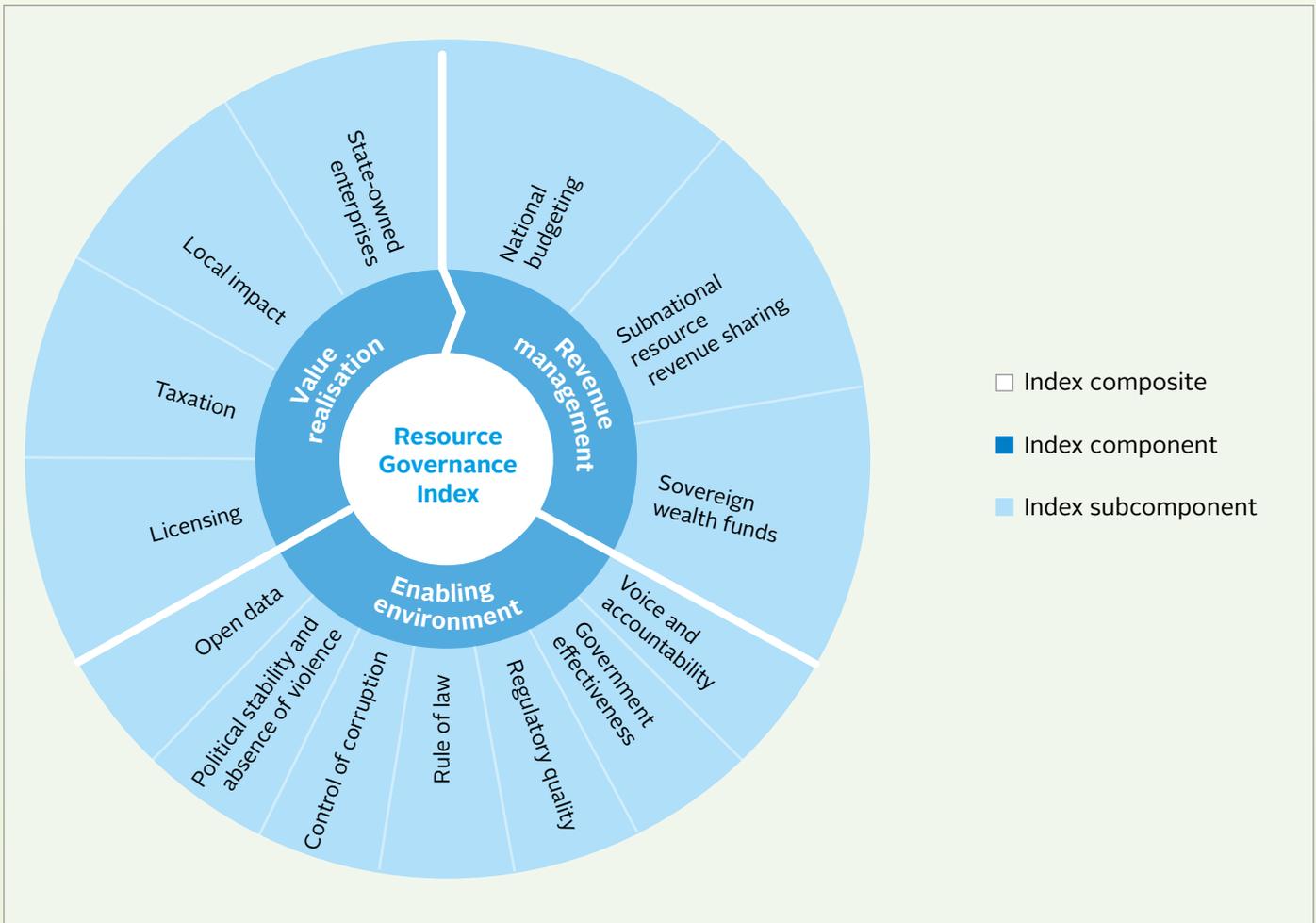
However, there is a clear difference between the two countries in terms of the governance of their natural resources (see Figure 10). Norway ranks at the top of the Resource Governance Index, whereas Russia is only the 50th highest ranked country.⁵⁹

⁵⁷ As of 31 March 2019.

⁵⁸ Ibid.

⁵⁹ The index measures the quality of resource governance in 81 countries. See www.resourcegovernanceindex.org.

Figure 10. Resource Governance Index. Source: Natural Resource Governance Institute



The reasons for the difference in the two countries' rankings stem particularly from the revenue management component of the index, which assesses sovereign wealth funds, national budgeting and subnational resource revenue sharing. Norway has followed a fiscal rule for its sovereign wealth fund,⁶⁰ which grew to over 300% of mainland GDP by the end of 2017, and has introduced policies to reduce the economy's dependency on oil and gas. In contrast, Russia has tapped its sovereign wealth funds and has overruled the governing fund rules when it needed to finance new

spending. Recognising this institutional weakness, the Russian Reserve Fund was merged with the National Wealth Fund in early 2018 after being nearly depleted by withdrawals, and a new fiscal rule was implemented.⁶¹

Alongside a range of other factors, Norway's strong resource management and disciplined approach to managing oil revenues cushions its fiscal and external position and will support a more sustainable and stable debt and currency path over the longer term.

60 The Government of Norway, "The Norwegian fiscal policy framework".

61 [Russia's Reserve Fund Ceases to Exist](#), Moscow Times, 11 January 2018.

EMERGING AND DEVELOPED MARKET PERSPECTIVES

The previous section outlined a range of ESG factors that may impact sovereign issuers. Their materiality may also depend on the geographical location of a country as well as its stage of economic development. This section compares how sovereign investors might approach sovereign ESG analysis in EMs and DMs, using Argentina and France as examples.

The two cases presented are based on discussions among the PRI's Sovereign Working Group during 2018 and 2019. They outline indicators, research and analysis an investor might use to incorporate ESG issues into EM and DM sovereign debt analysis. Some overarching points are summarised below.

- **The economic, fiscal and ESG profiles of sovereigns vary significantly.** A key difference between EMs and DMs is the level of financial flexibility sovereigns have to withstand environmental, social or external shocks. Therefore, when defining a set of potentially material ESG factors to assess, investors may find it helpful to group countries based on similar income levels, or – more commonly – into EMs and DMs. Following this grouping approach, an investor may, for example, classify access to electricity as a material factor for lower-income countries but exclude it from their analysis for higher-income countries.

This approach follows the conventional practice underlying most investment universes although, strictly speaking, EM/DM classifications can be fluid, given that not all high-income countries are designated as developed, and several countries can be classified as both depending on the criteria used. Moreover, ESG risks such as volatile political developments that have traditionally been associated with EMs can also increasingly manifest themselves in DMs, as seen in recent years.

- **Regardless of the EM/DM classification, governance and political issues are considered to be the most material ESG issues affecting debt sustainability.** However, there is a tendency for some EM countries to have weaker institutions and an uneven distribution of power between the executive, legislative and judicial branches of government.

This can lead to greater likelihood of corruption and weaker regulatory quality. But even countries with more developed institutions can face governance risks, for instance in cases of political gridlock preventing governments from passing structural economic reforms.

- **Social factors are relevant for both EM and DM investors,** as social conditions and voters' dissatisfaction can have political repercussions, including rising populism. These risks until recently have tended to be larger in EMs as institutional strength, which can also have a bearing on social factors, tends to be weaker, but recent developments suggest that they also affect DMs.
- **Environmental issues are relevant for both EM and DM investors.** Physical climate risks can be higher for low-income countries because of their geographical exposure, the structure of their economies and the potential need for governments to step in to cover uninsured losses by large private sector issuers. Moreover, EMs tend to have less stringent environmental protection legislation in place to penalise industries for pollution incidents.

However, DMs are not immune from environmental risks, albeit they may materialise differently. For example, Moody's Investors Service notes that the growing effects of climate change will have an increasing economic impact on US state and local issuers, with negative credit implications for issuers without adequate adaptation and mitigation strategies.⁶²

- **More sophisticated ESG integration approaches assess the same set of ESG factors for every country, but give them different weights,** based on variables such as the nature of the political regime; income levels; and the volume of foreign currency-denominated debt. For example, from a credit perspective, ESG factors tend to have a comparatively higher materiality for low-income countries with high external debt in foreign currency.

62 Moody's Investors Service (2017). [Climate change is forecast to heighten US exposure to economic loss placing short- and long-term credit pressure on US states and local governments.](#)

ARGENTINA⁶³

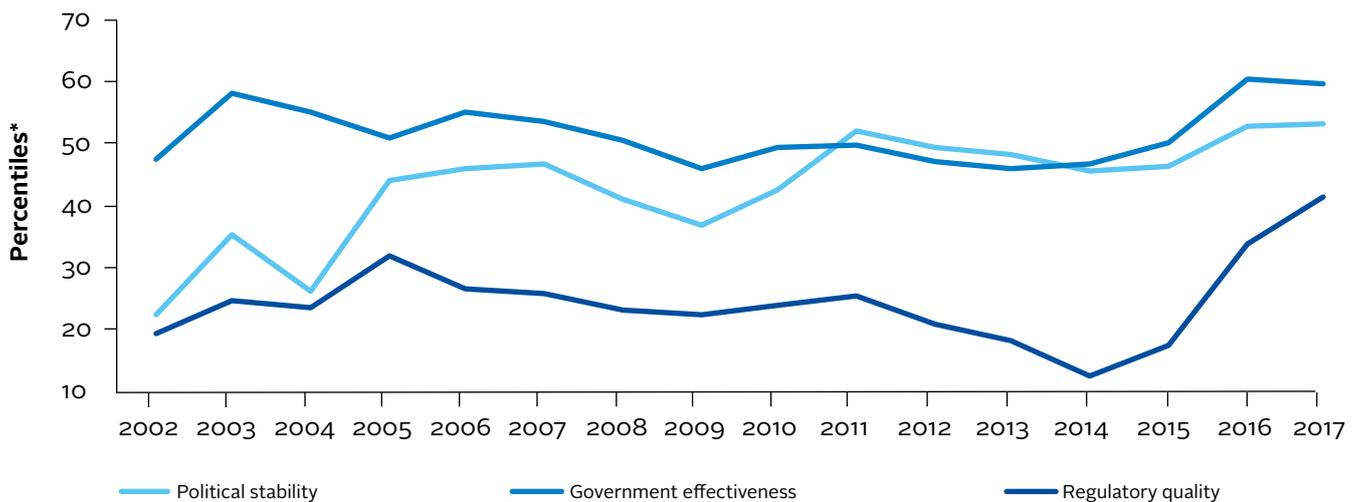
A country rich in physical resources, Argentina has had a volatile history with capital markets, including repeated bailouts by international finance organisations such as the International Monetary Fund (IMF). Investor confidence in Argentina has changed quickly, depending on perceptions of political and regulatory stability.

Governance factors

In 2015, a new government took office with a manifesto to reverse economic deterioration, rebalance public finances and rejuvenate the business climate, leading to an improvement in investor confidence.

In response to several key currency and taxation reforms, the World Bank Worldwide Governance Indicators tracking key metrics, including political stability, government effectiveness and regulatory quality, all improved (see Figure 11). Over this period, other governance indicators also showed improvement, such as the political indicator trends tracked by Fund for Peace's Fragile States Index on state legitimacy and public services (Figure 12). Greater political and regulatory stability contributed to a return to positive economic growth from 2016 to 2017, providing a platform for Argentina to settle a 15-year bondholder dispute and enabling a return to global capital markets.

Figure 11. Political stability, government effectiveness and regulatory quality in Argentina, 2002-2017. Source: World Bank Worldwide Governance Indicators⁶⁴

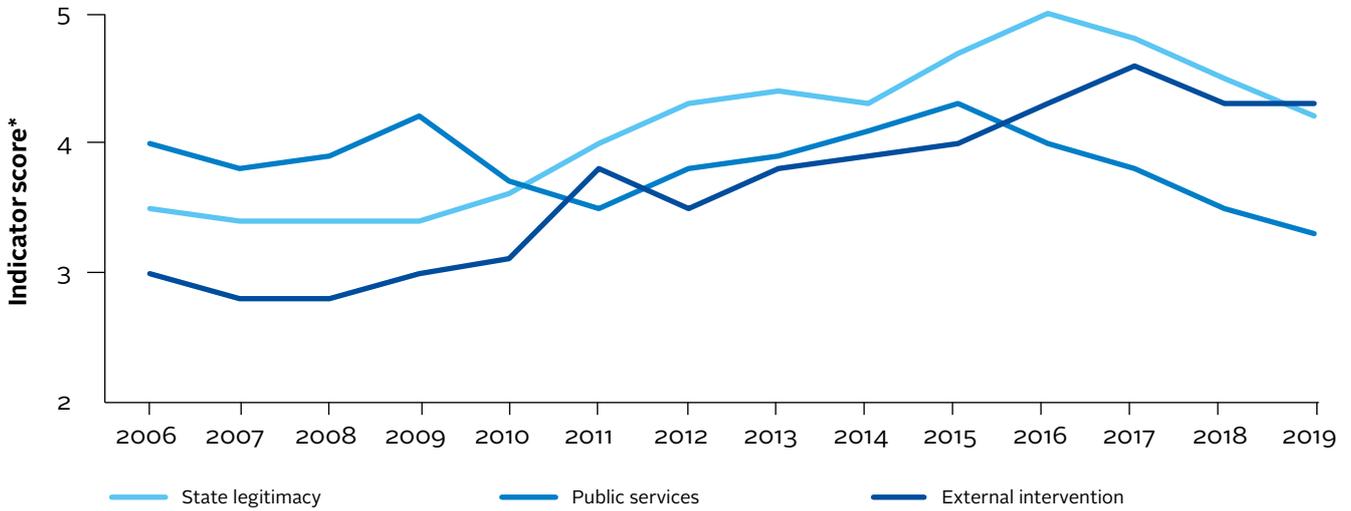


* Percentile rank among all countries (ranges from 0 [lowest] to 100 [highest])

63 Written on 1 March 2019 based on discussions among PRI's Sovereign Working Group.

64 See <https://info.worldbank.org/governance/wgi/#home>.

Figure 12. Political indicator trends, 2006-2019. Source: Fund for Peace Fragile States Index⁶⁵



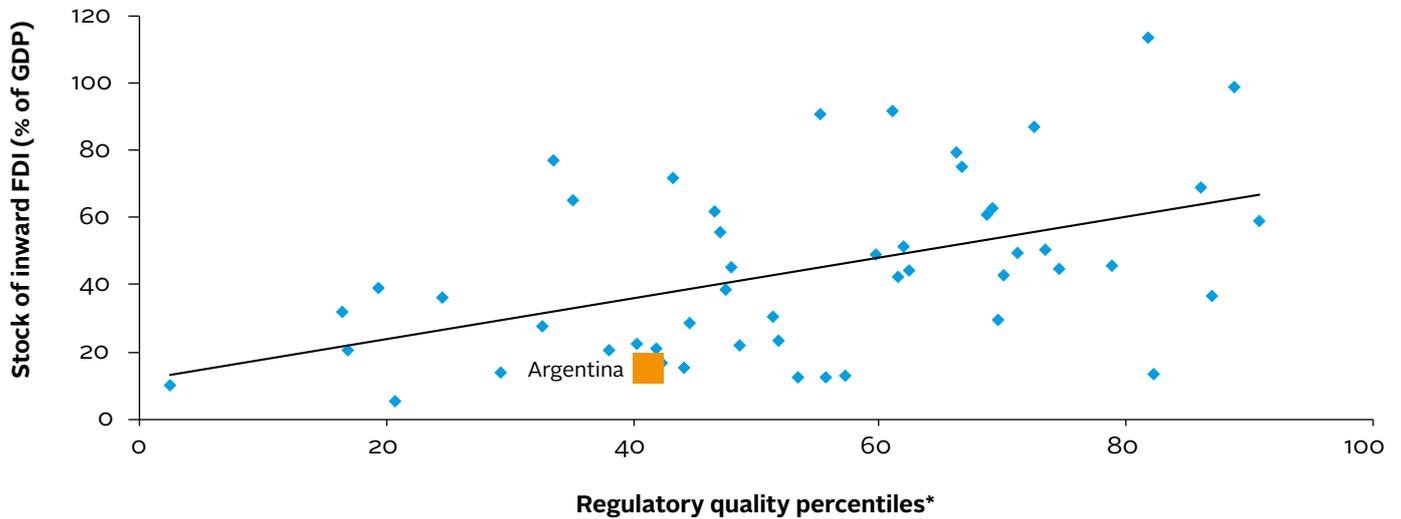
* A rising/falling score indicates improving/worsening governance performance

However, short-term improvements in its politics and governance have not insulated Argentina from fiscal instability, as existing governance concerns mean that external vulnerabilities have persisted. While newly-elected President Mauricio Macri was able to implement some reforms, including a strong track record in fighting corruption, an assessment of ESG factors shows that weaknesses remained.

In terms of institutional strength, the size, culture and inefficiency of Argentina’s public sector causes significant inertia in the implementation of reforms and regulations. The independence of judges and prosecutors remains a source of concerns among investors. Plans to merge or axe several government ministries and slash bureaucracy have been widely welcomed but more significant structural reforms to the taxation system are still necessary, especially for the success of a new export tax regime. Another area that needs reform is regulatory effectiveness and quality, which is one of the main reasons for Argentina’s low foreign direct investment (see Figure 13).

65 See <http://fragilestatesindex.org/country-data/>.

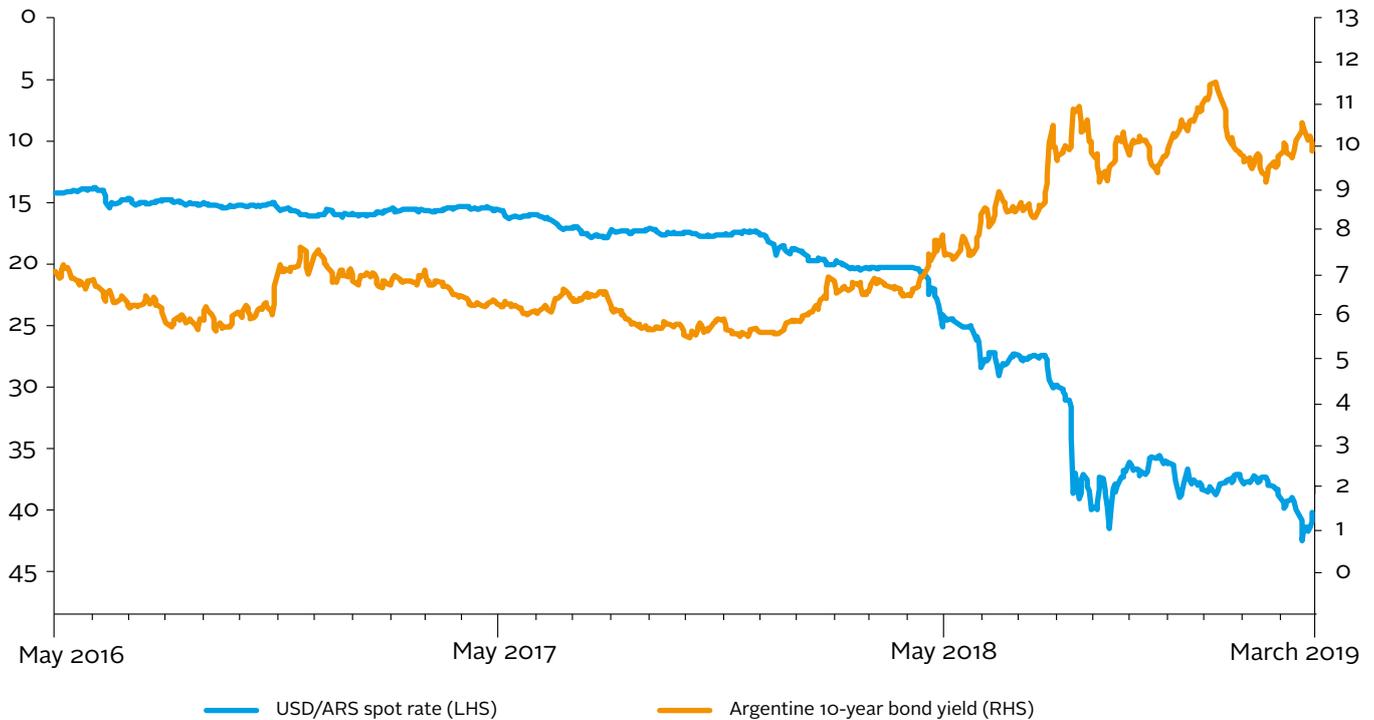
Figure 13. Argentina's relationship between FDI and regulatory quality, 2017. Sources: IMF Coordinated Direct Investment Survey, IMF World Economic Outlook, World Bank Worldwide Governance Indicators



*Percentile rank among all countries (ranges from 0 [lowest] to 100 [highest])

These governance vulnerabilities started to materialise when the historical fiscal deficit financing approach switched under President Macri from money printing and domestic bank financing to external capital market financing, which increased capital inflows that put upward pressure on the peso. This, coupled with a number of other factors (increased external funding needs for rising fiscal and current deficits; higher funding costs via interest rate increases by the US Federal Reserve; the worst drought for years further denting the trade balance; and the central bank changing its inflation target at the end of 2017, provoking investors to question the institution's independence and policy commitment), turned market sentiment.

As a result, investors began reducing their Argentinian holdings, weakening the peso. With a large amount of debt denominated in dollars, a depreciating peso increased Argentina's foreign debt liability. In an effort to boost confidence and shore up its foreign reserves, the central bank increased rates to 40% by May 2018. In June 2018, the Argentinian government and IMF agreed to a three-year stand-by agreement to the amount of US\$50 billion. Unexpectedly, the government asked for an early release of the financial aid in August, which increased to US\$57 billion. The peso lost 50% of its value by the summer of 2018. It also triggered a rise in the Argentina 10-year government bond yield, which went from a low of 5.5% to a high of 11.5% by the end of 2018 (see Figure 14).

Figure 14. Argentine peso and 10-year government bond yield, May 2016-Mar 2019. Source: Bloomberg

* The yields are based on closing market prices of USD denominated senior unsecured fixed rate 10-year bonds issued by the Argentine Republic

Social factors

Unlike in 2001, when IMF bailouts triggered severe social instability, there has been an improvement in social cohesion and living standards in Argentina.⁶⁶ The terms of the IMF credit line included an acceleration of economic plans to reduce the fiscal deficit and the strengthening of central bank independence. To prevent a renewal of resentment towards the involvement of the IMF, the economic plans were also designed to minimise the impact on gender inequality and to increase spending on social programmes relative to GDP.⁶⁷ As a result, public opposition to the programme has not reached the level of hostility and violence seen during the economic crisis in 2001.

Environmental factors

One of the key pressures on the Argentinian government's position was the severe drought in 2017-18, which led to a sharp decline in agricultural production and thus export revenue (see Figure 15). In addition, energy prices increased and global financial conditions tightened through an appreciation of the US dollar and a rise in US interest rates,⁶⁸ resulting in domestic interest rate increases,⁶⁹ cost of borrowing volatility and the subsequent IMF bailout.

The weather's negative impact on soybean and corn yields was particularly important for Argentina as the agricultural sector accounts for about half of its foreign exports. Lower soybean and corn production resulted in a weakening trade balance during 2017 and 2018,⁷⁰ partially contributing to the fiscal crisis.

Furthermore, the country's position as an importer of petroleum products poses challenges in its transition to a low-carbon economy.

66 See [Fragile States Index Cohesion and Economic Indicator Trends](#).

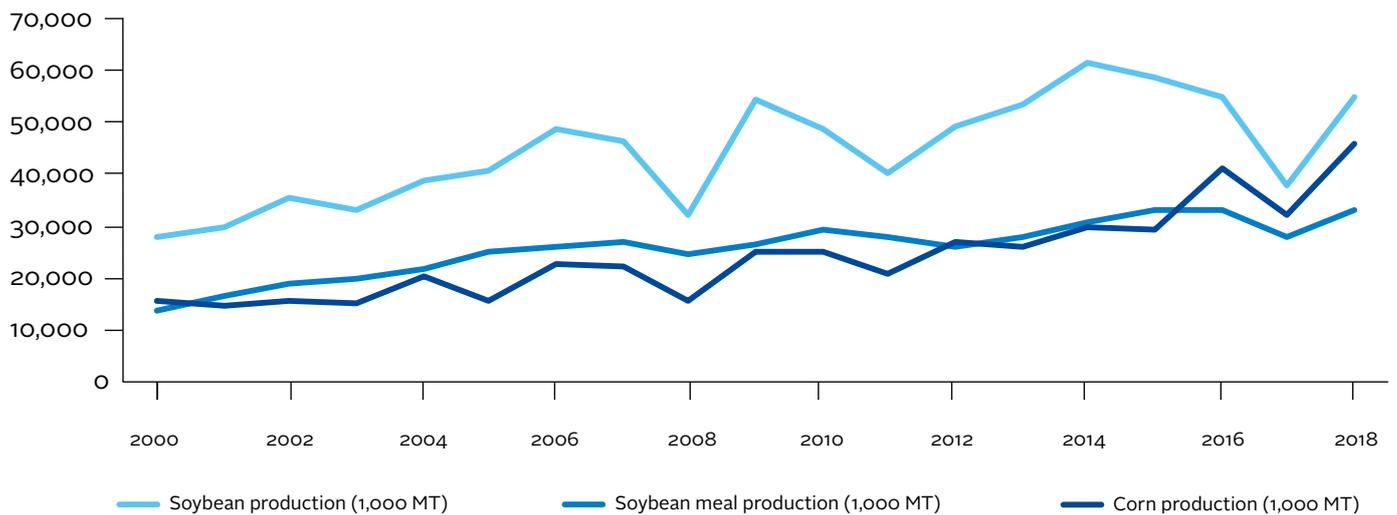
67 [IMF Executive Board approves US\\$50 billion stand-by arrangement for Argentina](#), IMF press release, 20 June 2018.

68 Ibid.

69 [Argentina stuns markets as it pushes interest rates to 40%](#), Cat Rutter Pooley, Adam Samson and Roger Blitz, Financial Times, 4 May 2018.

70 See <https://tradingeconomics.com/argentina/balance-of-trade>.

Figure 15. Argentina's annual soybean and corn production , 2000-2018. Source: IndexMundi⁷¹



In summary

Trends in governance, economic inequality and living standards show improvements and a better structured bailout may have resulted in greater resilience to the recent fiscal crisis. Nevertheless, Argentina's weak business environment has limited foreign companies' willingness to invest in the country, and investors are concerned by possible political instability before and after the general elections in 2019 that could derail positive governance trends.

Moreover, with its dependence on agricultural exports, Argentina is particularly exposed to climate volatility. The poor harvest in 2018 undermined President Macri's reforms and contributed to low confidence in the market, further exacerbating the trade balance vulnerability predominantly caused over the longer-term by weaker governance factors.

Looking forward, as well as governance and political risks, for which investors have traditionally required a risk premium, investors should also monitor and model the impact of climate change on the Argentinian economy and society and on the country's bond valuations.

FRANCE⁷²

Unlike Argentina, France has a history of good governance, lower political risks and, until recently, better fiscal discipline. However, in the last few years, France has been going through a period of structural reforms. This was against the backdrop of social changes and has resulted in upheaval. The social unrest in France triggered by fuel duty changes in 2018 shows how ESG factors can interact, impacting government policy and spending plans.

Governance factors

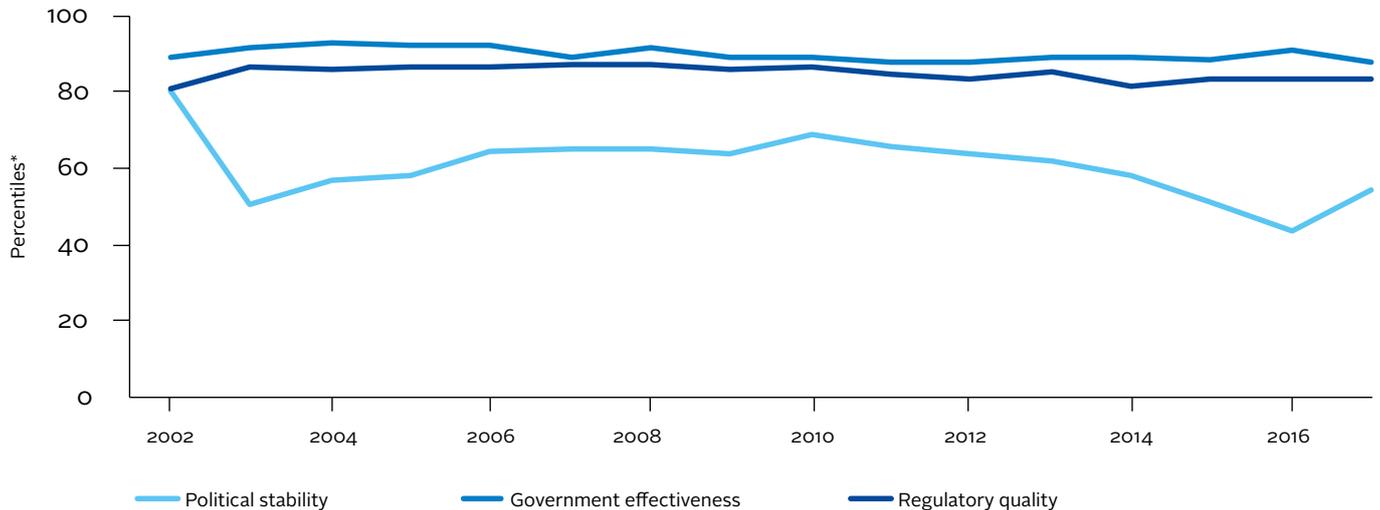
The election of President Emmanuel Macron in 2017 took place against a backdrop of high youth unemployment and high public spending of about 56% of GDP. Mr Macron's campaign promised ambitious pro-business reforms that were intended to generate economic growth, reduce unemployment and increase investor confidence in the French economy, with potentially positive implications for debt sustainability and fiscal policy. These reforms focused on tax, bureaucracy and competition in industries, including sectors such as transport.

While President Macron has been able to rely on an effective and independent judiciary system with well-defined property rights, the effectiveness of France's regulatory institutions is up for debate.

⁷¹ Index Mundi, [Argentina Corn Production by Year](#).

⁷² Written on 1 March 2019 based on discussions among PRI's Sovereign Working Group.

Figure 16. Political stability, government effectiveness and regulatory quality trends, 2002-2016. Source: World Bank Worldwide Governance Indicators⁷³



* Percentile rank among all countries (ranges from 0 [lowest] to 100 [highest])

Although the regulatory quality indicator tracked by the World Bank's Worldwide Governance Indicators is persistently high (see Figure 16), France is considered to have developed overly detailed rules and procedures and given little consideration to the compliance costs imposed on business. In addition, it has shown weaknesses around quality control oversight throughout the regulatory development cycle. The government is trying to implement a more simplified approach to regulation, with the aim of reducing costs and regulations for businesses and thus improving the competitiveness of the private sector, to spur innovation and lower unemployment.

Social factors

The real test for the government and its institutions will be the implementation of the next round of reforms, including reforms of the pension and healthcare system, which are less popular.⁷⁴ Their success will hinge on public opinion regarding President Macron and his coalition government. Historically, reforms have been difficult to execute in France and have faced considerable public resistance, including social unrest. Previous French presidents, such as Jacques Chirac and François Hollande, faced strong popular opposition to their attempts to introduce structural changes and subsequently retreated from some of their proposals.

Moreover, some of Macron's earlier reforms, including increasing taxes on diesel, triggered protests by the so-called *gilets jaunes* (yellow vests). However, in contrast to the past, the developments have been against the backdrop of rapidly deteriorating social cohesion and economic inequality (see Figure 17), as well as high unemployment, especially among young people.⁷⁵ It is also noteworthy that they were triggered by measures intended, in part, to accelerate the transition towards a low-carbon economy.

These protests eventually resulted in expansionary fiscal measures on salaries and pensions. The EU commission forecasts that these measures will add 0.4% of GDP to an already rising general government budget deficit, bringing it again above 3% of GDP, after two years of shrinkage.⁷⁶ Moreover, they will hamper efforts to reduce the national debt, which stood at 98.4% of GDP in 2018, above the 60% ceiling required by the EU Stability and Growth Pact. So, while the government's political response quelled some of the social unrest, it negatively affected public finances.⁷⁷

⁷³ See <https://info.worldbank.org/governance/wgi/#home>.

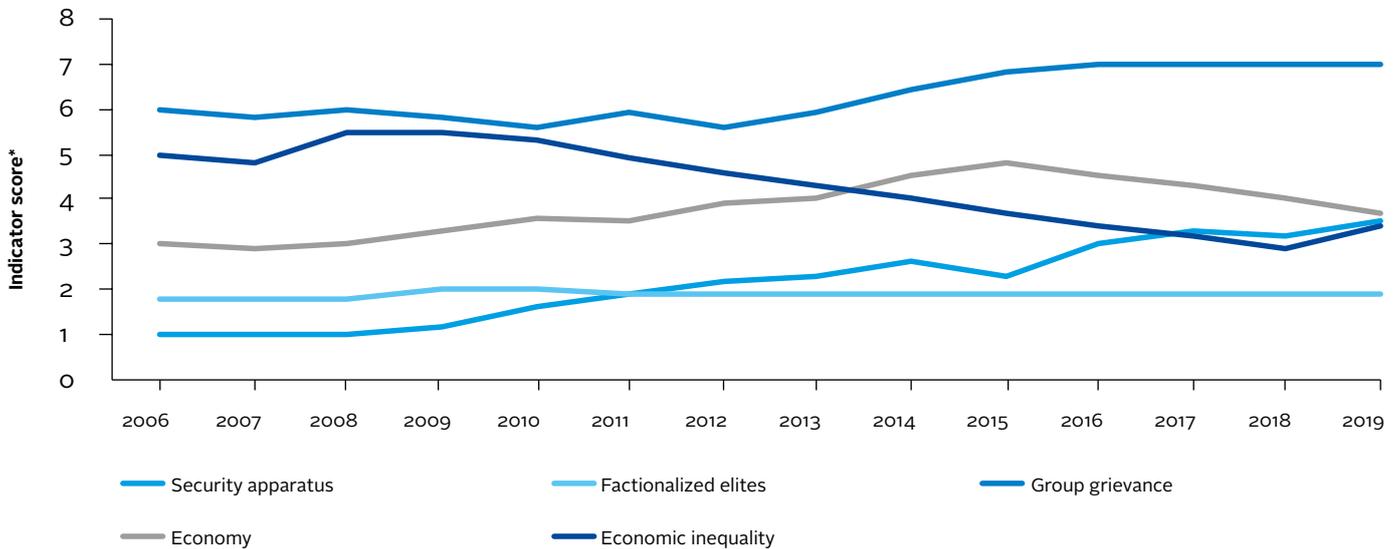
⁷⁴ [Macron Tackles French Pension System That Broke Other Presidents](#), Gregory Viscusi and Helene Fouquet, Bloomberg, 12 June 2019.

⁷⁵ See Fragile States Index Cohesion and Economic Indicator Trends, available at: <https://fragilestatesindex.org/country-data/>.

⁷⁶ [European Commission, \(2019\). Spring 2019 Economic Forecast – France.](#)

⁷⁷ [Macron's ratings fall further after month of gilets jaunes protests](#), Agence France-Presse, published in The Guardian, 16 December 2018.

Figure 17. France's cohesion and economic indicator trends, 2006-2019. Source: Fund for Peace Fragile States Index⁷⁸



* A rising/falling score indicates improving/worsening governance performance

Environmental factors

Despite the protests, the government has kept the fuel levies in place, demonstrating its commitment to meeting its greenhouse gas emissions targets in line with the Paris Climate Agreement. However, additional challenges lie ahead.

The energy mix remains an important consideration for the French government. In 2016, over 71% of electricity was generated by nuclear power,⁷⁹ posing supply chain risks (France imports all its nuclear fuel from abroad) and safety concerns (€100 billion of investment will be required by 2030 to meet new safety standards). Even after extending the lifespan of its nuclear plants from 40 to 60 years, 75% of its existing nuclear generating capacity is due to retire by 2050. There is a clear need to rebalance the electricity generation mix to ensure that it is not overly reliant on one energy source. Furthermore, changes to the energy strategy should be less frequent, as several measures have been overturned by successive governments in the last few years. This will also reduce the risk of disruption to industry, businesses and households caused by an ageing nuclear fleet. Meanwhile, the government has also increased its renewable energy target from 30% to 40% by 2030 and offered €30 billion worth of state subsidies to offshore wind and solar projects.⁸⁰

In summary

ESG factors have real implications for balance of payments, fiscal policy and potentially investor appetite for French sovereign bonds, once the compressive effect on government bond yields from monetary policy quantitative easing wanes. The interplay of ESG factors is illustrated by the current political and economic environment in the country where, for example, the government response to the fuel duty protests raised questions over fiscal policy.

Broadly, ESG factors relevant for French sovereign debt include political stability, energy policy, climate policy and social commitments. Monitoring labour market trends, including the youth unemployment rate and the impact of youth training programmes, the pace of the transition towards a low-carbon economy and how the country addresses its ageing fleet of nuclear power stations will be important for investors to gauge how well the French government is maintaining a difficult balance between social cohesion, structural reforms and fiscal discipline.

This balancing act will be complicated by another important social challenge, which France faces in common with most developed nations: the ageing of its population. France has a high dependency ratio, with implications for tax revenues, public pension deficits and healthcare costs, and which creates headwinds to economic growth. This backdrop will make the next phase of structural reforms even more difficult to manage, adding to rising French political risks.

⁷⁸ Ibid.

⁷⁹ IAEA, [Country Nuclear Power Profiles: France](#) (updated 2018).

⁸⁰ [France grapples with its nuclear power dilemma](#), Ben Hall, Financial Times, 28 November 2018.

INTEGRATING ESG FACTORS

This section describes techniques used by investors to integrate ESG at the research, security and portfolio levels.

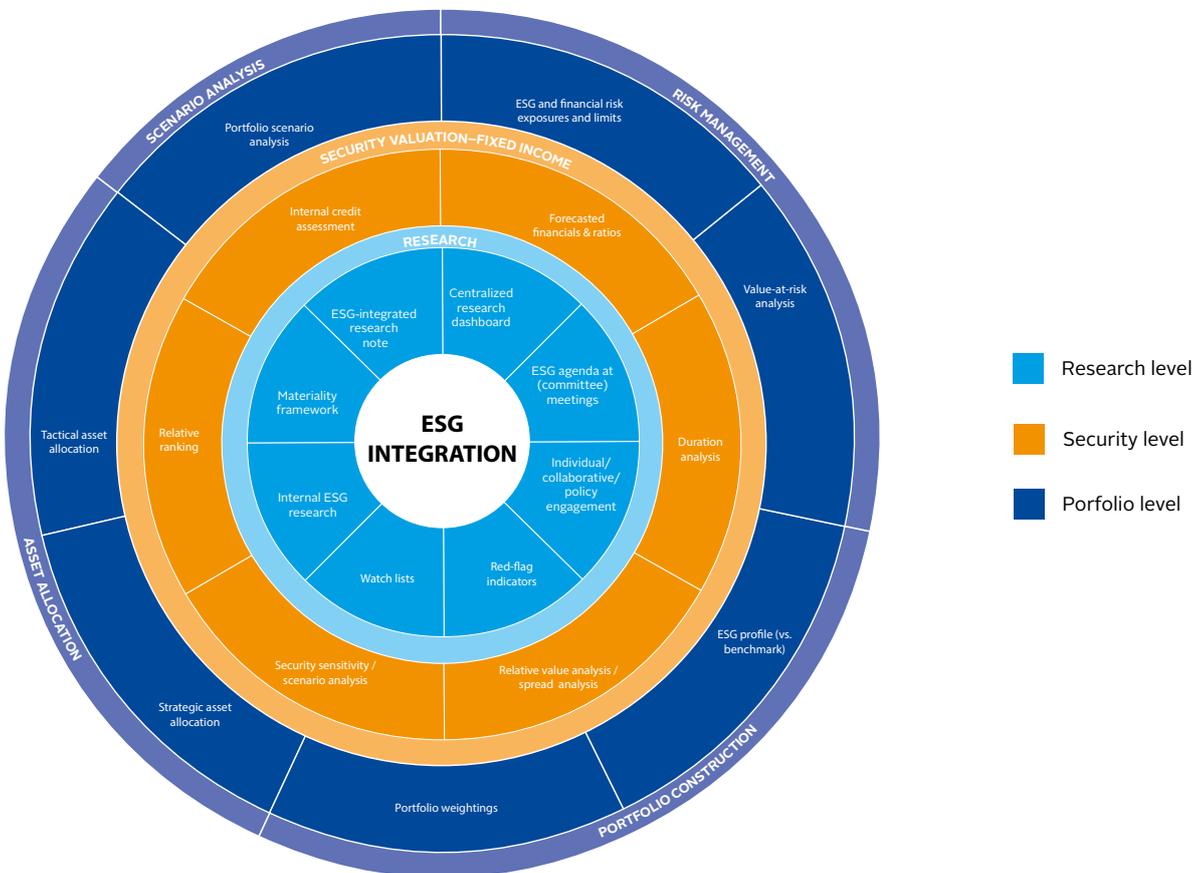
- This section is structured around the CFAI-PRI ESG Integration framework to consider how investors might integrate ESG factors into their sovereign debt investments.
- A wide variety of techniques are being applied by sovereign debt managers to integrate ESG factors in investment research, security valuation and portfolio construction.
- Some ESG integration techniques are relatively widely established, typically involving the incorporation of ESG data into existing processes and approaches. Others are emerging, such as ESG engagement and security- and portfolio-level climate scenario analysis.

The ESG Integration Framework,⁸¹ originally developed by the CFA Institute and the PRI, outlines a wide range of ESG integration techniques used by practitioners to systematically integrate ESG factors at three levels:

- The investment research level (the inner circle);
- The security valuation level (the middle circle); and
- The portfolio level (the outer circle).

The ESG Integration Framework does not provide a one-size-fits-all solution, but rather a reference point for investors as they develop ESG-integrated investment processes. It allows practitioners to consider ESG integration techniques applied by their peers and identify those techniques that are suitable for their own firm. As these processes are connected, integration techniques can be applied separately, sequentially or in combination (see Figure 18).

Figure 18. The ESG Integration Framework, adapted to the sovereign debt investment process. Source: CFA Institute and PRI



81 Op.cit. in footnote 1.

THE INNER CIRCLE: INVESTMENT RESEARCH LEVEL

The inner circle of the ESG Integration Framework covers investment research – the starting point of the ESG integration process. The techniques the PRI Sovereign Working Group and the CFAI-PRI study deemed to be most applicable by sovereign investors in this segment include undertaking in-house country-level ESG research and developing materiality frameworks. This process can result in red-flag indicators, watch lists and centralised research dashboards that are easily accessible across teams. Such research is also useful to establish whether engagement with issuers is necessary and, if so, which form (individual or collaborative) it should take.

The starting point for internal ESG research is in-depth, bottom-up country analysis based on macroeconomic and ESG data deemed likely to influence security valuations. The spectrum of ESG data available is broader than in the past and extends beyond national statistics. It can be sourced from reputable international institutions such as the World Bank free of charge, from third-party data providers or generated through internal primary research.

Analysis of macroeconomic and ESG data may be outsourced or undertaken internally by specialist teams, credit analysts or portfolio managers. Practitioners ask two key questions in this analytical process:

- Materiality – Which ESG factors are most likely to affect the overall economic and financial performance of sovereign issuers, their ability to meet their debt obligations and therefore the market valuations of their bonds?
- Trajectory – Which ESG factors are changing, at what rate and how does this impact valuations?

CHARACTERISTICS OF SOVEREIGN ESG DATA

Macroeconomic data is generally compiled and published by national statistical offices and released at regular intervals. In the context of sovereign debt analysis, much ESG data can be considered as a subset of macroeconomic data.

However, new indicators that have emerged in recent years can complement ESG analysis, with comparable, valuable data and additional insight. Some are from established sources, such as the World Bank Worldwide Governance Indicators or the competitiveness indicators produced by the World Economic Forum. Others are less traditional and are compiled by ESG vendors, using proprietary methodologies.

As with any collection of data sets, ESG indicators are accompanied by a range of issues. They may be qualitative in nature, sometimes incomplete and be subject to methodological changes or revisions to historic time series. Although these issues are not unique to ESG data,⁸² our surveys and discussions highlight that some data sets, whilst potentially useful, have limited application for now.

Macroeconomic and ESG indicators can be collated and released on a monthly, quarterly or annual basis. To add value to these backward-looking indicators, sovereign bond analysts or other commentators will often undertake a degree of extrapolation to produce forecasts. Various research and financial institutions publish forecasts of various economic indicators: for example, the OECD, the IMF and the EU Commission forecast labour, balance of payments and fiscal indicators. However, there are currently fewer forecasts of less traditional ESG indicators.

⁸² For example, the PMI® is compiled and released monthly by the Institute for Supply Management. It is based on a survey of more than 400 companies in 19 primary industries, weighted by their contribution to GDP.

Where investors have attempted to identify material ESG issues, it is common practice to build materiality frameworks to ensure that all key ESG risks and opportunities are systematically considered before making an investment decision. Because industry-wide materiality frameworks for sovereign issuers do not currently exist, investors must develop ESG materiality frameworks from scratch or use those of third-party providers.

FI investors are well-versed in analysing changes in the trajectory of macroeconomic data to aid forecasts. With ESG issues, to help with identifying material issues and the trajectory of change, they sometimes complement internal analysis with external, paid-for research. External providers include credit rating agencies, specialised ESG research providers, sell-side analysts and political risk consultants. This group often base their analysis on freely available issuer-reported data and ESG indicators compiled by international institutions.

In its simplest form, a materiality framework can be a list of potentially material ESG factors that need to be reviewed, monitored, sometimes formally scored and compared with the analysis of the financial strength of the issuer. Some investors or external ESG providers score ESG pillars separately and/or aggregate an overall ESG score or rating. The individual and aggregated scores can also be combined with macroeconomic and financial indicators to influence the qualitative or quantitative analysis of the sovereign's current public accounts and forecasted trajectory. For example, in their materiality framework an investor may give governance factors the highest weighting, based on statistical analysis and comparisons with sovereign risk ratings and credit default swaps (CDS). Other criteria could include ESG data such as environmental health, climate risk, human rights, corruption and political risk, as well as non-traditional issues such as investment in innovation, labour market unrest and policy regarding ageing.

ESG-integrated research and analysis can be presented to portfolio managers through centralised research dashboards and ESG-integrated credit research notes, where sovereign credit analysts provide comments about their ESG views as part of published research. Whenever research analysts publish notes with updated investment recommendations, they may also review any material changes in ESG factors. For example, one approach to systematically incorporating ESG risks in fundamental credit research and analysis could be based on two internally generated ESG metrics which portfolio managers are required to take into account when constructing their portfolios: an issuer-level fundamental ESG rating, co-owned by the credit analyst and ESG team, and a security-level investment ESG score, owned by the credit analyst.

ESG research, analysis and scores can also be used as red-flag indicators that highlight sovereigns with poor or deteriorating ESG scores.

ENGAGEMENT IN SOVEREIGN DEBT ANALYSIS

Engagement with sovereign issuers has a different purpose to engagement with corporate issuers. Practitioners find that sovereigns generally attempt to create and maintain healthy long-term relationships with their bond investors through a process of engagement and communication. However, compared with corporations issuing debt or selling equity, sovereigns have a different relationship with institutional investors. The sovereign has clear responsibilities to its citizens, meaning investors in its debt have less legitimacy when it comes to attempting to influence national governments on ESG or other matters, compared with their rights as corporate equity or debt investors. Common practice seems to be that engagement with corporate issuers or listed equities can be conducted to influence policies and strategies, while engagement with sovereigns aims more at fact-finding and information enhancement.

In practical terms, there are fewer direct channels for such engagement, and it is more challenging to identify appropriate mechanisms. Engagement with representatives of sovereign issuers, or with other relevant stakeholders, can be an important part of the research process, enabling a better understanding of quantitative macroeconomic data and other ESG data, such as measures of regulatory quality. It may also provide a better understanding of topics or in countries where standard economic data is difficult to collate. For example, an investor may engage with sovereign representatives during their sovereign credit analysis to discuss policies and data which are insufficiently explained, or which suffer from poor disclosure.

In general, the engagement process might involve meeting government officials, trade unions, employers' associations, media representatives and supranational entities such as the IMF, the World Bank or the OECD. Topics covered during engagement with government officials vary, but they frequently include macroeconomic issues and fiscal policy. ESG-specific issues are often not areas of direct competence for the ministries of finance and central banks which are the most common point of contact for sovereign debt investors.

ESG issues potentially discussed with sovereign issuers include energy policy, infrastructure investment, social policy and climate resilience. According to some practitioners, the SDGs represent a potentially effective framework for assessing sovereigns' ESG performance.

Despite these challenges, the process of engagement on ESG issues is developing and becoming formalised. For example in April 2019, the World Bank Treasury, in collaboration with the Japanese Government Pension Investment Fund (GPIF) and Dutch pension fund asset manager APG, convened a first-ever roundtable on ESG issues with institutional investors and a small number of sovereigns.⁸³ The sovereign issuers presented the progress made on their governments' commitments on the SDGs and the Paris climate Agreement. These presentations aimed to promote open and productive dialogue between institutional investors and sovereign bond issuers. Key findings from the roundtable included that:

- Investors are actively including ESG data in their internal due diligence and credit analysis, but only recently has this been formalised and made explicit. A key driver for this seems to be investors identifying a strong link between an issuer's ESG performance and the consistency of financial returns for its bonds;
- Participating investors said they prefer engagement with sovereigns over exclusion, and do not follow prescribed checklists for assessing sovereign issuers. Investors valued this process of engagement as key to building trust; and
- Some sovereigns had used this engagement process as a basis to develop green bond issuance.

Government roadshows organised by debt management offices to launch bond issues such as green bonds are also a useful setting for dialogue. Admittedly, sovereign engagement can be more challenging for investors in emerging markets, but, even here, collaborative platforms such as the Emerging Markets Investors Alliance can offer a channel to advocate sound governance.⁸⁴

The following case studies outline examples of how various asset managers have integrated ESG factors at the research level.

⁸³ [Promoting Dialogue between Sovereign Issuers and Investors on ESG Risks and Opportunities](#), World Bank briefing note.

⁸⁴ PRI (2019). [ESG credit risk and ratings – from disconnects to action areas](#).

CASE STUDY: ESG INTEGRATION

Authors | Rikkert Scholten, Robeco and Max Schieler, RobecoSAM

Operating region	Total AUM	Sovereign debt AUM
Global	€162 billion ⁸⁵	€13 billion ⁸⁶

ESG INTEGRATION TECHNIQUES:		
RESEARCH LEVEL	SECURITY LEVEL	PORTFOLIO LEVEL
<ul style="list-style-type: none"> ✓ Internal ESG research ✓ Materiality framework 	<ul style="list-style-type: none"> ✓ Internal credit assessment 	<ul style="list-style-type: none"> ✓ Portfolio construction

ESG criteria are factored into our investment process via the RobecoSAM Country Sustainability Ranking framework. It evaluates 65 countries – including 43 emerging markets – on ESG factors that we consider as having an impact on a country’s sustainability profile and, ultimately, its creditworthiness. Our approach is primarily aimed at complementing more traditional country/sovereign risk analysis when managing government bond portfolios. We believe that ESG assessments provide additional insight and a more holistic view of a country.

Figure 19 shows the overall structure of the Country Sustainability Ranking framework and the criteria used to analyse a country’s ESG profile. The focus on sovereign bonds has impacted the selection of indicators, as well as the weighting of the three ESG dimensions, with governance the most relevant pillar based on statistical analysis and comparisons with sovereign risk ratings and CDS spreads. The criteria include ESG data that one would likely expect, such as environmental health, climate risk, human rights, corruption and political risk, as well as non-traditional issues such as investment in innovation, labour market unrest and policy towards ageing populations.

The case of Turkey shows how the country’s governance performance and institutional setting have been adversely affected by disruptive politics and President Erdoğan’s reaction following a failed coup in July 2016. The clampdown in state institutions is clearly visible in important areas such as civil rights, democracy, press freedom and rule of law.

The decline in Turkey’s ESG profile in recent years has not only been a considerable driver of ongoing economic problems but has also changed our attitude towards investing in the country. Indeed, we reduced investments in the Turkish lira on several occasions in 2016 and 2017 – well before the current economic and currency crisis peaked.

85 As of 31 December 2018.

86 Ibid.

Figure 19. RobecoSAM country sustainability ranking tool. Source: RobecoSAM

Sub-indicator level	Indicator level	Dimension level	Country Sustainability Score
For each country, various data series on a number of sustainability sub-indicators are collected, totaling over 250 data series. These sub-indicators cover the following areas:	For each indicator, relative scores ranging from 1 to 10 are calculated. Each indicator is also assigned a predefined weight.	Each dimension weight is the sum of the indicator weights within the respective dimension.	The country score is the weighted sum of standardised indicator scores.
Environmental health <ul style="list-style-type: none"> Energy use Exposure to environmental risks Ecosystem vitality Energy sources Climate risk Environmental status (10%)* Energy (2.5%) Environmental risk (2.5%) 	<ul style="list-style-type: none"> Environmental status (10%)* Energy (2.5%) Environmental risk (2.5%) 	Environmental (15%)	Country Sustainability Score
Basic human needs <ul style="list-style-type: none"> Education Confidence in government Gender inequality Life expectancy Local job market 	<ul style="list-style-type: none"> Social indicators (10%) Human development (10%) Social unrest (5%) 	Social (25%)	
Political rights <ul style="list-style-type: none"> Human capital and innovation Internal risks and inefficiencies Management of public goods Protection of property rights Democratic participation Corruption level Terrorism and political crimes Competition / liberalisation Demographic profile Monetary policy independence Civil liberties Physical capital External conflicts Policy responses Judicial system Civil society Transparency / policies Government stability Business regulations Age-related costs Other institutions 	<ul style="list-style-type: none"> Rights & liberties (10%) Competitiveness (10%) Political risk (10%) Effectiveness (2.5%) Rule of law (2.5%) Accountability (2.5%) Corruption (2.5%) Stability (2.5%) Regulatory quality (2.5%) Ageing (10%) Institutions (5%) 	Governance (60%)	

*Predefined indicator weight

CASE STUDY: ESG INTEGRATION

Authors | My-Linh Ngo and Lucy Byrne, BlueBay Asset Management LLP

Operating region	Total AUM	Sovereign debt AUM
Global	US\$60.1 billion ⁸⁷	approx. US\$22.2 billion ⁸⁸

ESG INTEGRATION TECHNIQUES:		
RESEARCH LEVEL	SECURITY LEVEL	PORTFOLIO LEVEL
<ul style="list-style-type: none"> ✓ Internal ESG research ✓ Materiality framework ✓ Engagement 	<ul style="list-style-type: none"> ✓ Internal credit assessment 	<ul style="list-style-type: none"> ✓ Portfolio construction

In 2018, BlueBay implemented a formal process to systematically incorporate ESG risks into fundamental credit analysis across public debt investments. The framework produces two proprietary ESG metrics:

- A Fundamental ESG Rating, which indicates BlueBay’s view of how well material ESG risks are managed. This rating is co-owned by the credit analyst and ESG team, and there can only be one rating per issuer across BlueBay.
- An Investment ESG Score, which reflects a view on the investment relevance of the ESG risk factors, and which is owned by the credit analyst. As it is at the security/instrument level and is decision-based (i.e. long or short trade), there may be multiple scores for a single issuer across BlueBay.

Ultimately, this process enables BlueBay’s credit and ESG analysts to express their ESG views on an issuer. Portfolio managers are required to take account of these views (alongside conventional financial factors) when constructing their portfolios and making investment decisions.

The sovereign evaluation template has five components:

- Part 1 captures insights from external ESG assessments. This provides a starting point from which to build an in-house view but does not dictate what that view should be.
- Part 2 is a systematic evaluation of the sovereign, based on set topics within each environmental, social and governance/political pillar. This seeks to assess the risk exposure and quality of the sovereign’s mitigation/adaptation response.
- Part 3 aims to provide a perspective on how well the sovereign is managing environmental, social and governance/political factors relative to its economic peer group.
- Part 4 documents the conclusions reached by both credit and ESG analysts in terms of the Fundamental ESG Rating and the Investment ESG Score (see Figure 20 and Table 7).
- Part 5 notes potential engagement points with sovereigns and enables the documentation of any that have occurred.

87 As of 31 March 2019.

88 Ibid.

Figure 20. Summary of the issuer ESG evaluation outputs. Source: BlueBay Asset Management LLP, as of February 2019

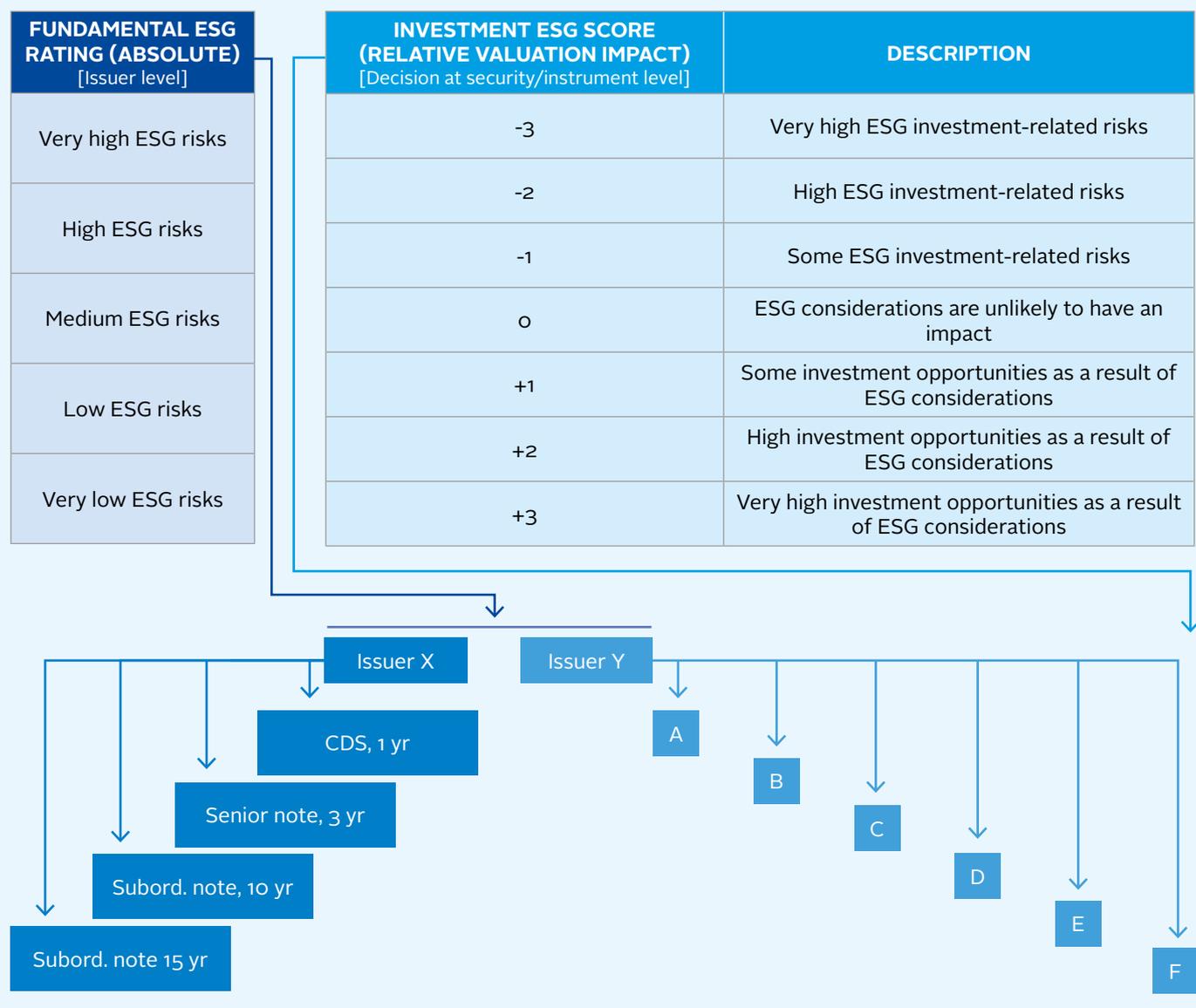


Table 7. Example output. Source: BlueBay Asset Management LLP, as of February 2019

	Fundamental ESG Risk Rating	Indicative Investment ESG Score
Argentina	Medium	+1 (some investment opportunities as a result of ESG considerations)
France	Low	0 (ESG considerations are unlikely to have an impact)

CASE STUDY: ESG INTEGRATION

Authors | Kristin Ceva, CFA and Vlad Milev, Payden & Rygel Investment Management

Operating region	Total AUM	Sovereign debt AUM
Global	US\$114.2 billion ⁸⁹	US\$50.9 billion ⁹⁰

ESG INTEGRATION TECHNIQUES:		
RESEARCH LEVEL	SECURITY LEVEL	PORTFOLIO LEVEL
✓ Internal ESG research ✓ Engagement		

During sovereign credit analysis, we regularly evaluate policies and data which are insufficiently explained or suffer from poor disclosure. As a result, we engage with sovereign representatives during: 1) roadshow meetings or conference calls; 2) country research trips; and 3) meetings with international financial institutions (International Monetary Fund, World Bank, etc.).

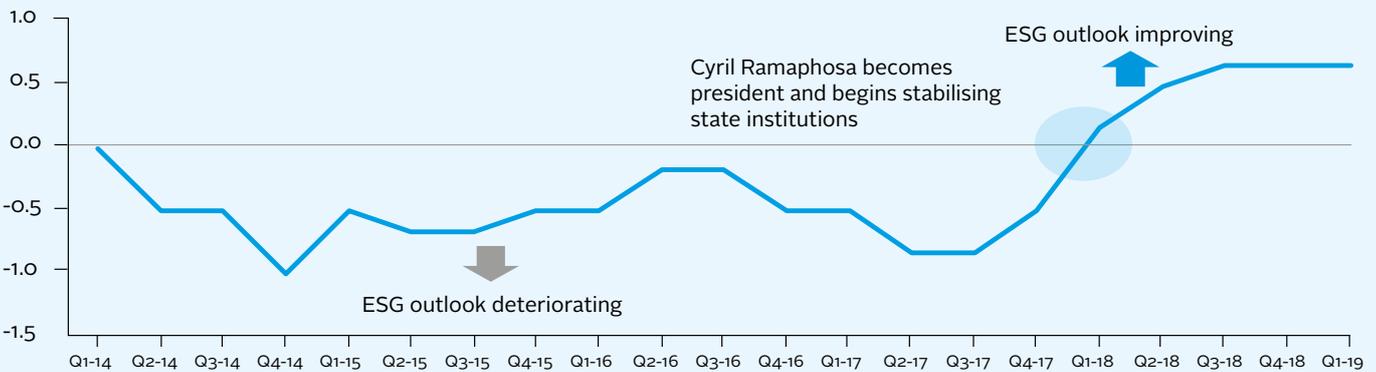
Engaging with issuers on ESG allows us to enhance our understanding of sovereign fundamentals, as we see direct links between ESG factors, economic outcomes and investment results. We integrate engagement in our investment process by seeking more robust disclosure of ESG-related indicators, and by encouraging issuers to address matters that might be material to bond prices.

Specifically, we seek clarity on the future direction of public policy in key ESG areas such as institutional transparency, judicial integrity, access to and quality of education and healthcare, employment, the social safety net and environmental management, among others. Regular dialogue with issuers not only helps us build a forward-looking view of the sovereign ESG trajectory, but it also provides issuers with feedback regarding material ESG risks on our radar (see Figure 21).

For example, on a recent research trip to South Africa, we encouraged ongoing efforts to root out corruption, boost the institutional integrity of key ministries and increase transparency at state-owned companies. Meetings with finance ministry officials revealed that the South African Revenue Service had been mismanaged under the previous government's administration, and we supported the new administration's efforts to replace the agency's leadership with a view to strengthening tax compliance.

Similarly, in a meeting with the new management team of a key state-owned utility, we learned that several executives linked to corruption had been removed. We discussed how governance needed to improve at the procurement level, as many contracts signed by prior management had been poorly executed and ran significantly over budget. We also encouraged the utility to resume its programme of integrating independent renewable power suppliers into the grid to help move away from the heavy use of coal-generated power. We noted that corruption investigations are progressing, and that the governance of state-owned companies had started to improve. However, the issue of whether to pursue corrupt officials criminally will be highly politicised as many remain members of the ruling party.

Figure 21. South Africa: Forward-looking ESG assessment. Source: Payden & Rygel



89 As of 31 March 2019.
90 Ibid.

THE MIDDLE CIRCLE: SECURITY LEVEL

The middle circle of the ESG Integration Framework covers the valuation of securities. Relevant techniques in this section include carrying out ESG-integrated credit analysis, including internal credit assessments and relative rankings, as well as relative value and spread analysis. Some investors also adjust forecasted financials and ratios based on ESG analysis. Sensitivity and scenario analyses can also be useful. Using ESG analysis to manage duration/foreign exchange risk is rarely practiced.

At the issuer/security level, material ESG factors are most often used to capture risk mispricing, by adjusting internal credit assessments. For example, a sovereign issuer with a visibly solid balance sheet and attractive sovereign bond yields may have its internal government bond and currency valuation significantly adjusted downwards due to a weak ESG profile. Investors note that some of the more established ESG indicators, available through data providers and which provide internationally comparable data points, can be easily integrated into their automated quantitative models. Thus, if a country scores relatively favourably on these indicators, the quantitative model could give the issuer an uplift in the rankings, impacting investment decision-making.

For ESG factors whose financial impact on the borrower's public accounts is more readily determinable, investors may adjust a country's forecasted financials and ratios based on those factors. This is considered to improve the quality of their return estimates, in much the same way that corporate bond and equity analysts assess the quality of a company's balance sheet, assets and level of governance when forecasting its earnings potential.

An issuer's ESG bond spreads and its relative value versus those of its sector peers can be analysed to find out if all risk factors are priced in. Each country's ESG score can be compared to its sovereign credit spread to inform judgements on relative valuation. Investors can also monitor the trend of a sovereign's ESG scores to inform forecasted sovereign debt yields. For example, a deteriorating ESG score over time may be considered a signal that yields will rise. Thus, deviations of actual credit spreads versus those implied by a regression model based on an ESG score, alongside forward-looking analysis, can be used as an indication of relative valuation of sovereign credits versus their ESG score, as they can suggest that ESG factors may not yet be fully priced in.

Using a different approach to relative spread analysis, any material ESG factor may be assessed against the proportion of the bond spread not explained by its credit rating. For example, an issuer's relative spreads may be evaluated to determine whether all risk factors were priced in and to estimate the proportion of a bond spread discount attributable to environmental and governance risks.

ESG analysis can also impact the ranking of an issuer relative to a chosen peer group. A high ESG performer could be given an uplift in its relative ranking to reflect a stronger valuation relative to some of its peers. Should two countries have equal real yields, similar volatility and risk characteristics, the country with the higher ESG profile may be favoured, as it is reasonable to assume that a country with higher standards on all or some ESG factors would yield better medium- and long-term returns.

Adjustments can also be made to variables (sensitivity analysis) and different ESG scenarios (scenario analysis) applied to valuation models to compare the difference between the base-case security valuation and the ESG-integrated security valuation. Scenario analysis is commonly used in non-ESG integrated investment analysis and can also be applied to model the trajectory of ESG factors. For example, this can be used to assist practitioners in understanding the future impact of climate-related risks (increasing water scarcity, weather variability and energy transition) on the economic strength and prospects of particular sovereign issuers. Scenario analysis can provide valuable insight in appreciating the outcomes associated with different rates of temperature change, the pace of technology development and changes to future government policy, around which uncertainty exists.⁹¹

The following case studies outline examples of how various asset managers have integrated ESG factors at the security level.

⁹¹ PRI (2018). [Implementing the Task Force on Climate-Related Financial Disclosures \(TCFD\) Recommendations](#).

CASE STUDY: ESG INTEGRATION

Author | Claudia Gollmeier, CFA, Colchester Global Investors

Operating region	Total AUM	Sovereign debt AUM
Global	US\$45.41 billion ⁹²	US\$45.41 billion ⁹³

ESG INTEGRATION TECHNIQUES:		
RESEARCH LEVEL	SECURITY LEVEL	PORTFOLIO LEVEL
<ul style="list-style-type: none"> ✓ Internal ESG research ✓ Materiality framework ✓ Engagement 	<ul style="list-style-type: none"> ✓ Internal credit assessment ✓ Relative value analysis / spread analysis 	<ul style="list-style-type: none"> ✓ Portfolio construction

ESG factors are integrated holistically into our valuation framework. Countries are assigned a proprietary financial stability score (FSS) that combines an assessment of their overall balance sheet strength and ESG factors (see Figure 22). Bond and currency scores range from +4 to -4, and a country may be excluded from the investment universe if its ranking falls below -4. We penalise a country’s balance sheet for weak ESG factors. ESG and country research is undertaken by Colchester Global Investors’ investment team, which also engages with stakeholders, where possible, during country research trips.

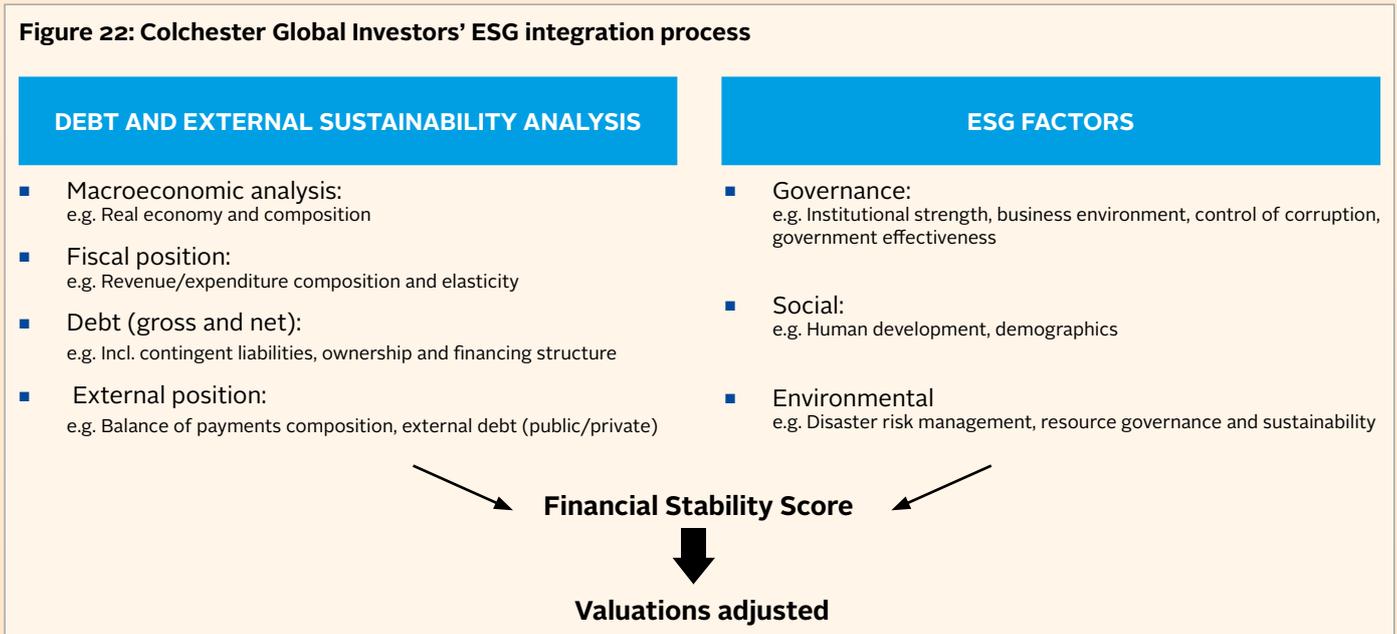
Specifically, Russia has a solid balance sheet – with low debt levels and relatively solid fiscal and external positions, combined with an attractive real yield (at the time of writing in May 2018) of its sovereign debt – which would suggest an attractive investment proposition. However, Russia’s weak

ESG factors (i.e. weak rule of law, governance and resource management, and its population’s low life expectancy)⁹⁴ led to a significant downward adjustment of the government bond and currency valuation via the FSS.

Following the assessment of real yield and real exchange valuations, the FSS is applied before the portfolio construction process. Where there are two countries with equal real yields and similar volatility and risk characteristics, the country with the higher FSS would be favoured, as it is reasonable to assume that a country with higher standards on all or some factors would yield better returns.

Colchester Global Investors believes that countries with more robust ESG standards tend to enjoy stronger economic growth, have more stable balance sheets, and better long-term and more sustainable financial outcomes.

Figure 22: Colchester Global Investors’ ESG integration process



92 As of 31 March 2019.

93 Ibid.

94 Op.cit. in footnote 1.

CASE STUDY: ESG INTEGRATION

Author | Nicolas Jaquier, Allianz Global Investors

Operating region	Total AUM	Sovereign debt AUM
Global	€505 billion ⁹⁵	€11.5 billion ⁹⁶

ESG INTEGRATION TECHNIQUES:		
RESEARCH LEVEL	RESEARCH LEVEL	PORTFOLIO LEVEL
<ul style="list-style-type: none"> ✓ Internal ESG research ✓ Materiality framework 	<ul style="list-style-type: none"> ✓ Relative value analysis / spread analysis 	<ul style="list-style-type: none"> ✓ Portfolio construction

Our proprietary ESG framework covers over 80 investable EM countries. The first step in this framework is to select the indicators that are most relevant for assessing ESG factors in emerging economies. Indicators are selected based on three main considerations:

- How well an indicator captures a certain dimension, such as the quality of education or the independence of state institutions;
- The breadth of country coverage and credibility of the source; and
- How much control the government has over implementing policies that can directly affect the indicator.

In total, 18 indicators are selected from various third-party sources. Z-scores are calculated for each indicator to show where each country stands compared to the average on that dimension. The overall ESG score is computed as a weighted average of each pillar's score.

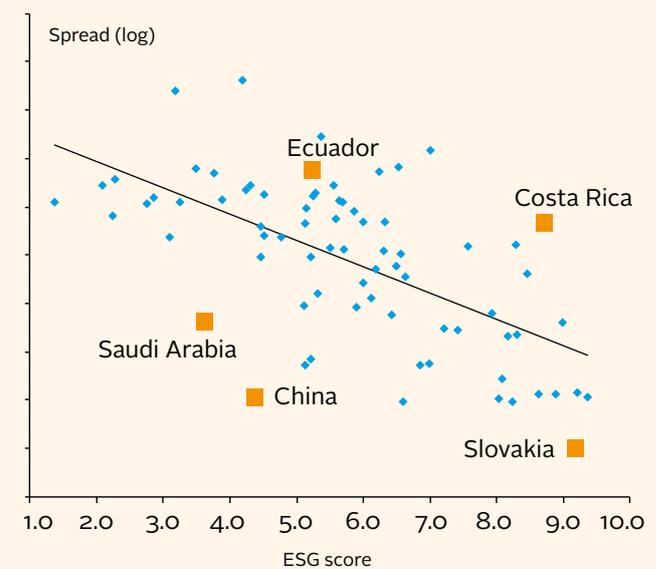
The ESG framework is an important part of the investment process for EM debt as it can help to account for differences in sovereign creditworthiness. Deterioration in a country's ESG score can be expected to be accompanied by wider credit spreads on its bonds, a result that has been confirmed by empirical research. The close link between ESG factors and credit spreads is also visible in the significant correlation between the two metrics (see Figure 23). While the relationship is naturally far from perfect, deviations of actual credit spreads against credit spreads implied by a simple bivariate regression model (based on the ESG score) are used as an indication of the possible richness or cheapness of sovereign credits relative to their ESG score.

Due to the limitations of ESG data, which are often lagging and slow moving, we complement the analysis with an assessment of whether a country is on an improving or deteriorating ESG trajectory. This is carried out as part of our regular internal research process. Complementing

the hard data with a more qualitative and forward-looking assessment allows us to reflect more recent changes in governments or corruption scandals that could influence institutional quality. For example, Poland's overhaul of its judiciary system, increasing government influence over the media and its broader weakening of the rule of law has not yet been fully reflected in the country's high ESG score.

Combining the quantitative and qualitative outputs of the framework generates interesting signals. In particular, countries flagged as cheap on the regression model and which are on a positive direction of travel should be of interest, as this suggests that ESG factors might not be fully priced in.

Figure 23. ESG scores have a significant correlation with sovereign spreads.* Sources: Bloomberg, Allianz Global Investors



*For illustrative purposes only

95 As of 31 December 2018.

96 Ibid. For Global Fixed Income group only.

CASE STUDY: ESG INTEGRATION

Authors | Jose Saracut and Vincent Zheng, Manulife Investment Management

Operating region	Total AUM	Sovereign debt AUM
Global	US\$364 billion ⁹⁷	-

ESG INTEGRATION TECHNIQUES:		
RESEARCH LEVEL	SECURITY LEVEL	PORTFOLIO LEVEL
<ul style="list-style-type: none"> ✓ Internal ESG research ✓ Engagement 	<ul style="list-style-type: none"> ✓ Relative value analysis / spread analysis 	<ul style="list-style-type: none"> ✓ Portfolio construction

Manulife’s Canadian fixed income team seeks to gain a holistic understanding of a sovereign issuer to inform its assessment of the issuer’s risks and underlying credit quality; this includes a consideration of ESG factors. Some of the ESG factors considered include: instances of corruption; independence of the central bank; access to employment and benefits in place for workers; social security; and the funding of pensions. In addition to these governance and social factors, the team analyses how environmental factors – such as water stress and the prospects for clean, affordable energy – might impact economic activity.

In July 2018, when Andrés Manuel López Obrador – known as AMLO – was elected president of Mexico, a key concern for investors was how the new administration would handle an election promise to terminate a partially-built airport project in Mexico City. The Canadian Fixed Income team focused its attention on the project’s associated bonds (MEXCAT bonds). The Mexican government owns the airport project, and the MEXCAT bonds are included in the EMBI Index (J.P. Morgan’s EM sovereign index). Moreover, although the Mexican government did not explicitly guarantee the bonds, it was very much involved in negotiations with bondholders after it announced the cancellation of the project.

In August, the president-elect called for a public referendum to be held in October; Mexicans would end up voting to reject the project. As a result, MEXCAT bonds were put on negative watch by credit rating agencies and eventually downgraded by two of them. One rating agency that placed MEXCAT on negative watch highlighted two potential outcomes: 1) a concession cancellation, which could lead to an event of default, triggering acceleration if approved by 25% of bondholders; or 2) a concession amendment, which would require consent from the majority.

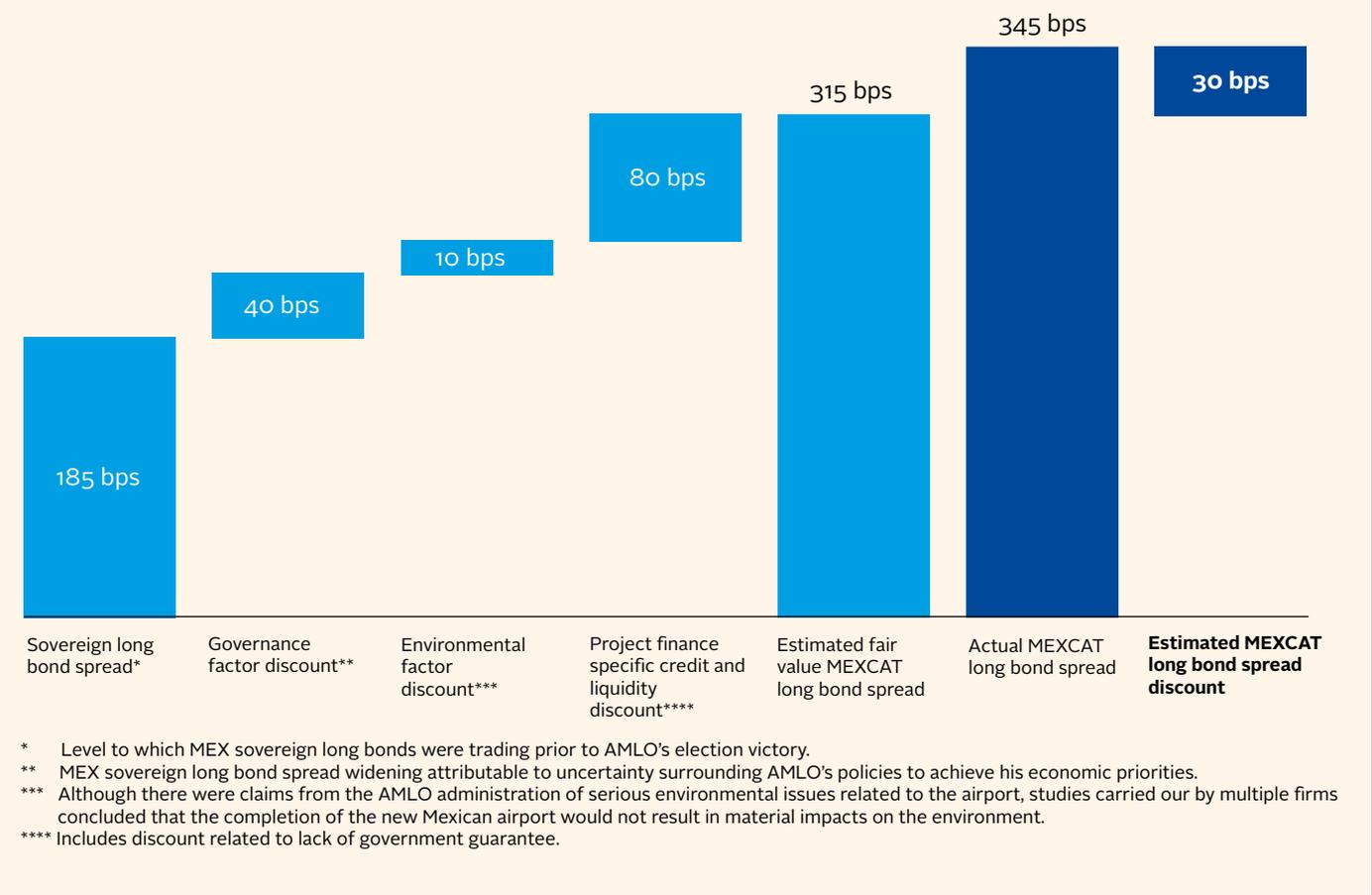
The team considered these scenarios, wary of the potential for the bond to slip below investment grade if uncertainty persisted for even a few more months. A further governance risk was the potential lack of independence of the project’s board, as the central government was now involved in the decision on whether the project would proceed. This could have potential implications for other major bond issuers in Mexico if there was a perception that the government was not being market-friendly.

During the period between AMLO’s election victory and the referendum, spreads on MEXCAT bonds widened substantially. The Canadian Fixed Income team conducted spread analyses in August (prior to the call for the referendum) and October (prior to the actual referendum), looking at the issuer’s relative spreads to discern whether all risk factors were priced in (see Figure 24).

From this analysis, the team concluded that the ESG risks were adequately priced in at an estimated MEXCAT long-bond spread discount of 30 basis points (see chart and related notes below for the spread analysis conducted in early August and an explanation of the ESG risks that were investigated); moreover, there was a level of assurance that the default risk would not materialise, and the principal would be repaid given the bonds’ strong covenant package. In order to gain further comfort with its assessment, the team engaged with representatives of the Mexican government (both the Mexican ambassador and the trade commissioner to Canada) to shed light on the political uncertainty and governance risks associated with MEXCAT bonds.

97 As of 31 December 2018.

Figure 24. MEXCAT long-bond spread analysis (on 10 August 2018). Sources: Manulife Investment Management, Bloomberg



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THE OUTER CIRCLE: PORTFOLIO LEVEL

The outer section of the ESG Integration Framework covers portfolio construction, risk management, asset allocation and portfolio-level scenario analysis.

Risk management is a key driver for incorporating ESG issues into investment processes and practice. ESG factors can be incorporated into risk management processes through:

- Discussing ESG investment exposure in risk meetings;
- Correlating investment risks with ESG factors; and
- Generating portfolio-level ESG scores and key metrics.

Discussions around portfolio risk can focus on portfolio weightings, ESG scores and changes in ESG scores. For example, the largest long positions with low ESG scores and largest short positions with high ESG scores might be flagged for in-depth discussion, alongside the overall largest and smallest contributions to the fund's ESG score.

In a robust ESG integration process, a granular understanding of security- and portfolio-level ESG risk exposures directly influences portfolio construction. An example might be the assigning of lower position limits to sovereigns based on a combination of credit quality, liquidity, volatility and vulnerability to event risk, which could cover a range of ESG-related factors. Another approach could be to classify sovereigns into four ESG valuation quadrants – invest, engage, reduce, sell/avoid – which are used to inform and influence portfolio exposures and construction.

Where investors consider the exclusion of sovereign issuers due to ESG risk, they face a particular issue compared with equity and corporate debt exclusions due to the smaller universe of sovereign issuers. This may also be a factor in the relative scarcity of ESG sovereign debt indexes.

Stress-testing can be used to integrate risk management, ESG processes and portfolio construction, especially if guidelines prohibit holding in a portfolio securities below a certain ESG rating. Taking a slightly different approach, the Global Footprint Network, a non-profit organisation, worked with nine sovereign bond investors to develop a methodology to assess the carbon footprint of sovereign bond portfolios.

Carbon footprinting is now widespread among equity portfolio managers, enabling them to assess the effective greenhouse gas emissions of a specific portfolio. Because there is significant uncertainty as to the timing of physical climate impacts, governments' policy responses and the pace of technological breakthroughs, accurate risk analysis is challenging. Therefore, until more robust methods are developed, some practitioners are choosing to use carbon-risk exposure metrics as a proxy to adjust portfolio weightings to manage exposure to climate-related risk.

The following case studies outline examples of how various asset managers have integrated ESG factors at the portfolio level.

CASE STUDY: ESG INTEGRATION

Author

Lupin Rahman, PIMCO

Operating region	Total AUM	Sovereign debt AUM
Global	US\$1.66 trillion ⁹⁸	-

ESG INTEGRATION TECHNIQUES:		
RESEARCH LEVEL	SECURITY LEVEL	PORTFOLIO LEVEL
<ul style="list-style-type: none"> ✓ Internal ESG research ✓ Materiality framework ✓ Engagement 	<ul style="list-style-type: none"> ✓ Internal credit assessment ✓ Relative value analysis / spread analysis 	<ul style="list-style-type: none"> ✓ Portfolio construction

PIMCO's credit analysts have reviewed the ESG performance of over 2,400 parent issuers to date, highlighting our proprietary ESG scores in their research notes alongside our credit ratings. First, ESG scores help portfolio managers assess where we should be compensated for material aspects of ESG risk, as measured by ratings via spreads. Secondly, ESG analysis can give more colour to day-to-day changes and potential tactical trades due to market shocks from politics, social issues or environmental factors. Our firm does not restrict its ESG analysis to corporates; ESG analysis is also explicitly incorporated into our sovereign analysis. A portfolio manager may decide to switch between two similarly rated sovereign bonds trading at comparable spread levels based on their ESG scores and trajectories. These types of assessment have shaped investment strategies across many portfolios.

Figure 25 illustrates the four ESG valuation quadrants we use to analyse potential sovereign investments:

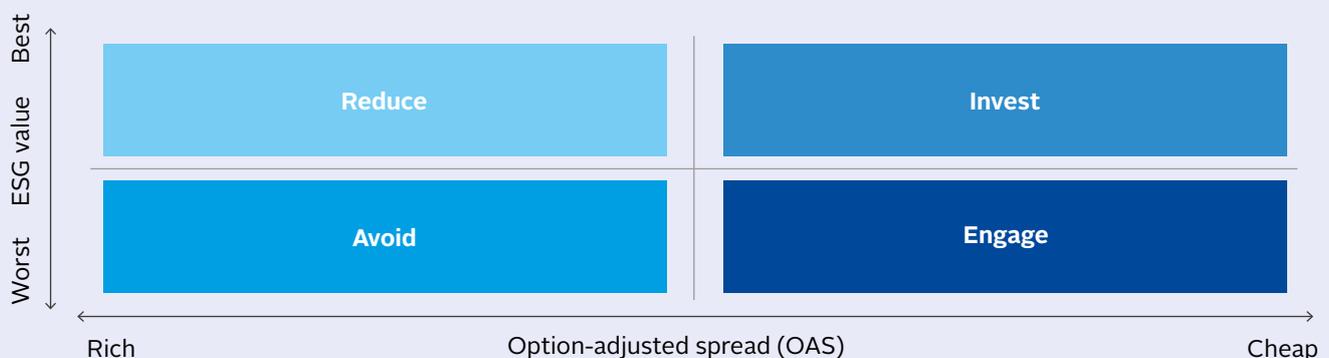
- **Invest** in sovereigns trading at attractive valuations and with strong ESG profiles (e.g. sovereigns with

fundamentally good credit, a robust ESG stance and lower downside risks that we believe markets have mispriced);

- **Engage** with sovereigns trading at attractive prices but which have weaker ESG profiles (e.g. sovereigns with a strong long-term track record and which are working to recover from recent risks or reputational controversies);
- **Reduce** exposure to sovereigns trading at unattractive valuations despite strong ESG profiles (e.g., sovereigns whose spread levels already reflect an expectation of pristine credit and solid ESG results); and
- **Sell/avoid** sovereigns with unattractive valuations and weak ESG profiles (e.g. sovereigns whose creditworthiness is overpriced or deteriorating, and where the ESG outlook is cloudy).

It is not always easy to determine how ESG risk is priced by the market, so our approach has been to use both qualitative and quantitative sources of information to underpin our analysis and form a more holistic view.

Figure 25. ESG relative valuation. Source: PIMCO



*For illustrative purposes only

98 As of 31 December 2018.

CASE STUDY: ESG INTEGRATION

Author | Joanna Woods, CFA, First State Investments

Operating region	Total AUM	Sovereign debt AUM
Global	US\$143.8 billion ⁹⁹	-

ESG INTEGRATION TECHNIQUES:		
RESEARCH LEVEL	SECURITY LEVEL	PORTFOLIO LEVEL
<ul style="list-style-type: none"> ✓ Internal ESG research ✓ Materiality framework 	<ul style="list-style-type: none"> ✓ Internal credit assessment 	<ul style="list-style-type: none"> ✓ Portfolio construction

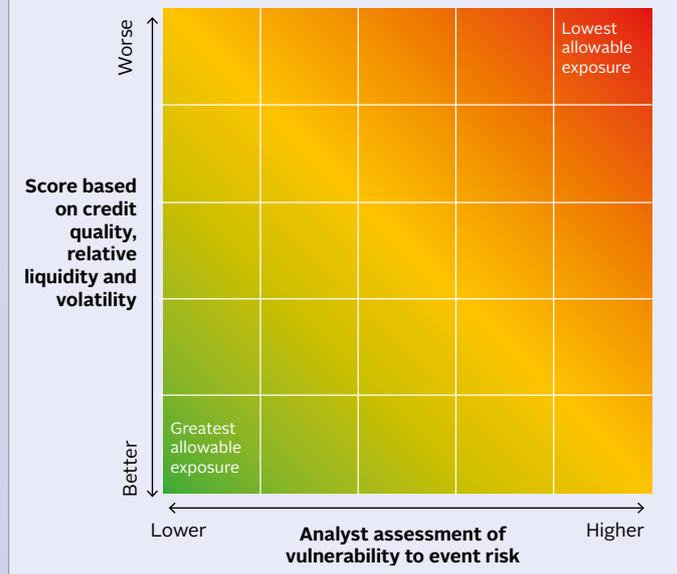
First State considers that the potential to deliver risk-adjusted returns is enhanced by the integration of ESG factors. ESG factors are an important part of bottom-up fundamental research and are included in all sovereign credit evaluations. Analysts review a common set of ESG data across all sovereigns, which enhances the objectivity and comparability of assessments. They also determine which ESG factors are market drivers for a given country, and produce a forward-looking assessment identifying where these factors are mispriced by the market. Engagement is used to support this assessment, where possible.

ESG considerations are also an integral part of portfolio construction, specifically as part of a position-sizing discipline. Here, limits to absolute and relative position sizes in portfolios are established by country, based on factors such as credit quality, volatility and liquidity, as well as a qualitative assessment of vulnerability to event risk (see Figure 26).

Event risks refer to unexpected events with the potential to materially negatively affect bond prices – and it is our experience that such events are frequently linked to ESG factors. Examples include political succession, social revolutions and severe weather events. To assess the vulnerability of sovereigns to event risk, analysts consider the relative likelihood of them occurring (e.g. political event risks tend to be more frequent in countries where policy making is highly centralised), as well as the likelihood of drawdowns in response to the event. Using unexpected severe weather as an example, analysts assess potential downside by examining an economy’s diversification, looking at data such as the share of agriculture within GDP or the importance of agriculture to the balance of payments.

All else being equal, an assessment of higher drawdown vulnerability due to ESG event risks for any country leads to a stricter limit on the size of country portfolio exposure. We believe that this discipline has been a major factor in minimising drawdowns for client portfolios. The relationship between the factors within the position-sizing discipline is illustrated below.

Figure 26. ESG event risk integration within portfolio construction. Source: First State Investments



This case study has been prepared for informational purposes only and is intended to provide a summary of the subject matter covered and does not purport to be comprehensive. The views expressed are the views of the writer at the time of issue and may change over time. It does not constitute investment advice and/or a recommendation and should not be used as the basis of any investment decision.

99 As of 31 December 2018.

CASE STUDY: ESG INTEGRATION

Author | Susan Burns, Global Footprint Network

ESG INTEGRATION TECHNIQUES:

RESEARCH LEVEL	SECURITY LEVEL	PORTFOLIO LEVEL
		✓ Portfolio construction

In 2016, Global Footprint Network (GFN) worked with nine sovereign bond investors as part of a working group formed to explore methods of measuring carbon-risk exposure in sovereign bond portfolios. Carbon-intensity analysis, which measures a portfolio's exposure to carbon-intensive national economies, was viewed as the most effective approach. This is because countries with a high carbon intensity, regardless of their level of outstanding debt, are exposed to greater market and regulatory risks related to the transition to a carbon-constrained global economy (commonly referred to as transition risk) than less carbon-intensive sovereigns. Carbon intensity is a comparable and scalable metric and can serve as a proxy for a portfolio's exposure relative to other portfolios, or to a benchmark. The results of carbon-intensity analysis can also be used to tilt portfolios to favour lower-carbon economies.

The carbon-intensity approach answers two fundamental questions:

- How carbon-intense or efficient are the entities in which we are investing?
- How much carbon is emitted per unit of revenue/GDP?

The carbon intensity of a portfolio is calculated by averaging the carbon intensities of each bond holding's position within the investor's total portfolio. While the carbon intensity of production is the most common approach to measuring overall portfolio carbon intensity, consumption and trade are also important dimensions of carbon risk at the country level.

$$\sum_n^i \frac{\text{CO}_2 \text{ emissions tonnes}_i}{\text{GDP}_i} \times \frac{\$ \text{ invested}_i}{\$ \text{ portfolio value}} = \text{portfolio carbon intensity in } \frac{\text{tonnes}}{\$ \text{GDP}}$$

The working group produced a [report](#) summarising its recommendations and chose several funds to illustrate its analysis. The PowerShares Emerging Markets Sovereign Debt ETF (Ticker: PCY), a US exchange-traded fund with over US\$3 billion in assets, invests in the debt of 30 emerging market countries in roughly similar proportions, with an average carbon intensity of 516 tonnes of CO₂ per US\$1 million of GDP. Ukraine, while only representing 3.3% of the portfolio, contributed the most (12%) to the fund's carbon intensity, followed by Kazakhstan and South Africa (see below).

Table 8. Powershares Emerging Markets Sovereign Debt ETF: top 10 countries by carbon intensity. Source: Global Footprint Network

Country	GDP 2012 (US\$ billion)	Country carbon intensity 2012 (t CO ₂ /US\$M GDP)	Country weight in portfolio (%)	Country contribution to portfolio carbon intensity (t CO ₂ /US\$M GDP)	Country contribution to total carbon intensity (%)
Ukraine	176	1,719	3.3%	57	12%
Kazakhstan	204	1,150	3.3%	38	8%
South Africa	397	977	3.3%	32	7%
Russia	2,016	859	3.4%	29	6%
Pakistan	225	677	3.3%	22	5%
Poland	497	620	3.2%	20	4%
Venezuela	298	618	3.1%	19	4%
Morocco	98	591	3.3%	19	4%
Romania	172	512	3.3%	17	4%
Korea	1,223	511	3.1%	16	4%

Total portfolio carbon intensity (weighted average, t CO₂/US\$M GDP): 465

Through GFN's collaboration with practitioners, several issues were raised when analysing carbon intensity per unit of GDP:

- Because we are not assigning carbon to the portfolio based on the value of the bond, a carbon intensity per dollar invested cannot be determined. Instead, the intensity measure reflects the carbon intensity of the economies invested in, weighted in line with the bond's weight in the portfolio.
- GDP in US dollars or other common currency depends on exchange rates. Significant currency depreciation relative to the dollar would increase the carbon intensity of a country in US dollar terms, even if there were no changes in emissions or economic activity in local currency. Exchange rate movements can meaningfully affect cross-country comparisons over time. Hence, GDP measured in constant dollars would be more appropriate for multi-country, multi-year comparisons.
- GDP partly depends on a country's price of goods and services. The same type of goods may be produced by two different countries, with similar production-related emissions, but the price and GDP contribution of the goods may differ substantially between the countries. Countries producing luxury items, for example, would be shown to have a more carbon-efficient economy, while countries producing a similar item with a lower price tag would be shown to have an economy with a higher carbon intensity. This example underscores how the carbon intensity measure specifically reflects the efficiency of the economy in generating GDP.
- The CO₂/GDP ratio tends to be lower for more developed, service-oriented economies relative to emerging economies. The use of carbon intensity to tilt portfolio weighting in favour of the debt of less carbon-intensive countries may thus reduce access to capital for developing economies, if carried out on a large scale. Thus, risk analysis should consider qualitative factors, including the country's progress in reducing the carbon intensity of its economy. Calculating carbon emissions on a consumption basis also addresses this. Debt portfolios tilted towards export-oriented emerging economies, for example, would have a lower consumption carbon footprint compared to their production-based footprint.

NEXT STEPS

This report complements other PRI guidance on integrating the PRI's six Principles into investment practice and active ownership.¹⁰⁰ In particular, it builds on a 2013 PRI primer which explored the relevance of ESG factors for sovereign debt investors and recommended that future publications clarify how to integrate them into investment decision-making.¹⁰¹ Since then, awareness among sovereign debt investors of the merits of ESG integration has increased significantly and investment practices have correspondingly evolved.

This report captures recent progress and provides guidance on and examples of current investor practices. However, important questions remain unanswered and more work is needed to understand the financial implications of rapidly evolving ESG risks – such as climate change – as they become better measured and as assessment tools and techniques improve.

For example, it remains to be seen how ESG integration can play a role in the context of highly liquid debt markets, where investors are often obliged to hold specific bonds, because they are benchmarking an index or because of credit rating constraints, for example. If ESG-dedicated benchmarks become more popular, the level of investor participation in a given country's debt markets may follow suit, creating a virtuous cycle, rewarding countries with improving ESG trajectories and penalising those whose ESG performance is worsening.

Furthermore, the role of engagement as a critical part of the research process, allowing investors to better understand the direction of government policy and reflect this back into risk assessment, needs to be explored further. Engaging with benchmark issuers can present an opportunity to differentiate between countries on the basis of the influence of ESG factors on their risk-return profiles.

Finally, this paper deliberately did not discuss thematic bonds, such as green bonds, which comprise a small but fast-growing segment of the sovereign bond market. This was in order not to mix the concept of assessing ESG factors from a pure risk perspective for any sovereign bond with the concept of impact investing (or raising capital for a specific purpose). Moreover, the working group did not discuss how investors might engage with sovereigns to facilitate the achievement of the Sustainable Development Goals, either through public spending or via private-public partnership.

Another area that needs further analysis is the integration of ESG considerations into the assessment of local government bonds (particularly in markets where issuance is significant, such as the United States and Canada).

These are all important areas which the PRI plans to explore in future. In the meantime, we welcome feedback on this report and on related issues.

¹⁰⁰ Op. cit. in footnote 2.

¹⁰¹ Op. cit. in footnote 3.

APPENDIX

SELECTED ACADEMIC RESEARCH

Author	Title	Main findings
Imperial College Business School, SOAS University of London, and UN Environment (2019)	Climate Change and the Cost of Capital in Developing Countries	This study's econometric modelling suggests that climate vulnerability has already raised the average cost of debt in a sample of developing countries by 117 basis points. In absolute terms, this translates into US\$40 billion in additional interest payments over the past 10 years on government debt alone.
International Monetary Fund (IMF) (2017)	The Effects of Data Transparency Policy Reforms on Emerging Market Sovereign Bond Spreads	This study determined that structural reforms aimed at enhancing data transparency resulted in more reliable macroeconomic and financial data, improving access to international capital markets and lowered spreads for emerging markets countries.
Duyvesteyn et al. (2017)	Political risk and expected government bond returns	This study found that expected risk-adjusted bond returns for countries whose political risk ratings have improved are higher than those for countries whose political risk ratings have deteriorated.
UNEP FI, Global Footprint Network (2016)	ERISC PHASE II: How food prices link environmental constraints to sovereign credit risk	This study found that food prices are a principal channel through which environmental constraints impact key macroeconomic performance indicators.
Capelle-Blancard et al. (2016)	ESG Performance and Sovereign Bond Spreads: An Empirical Analysis of OECD Countries	This study examined the impact of ESG factors on OECD country spreads and determined that countries with favourable ESG rankings tended to have lower default risk.
Berg et al. (2016)	Sovereign bond spreads and extra-financial performance: an empirical analysis of emerging markets	This study found that, from the period from 2000 to 2012, a country's average cost of capital decreased with its environmental and social performance.
Schieler (2015)	The changing dynamics of country risk . In: Country and Political Risk, 2 nd Edition, Risk Books, Edited by Sam Wilkin	An examination of the key components of country risk, evaluation of country risk trends and an examination of financial institutions' response to these trends.
Asian Development Bank (2014)	Do Governance Indicators Explain Development Performance? A Cross-Country Analysis	The study found that good governance is associated with both a higher level of per capita GDP and higher GDP growth over time.
Crifo et al. (2014)	Measuring the effect of government ESG performance on sovereign borrowing cost	The study suggests that the ESG score of a country has a strong negative relationship with the credit spread and the CDS spread of the country, indicating that default risk decreases as the ESG performance of the country improves.
UNEP FI, Global Footprint Network (2012)	ERISC: A New Angle on Sovereign Credit Risk Report	This study found that natural resource-related environmental issues can affect the economic and sovereign credit risk profile of countries in ways that can be identified and quantified.

SELECTED PRACTITIONER RESEARCH

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- PRI (2019). [Shifting perceptions trilogy: ESG, credit risk, and ratings](#).
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- PRI (2017). [PRI Webinar: Climate strategies for sovereign bond investors](#). Speakers: Global Footprint Network, MN, and Degroof Petercam.
- PRI (2017). [BNP Paribas Asset Management – Engaging with sovereign green bond issuers](#). PRI ESG engagement for fixed income investors case study series.
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The Principles for Responsible Investment (PRI)

The PRI works with its international network of signatories to put the six Principles for Responsible Investment into practice. Its goals are to understand the investment implications of environmental, social and governance (ESG) issues and to support signatories in integrating these issues into investment and ownership decisions. The PRI acts in the long-term interests of its signatories, of the financial markets and economies in which they operate and ultimately of the environment and society as a whole.

The six Principles for Responsible Investment are a voluntary and aspirational set of investment principles that offer a menu of possible actions for incorporating ESG issues into investment practice. The Principles were developed by investors, for investors. In implementing them, signatories contribute to developing a more sustainable global financial system.

More information: www.unpri.org



The PRI is an investor initiative in partnership with UNEP Finance Initiative and the UN Global Compact.

United Nations Environment Programme Finance Initiative (UNEP FI)

UNEP FI is a unique partnership between the United Nations Environment Programme (UNEP) and the global financial sector. UNEP FI works closely with over 200 financial institutions that are signatories to the UNEP FI Statement on Sustainable Development, and a range of partner organisations, to develop and promote linkages between sustainability and financial performance. Through peer-to-peer networks, research and training, UNEP FI carries out its mission to identify, promote, and realise the adoption of best environmental and sustainability practice at all levels of financial institution operations.

More information: www.unepfi.org



United Nations Global Compact

The United Nations Global Compact is a call to companies everywhere to align their operations and strategies with ten universally accepted principles in the areas of human rights, labour, environment and anti-corruption, and to take action in support of UN goals and issues embodied in the Sustainable Development Goals. The UN Global Compact is a leadership platform for the development, implementation and disclosure of responsible corporate practices. Launched in 2000, it is the largest corporate sustainability initiative in the world, with more than 8,800 companies and 4,000 non-business signatories based in over 160 countries, and more than 80 Local Networks.

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