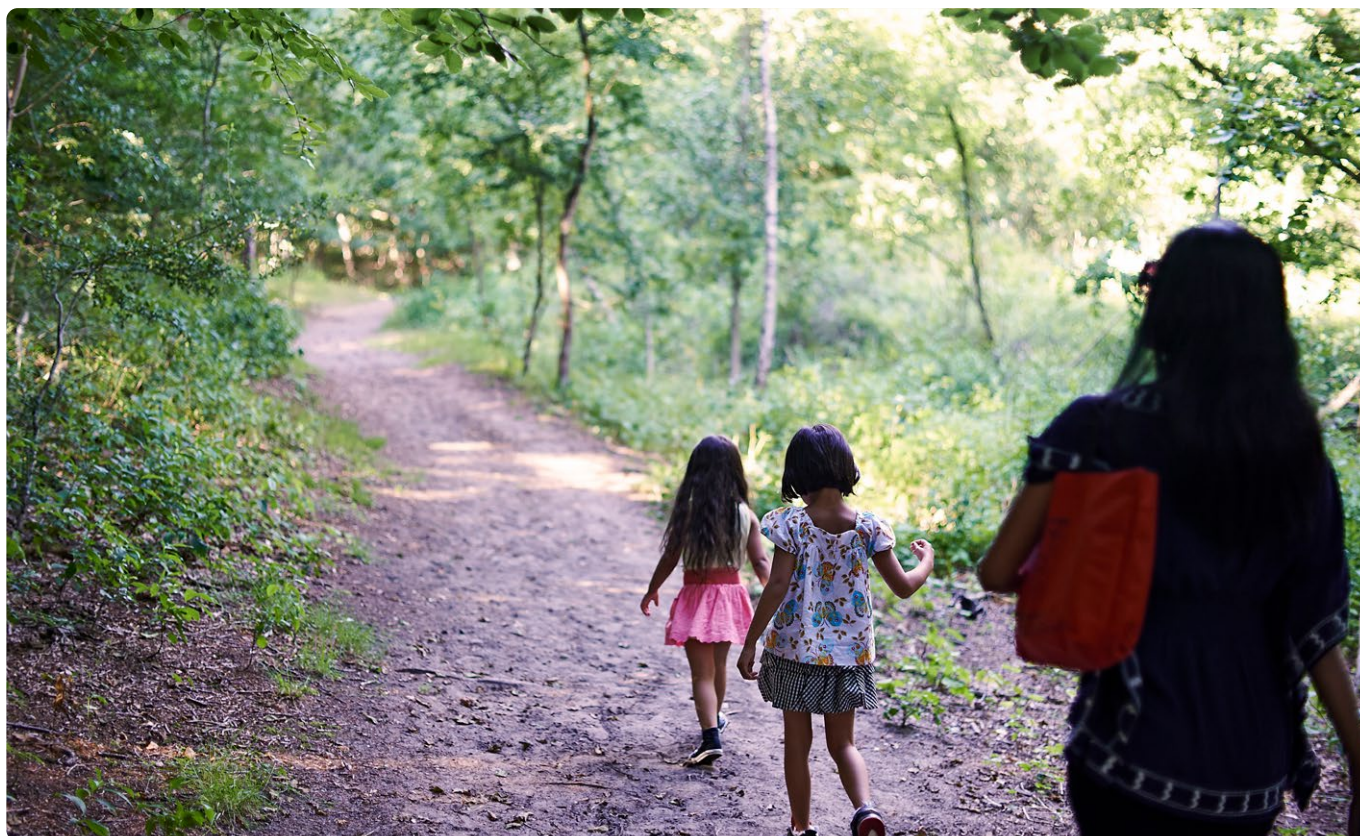


The ESG path into emerging market debt

February 2021



- We systematically and stringently integrate environmental, social and governance (ESG) criteria into all our emerging market debt (EMD) strategies.
- We make use of a wide range of tools and indicators to overcome the challenges of integrating ESG considerations into emerging market portfolios.
- In our sovereign debt strategies, we have successfully enhanced our investment process from a governance-heavy sovereign analysis to integration of all ESG factors.
- In our corporate debt strategies, we use two proprietary tools to analyse the issuer's fundamentals and its ESG profile.

The ESG path into emerging market debt

Executive summary

- **We systematically and stringently integrate environmental, social and governance (ESG) criteria into all our emerging market debt (EMD) strategies.** This achievement underscores our commitment to widespread ESG integration.
- **We make use of a wide range of tools and indicators to overcome the challenges of integrating ESG considerations into emerging market portfolios.** Our resources include internally and externally sourced data and our own expertise, which are invaluable when faced with still-prevalent data and transparency issues.
- **In our sovereign debt strategies, we have successfully enhanced our investment process from a governance-heavy sovereign analysis to integration of all ESG factors.** Our proprietary Sovereign Risk Model now incorporates NN IP's ESG Lens to create a holistic model that delivers an overarching country score.
- **In our corporate debt strategies, we use two proprietary tools to analyse the issuer's fundamentals and its ESG profile.** We combine human analysis with big data and machine input to gain the fullest possible overview of each company. The results of our analysis directly impact our overall internal credit rating for each company.

Chapter 1

What is ESG, and why is it relevant to emerging market debt?

In this publication, we share how we have fully integrated environmental, social and governance (ESG) considerations into all of our emerging market debt (EMD) sovereign and corporate investment processes. Moreover, we show how our approach strives to overcome the challenges associated with integrating ESG factors and conventional integration approaches in the industry. But first, we explore what is meant by ESG integration and why we deem it relevant in EMD.

As a responsible asset manager, NN IP is deeply committed to ESG integration as it enhances our decision-making process. This can be particularly valuable when investing in emerging markets, as issues with data quality and availability are still prevalent. Integrating ESG factors can therefore help us proac-

tively manage risk and identify areas of possible concern as well as potential opportunities. NN IP's strong institutional setup in responsible investing supported the EMD team in coming up with an innovative ESG integration approach that overcomes part of the data challenges we face.

On an industrywide basis, ESG integration in investment portfolios has improved greatly in recent years. However, it is still evolving and can be limited in its coverage and frequency. Our investment teams tackle responsible investing in ways that vary from market to market and from strategy to strategy. Our definition of an ESG-integrated strategy stipulates that for each investment, all three ESG components must be demonstrably

and consistently integrated throughout the investment process. This holistic approach enhances our decision-making process.

For our EMD strategies, we apply ESG integration in all steps of the investment process, and we use engagement to pursue structural ESG improvements. ESG integration naturally differs between our sovereign and corporate portfolios, as ESG factors that are material on corporate level are often less applicable on a sovereign level. We explain our tools and process for ESG assessment of sovereigns in chapter 2 of this document, while chapter 3 covers our ESG integration process for EM corporates. For all our EMD strategies, however, we look closely at all three components – the E, the S and the G.

Governance factors have been regarded as a material ESG factor, and incorporated in most traditional investment approaches, since long before the concept of ESG integration entered the mainstream. Our EMD team has structurally integrated these factors in its analysis of issuers since 2012. In emerging markets, governance covers everything from ownership structure, corruption and reporting transparency for corporate issuers, to fiscal responsibility, rule of law, strength of institutions and regulatory quality for sovereign issuers.

Social factors cover the importance of human capital. For companies, this can refer to working conditions, training and development opportunities, non-discrimination practices, compensation, community engagement, or consumer protection. On the sovereign level, this can refer to demographic change, social cohesion in a country, health and living standards, education and income inequality.

Environment factors cover impact on/from climate (change), natural disasters and natural resource wealth. On the corporate level, this can include a wide range of topics such as emissions, corporate footprint and sustainability strategy. For sovereigns this can mean natural resource management and availability, climate change vulnerability, energy transition and energy security risk.

When analysing ESG factors, we must also determine what factors are material for a particular sector, country or company. NN IP's materiality framework reflects our views on material factors on an industry level, but this is only the starting point for our analysis of individual companies. On the EM corporates side, our investment teams primarily use the materiality framework to analyse investment opportunities and risks, including potential positive and negative impacts.

Our approach to materiality for sovereign issuers differs from that for corporate issuers, since most ESG factors are "material" for every country. Examples include the quality and availability of education and healthcare, political stability and the energy sources a country relies on. We therefore score all countries using the same factors to determine how they compare to each other from an ESG point of view.

The benefits of ESG integration in EMD portfolios

Including ESG criteria in our investment processes helps us to meet demands of asset owners, including their responsible investing objectives. Policy and regulatory (disclosure) requirements also increasingly play a role. Growing investor interest reflects the belief that ESG issues influence the short- and long-term risks and opportunities of companies, sectors and sovereigns.

On the corporate level, ESG factors can positively or adversely impact financial performance. On the sovereign level, they can affect economic growth, public finances, and borrowing costs (spread levels). For example, good governance in the sovereign space can potentially improve use of public finances and increase growth. But the long-term implications of climate change can potentially result in a severe negative impact on a country's essential businesses, such as electricity utilities; this can in turn impact the country's balance sheet if state support is needed to maintain power supply. Social disruption can spark more immediate impact, quickly increasing the risk premiums that investors require for that country. Further, a growing body of academic research shows that improvements as a result of structural reforms can lower risk premiums for EM sovereign issuers, as can better governance, environmental or social scores.¹

The EMD universe is diverse and the market remains less efficient and under-researched relative to developed markets. We thus see ample opportunities for alpha generation through a fundamental, research-driven investment process that structurally integrates ESG factors.

The challenges of conventional ESG integration in EMD

ESG integration has a longer and more developed track record in equities and corporate debt than in sovereign debt because data gathering, disclosures and engagement are easier for companies than for sovereign issuers. Mandatory ESG disclosures and clear reporting guidelines have propelled ESG integration for companies forward. This is especially the case in developed markets, but EM corporates have also largely acknowledged that taking ESG aspects into account plays a pivotal role in proactive risk management as a way to avoid reputational and financial damage. Investors are also discovering that they can use their influence to push for proper corporate governance.

Challenges still remain in EM corporate debt, stemming from regional differences in ESG policies and the more limited disclosure in the EM space. Investors must devote more time and analysis to weeding out firms that may be susceptible to long-term financial and reputational issues. However, successfully addressing these issues can be helpful in identifying the winners of tomorrow and can contribute to reducing portfolio risk.

¹ Berg et al, 2016, International Monetary Fund, 2017, Naoko, N & Lian, L., 2020. International Monetary Fund, 2017: The Effects of Data Transparency Policy Reforms on Emerging Market Sovereign Bond Spreads. Berg et al, 2016: Sovereign Bond Spreads and Extra-Financial Performance: An Empirical Analysis of Emerging Markets. Naoko, N & Lian, L., 2020: Measuring the Effect of Environmental, Social, and Governance on Sovereign Funding Costs.

In EM sovereign debt, the lack of mandatory data gathering and disclosure for sovereign issuers makes it more difficult to standardize data. This has evolved to some extent; today, a decent amount of sovereign data is available for each of the ESG factors. Still, there is significant room for improvement in coverage, frequency, consistency and timeliness of these data points. Obtaining data for all EM sovereign issuers remains a challenge; when obtained, this data can be several years old and often has a limited history.

The 2015 United Nations Social Development Goals (SDGs) represent a starting point for more actionable, transparent and comparable goals, associated data points and (partly voluntary) reviews on the sovereign level. In 2019, the World Bank also released a new data platform dedicated to ESG data.² The emergence of green, social and SDG bonds also incentivizes countries to develop sovereign ESG frameworks and improves data transparency with mandatory annual disclosures. The below text box explains NN IP's view on EM green, social and sustainability bonds and how we assess them for our EMD portfolios.

An emerging trend: green, social and sustainability bonds

Jovita Razauskaite, Portfolio Manager Green Bond

We often receive questions about the growing universe of EM green, social and sustainability bonds, annual issuance of which has nearly tripled since 2016 (Figure 1). The bonds currently comprise around one fifth of the total green, social and sustainability bond universe (EUR 924 billion)³ and are predominantly issued by agencies, financial institutions and industrials. The Covid-19 pandemic sparked a sharp rise in social bond issuance, pushing the EM social bond market from EUR 3 billion to EUR 15 billion during 2020; this partly came at the expense of EM green and sustainability bond issuance.

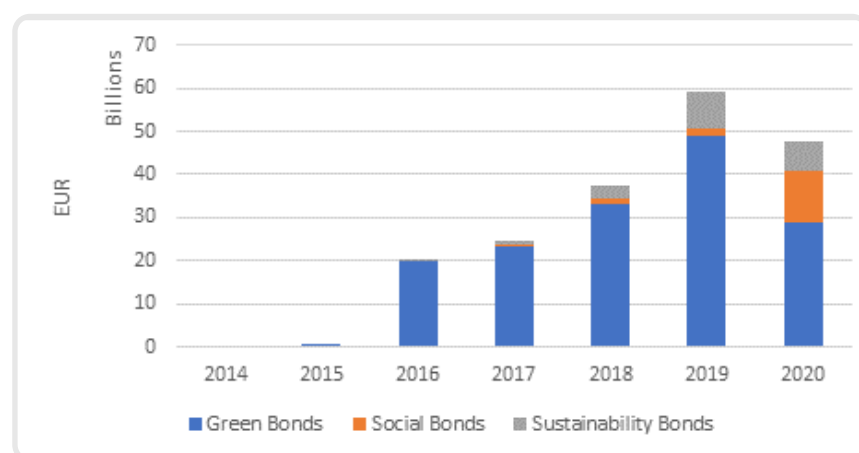
China is a dominant green bond player, accounting for 60% of EM green bond market share, while South Korea leads in social and sustainability bond issuance (83% and 51% respective share). The majority of EM sovereign green bond issuers have focused their resources on low-carbon transportation and renewable energy projects, including Hungary, Chile and Egypt.

All in all, the EM green bond universe remains relatively small; still, some credible EM issuers are committed to greenifying their strategies. We expect further evolution in this market, prompted by tightening climate policies and shifting energy investment trends.

The EMD team's view

GSS bonds issued by EM issuers are part of our investable universe, and they make up a very small percentage of our indices. When assessing the attractiveness of GSS bonds versus other bonds, we follow a similar process to that for all other bonds. We compare and balance issuer fundamentals, technical factors and valuation, and we assess whether there are material ESG factors to take into account. So far, GSS bonds issued by EM issuers have generally exhibited fairly supportive technical conditions, and we expect demand for GSS bonds to continue. However, the liquidity of GSS bonds is so far limited.

Figure 1. Green, social and sustainability bond universe in emerging markets



Source: Bloomberg, 9 November 2020

² The World Bank, 2019.

³ Bloomberg green bond database.

Chapter 2

EM Sovereign Debt: Enhancement towards full ESG integration

Having invested in emerging markets for over 27 years, NN IP has extensively witnessed and researched the determinants of sovereign bond spreads. More than a decade ago, we found empirical evidence that governance factors largely determine a government's cost of financing, as well as supporting many macroeconomic variables. Therefore, since 2012 we have structurally integrated in-depth analysis of a country's governance, competitiveness and institutional quality in our investment process.

Strong governance is important for two reasons. First, it provides an institutional framework that allows companies and individuals to invest and grow; second, it improves competitiveness in earning foreign exchange. For investors with longer-term horizons, we believe institutional factors are critically important. In 2018, in a collaborative research effort with MIT, we found evidence that governance indicators help us quantitatively measure a country's creditworthiness by complementing our assessment of its economic fundamentals.⁴ Empirical evidence also supports the perception of governance as the dominant ESG factor.

Besides governance, there is a growing focus on the impact of environmental factors on a country's macroeconomic variables. The EM universe spans a wide geography and therefore encompasses a wide range of potential risks and opportunities related to climate change. Countries with warmer climates could face severe negative impacts from further increases in temperature, predominantly on economic growth indicators. Further, part of the EM universe might experience increased frequency and

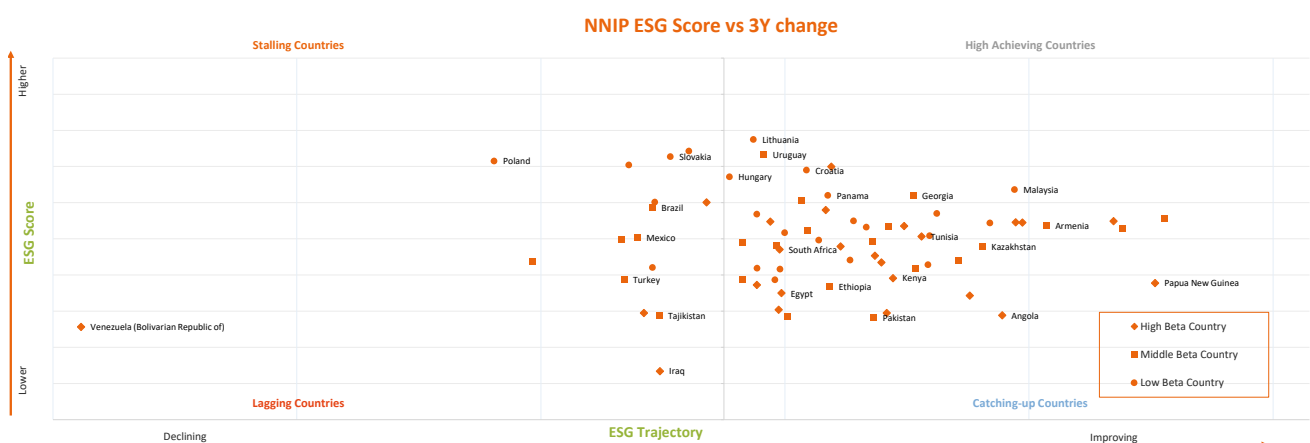
severity of natural disasters as a result of climate change. Many researchers⁵ have documented the impact of natural disasters on economic development. In addition, Cuaresma (2010) documents the negative effect of natural disasters on the accumulation of human capital, while Gassebner and others (2010) found a relationship between natural disasters and a worsening growth rate of economic globalization due to reduced international trade.

As well as affecting macroeconomic variables, ESG factors can impact financial markets by means of EM sovereign spread levels. We believe the relative weight of environmental factors and their impact on credit risk may increase substantially going forward. The focus on climate change is growing substantially on the back of the Paris Agreement and the intensifying impact of the climate crisis. We therefore anticipate increased focus on climate-change-related risks, policies and measures.

Social factors, like the recent public unrest in several emerging (and developed) markets, have demonstrated their potential impact on financial markets. There is no statistical evidence yet of single data points in this area adding value when assessing sovereign spread levels, and effects are often short-lived. Still, integrating social factors into the investment process can help investors identify persistent issues that ultimately increase the event risk of further escalation in a country.

Environmental and social factors are gaining relevance due to changing regulations as well as evolving behaviours and

Figure 2: ESG score versus improvement between 2016 and 2019



Source: NN Investment Partners
Updated version: 50% development + 50% stability score

4 NN IP and MIT, 2018: Enhancements to our EM Sovereign Credit Model

5 Loyaza and others, 2012; Noy, 2009; Raddatz, 2009; Skidmore and Toya, 2002; and Rasmussen, 2004

customer expectations.⁶We have therefore enhanced our investment process from a governance-heavy sovereign analysis to integration of all ESG factors. In the coming pages, we describe which ESG variables we have included, and we assess the accuracy of our models when environmental and social factors are incorporated.

How the investment universe has evolved

Before going into detail on our process, it is first necessary to outline the EM sovereign universe. Understanding which countries are currently making positive progress towards sustainability and which require further attention is crucial for our ESG assessment process.

Most countries in this universe improved their overall ESG score somewhat between 2016 and 2019, the period with the most extensive data coverage. Still, this overall gradual improvement masks large variation between countries. The universe can be roughly divided into a large cluster of countries with medium scores and very gradual improvement and four types of outliers.

The first type of outlier consists of high-achieving countries (high score last year and fast improvement over 2016-2019), including Armenia, Croatia, Georgia and Malaysia. The second comprises a group of countries that already had high scores prior to 2016, but in which progress has since stalled. This group consists mainly of Central and Eastern European and some Latin American countries. The third comprises countries that came from a low base but significantly improved over the assessment period and are now catching up. This includes a wider variety of countries including Angola, Kenya, Pakistan and Papua New Guinea. Finally, there are a few countries that have low scores and have deteriorated, Venezuela being the prime example. For these countries, additional analysis is even

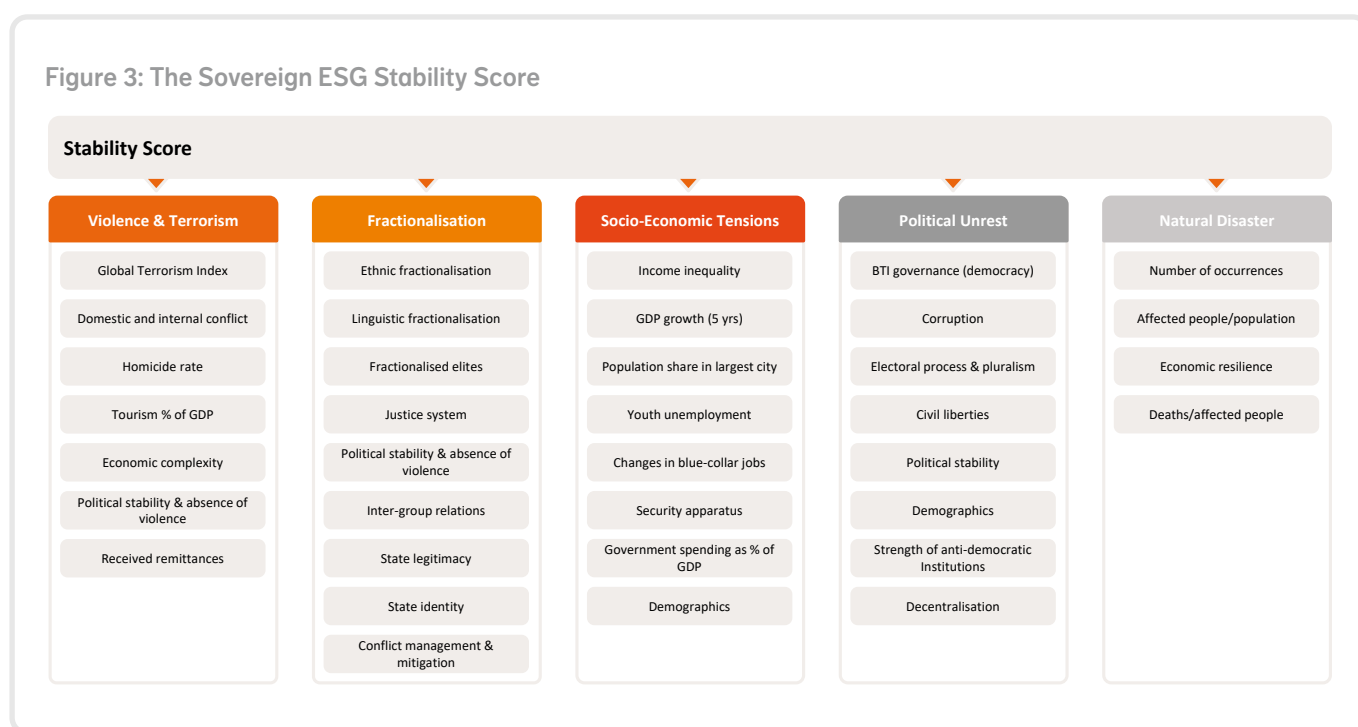
more crucial – both of the low scores themselves and of the potential risks, so as to assess the risk premium that the investment offers.

Our ESG integration process

We take a dynamic approach to ESG integration throughout our sovereign EMD strategies. We recognize that data issues remain prevalent in emerging markets, and we work to offset this as much as possible by using big data supplemented by qualitative inputs from our EM Sovereign ESG analysts. To this end, we have implemented weekly, monthly, quarterly and annual ESG assessments to ensure that our forecasts are as forward-looking as possible and that we have a deep understanding of what drives the countries we invest in.

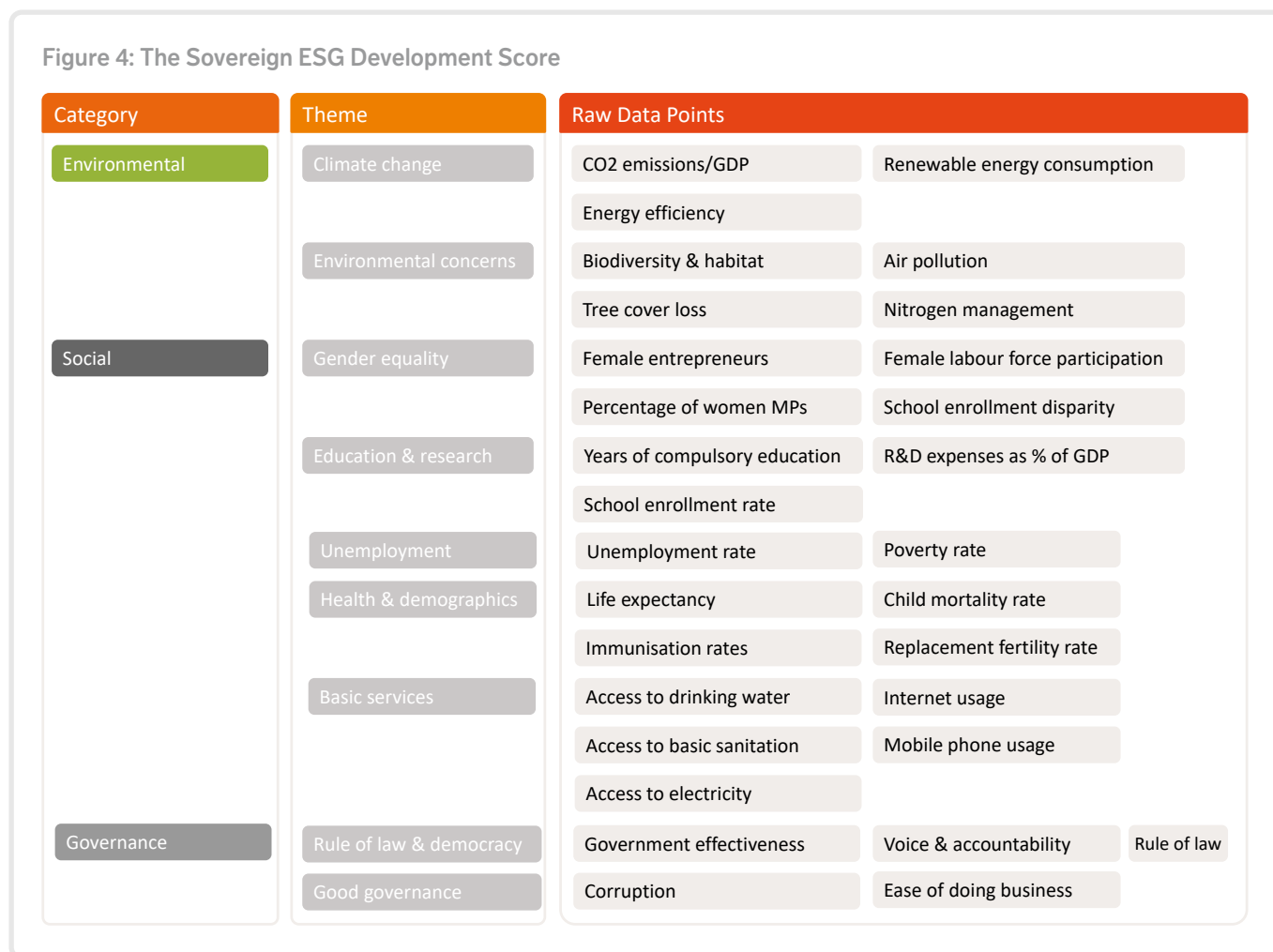
These assessments result in our country-level ESG scorecard. Our EM Sovereign ESG analysts build these ESG scorecards using a wide range of data inputs and their own valuable qualitative analysis, and the portfolio managers take the input from these scorecards into account when formulating their country views. The PMs are also responsible for maintaining our overall country scorecards, which comprise both financial and non-financial factors.

The ESG scorecard combines a qualitative assessment of ESG-specific developments within the country with a more quantitative scorecard showing the level and trajectory of the country's ESG stability and development scores, and how these compare to its peers. One of the key inputs for this scorecard is NN IP's proprietary ESG Lens which provides the aforementioned ESG stability and development scores. The following pages explain the underlying inputs behind the ESG Lens and how we have incorporated it in our overarching Sovereign Risk Model.



6 S&P Global, 2018.

Figure 4: The Sovereign ESG Development Score



The ESG Lens in sovereign analysis

NN IP's proprietary ESG Lens is a crucial input for ESG integration. The overarching ESG Lens is made up of two frameworks: one for sovereign analysis, and one for corporate analysis⁷. On the sovereign side, it is based on two fundamental pillars, the ESG Stability Score and the ESG Development Score.

The ESG stability score reflects a country's level of stability and consists of five themes. We measure these themes by risk factors and mitigating (risk-reduction) factors. Therefore, countries with similar risk levels might respond very differently to the same risk event because they have different levels of mitigating factors.

The ESG development score provides information about a sovereign issuer's traditional environmental, social and governance development. We weight governance more heavily than environmental and social factors, as we regard good governance as a precondition for a country's environmental and social performance

Sovereign ESG Stability Score

The stability score contextualizes current political, environmental or social events and flags ESG topics that can be measured relatively frequently, thereby overcoming data lag issues that arise with conventional ESG data. It includes a structural

component and a dynamic big data overlay. The structural component identifies the probability and severity of an ESG event (Risk) and how prepared the country is/what potential courses of action it can take to reduce that risk (Mitigation). Intuitively, the higher the mitigation factor and the lower the risk factor, the higher the Pillar Score. The big data overlay may flag current protests, strikes or similar issues, while the structural data allows the PMs to put this event into the context of the structural issues the country faces.

Sovereign ESG Development Score

The ESG development score measures a country's development level. This includes commonly acknowledged development criteria like education levels, poverty rates, good governance, and so on. We also include criteria that reflect NN IP's values, such as gender equality. The development score therefore does not attempt to predict short-term changes in bond spreads or reflect short-term investment risks. Its primary purpose is to determine a country's general level of ESG development, to compare it with other countries in the universe, and to determine its structural improvement or deterioration over time.

We separate the ESG development score into three pillars: environmental, social and governance. We attribute a weight of 50% to the governance pillar, and 25% apiece to the environmental and social pillars. The higher weight for governance data

⁷ To learn how we apply the ESG Lens in corporate analysis, please see page 11 of this document.

With the inclusion of the ESG Stability and Development scores, the SRM takes the following form:

Figure 5: Our updated Sovereign Risk Model

Macroeconomic Factors			ESG Factors		
Growth stability and development <ul style="list-style-type: none"> GDP growth GDP per capita GDP volatility Nominal \$ GDP Inflation Investments/GDP 	Fiscal firmness <ul style="list-style-type: none"> Fiscal balance Govt debt/ GDP Interest/revenues 	External endurance <ul style="list-style-type: none"> External debt/ exports Short-term external debt/exports Implied currency volatility Basic balance Reserves covering #months of imports 	NN IP ESG Stability Score	NN IP ESG Development Score	
			Risk Factors <ul style="list-style-type: none"> Violence and terrorism Natural disasters Political unrest Socio-economic tensions Fractionalisation 	Mitigation factors	Environmental Social Governance <ul style="list-style-type: none"> Climate change Environmental concerns Gender equality Education and research Unemployment Health and demographics Basic services Rule of law & democracy Good governance

Source: NN IP; For illustration purposes only

reflects conclusions from academic literature that countries need good governance for strong performance on environmental and social criteria, not the other way around.

The three Pillar Scores are derived from nine broadly defined themes, which are each scored separately. (see Figure 4)

We have deployed these sovereign ESG scores in our Sovereign Risk Model (SRM), which we have used for many years. The SRM provides PMs with a Relative Country Value score for all countries in our universe; this score is then compared with sovereign bond spreads relative to US Treasury rates, taking into account macroeconomic and ESG factors. The SRM has been shown to be effective in capturing and explaining financial and non-financial factors that could influence sovereign spreads. We formally integrated ESG factors into the model in 2012, for all the countries in our universe. The resulting scores, when compared with prevalent yield spreads, form the basis for discussions on relative value ideas. We further enhanced the SRM in 2018, using five years of historical data and advanced econometric techniques. These enhancements combine analysis of a country's economic fundamentals and analysis of its governance and institutional quality; these two pillars come together to create our overall country score.

In order to integrate our ESG Stability and Development indicators into our SRM, we conducted an analysis of the predictive value of the ESG indicators for our universe. We backtested this on three different levels, across multiple years and countries. By backtesting the predictive power of the ESG Stability and Development indicators, we found that including a wider array of ESG variables produces comparable results to our previous model, which was governance-heavy. The enhanced model shows that incorporating our ESG indicators has minimal negative impact on explanatory power while at the same time adding greater diversification in our model through additional E & S factors.

Evaluating test outputs across calendar years, we observe statistical improvement over time. We also find that variance in our ESG factors across years consistently explains year-on-year

variance in spreads. This provides comfort as it shows consistent statistical inference year on year, and not just an outlier during any given period.

Analysis of high-beta countries

We also analyse potential mispricing opportunities by comparing countries that fall in the same beta bucket irrespective of the region they are in. As Figure 2 shows, while many high-beta countries exhibit lagging ESG scores, their upward momentum is clear, with most of them displaying improvement over a three-year trajectory. These countries offer exciting opportunities in terms of ESG evaluation and integration in our model.

Repeating the framework used for our analysis of the full universe, we narrowed down the list of countries in the high-beta bucket. We expect this bucket to demonstrate greater volatility in terms of statistical output, as the countries in this part of the universe have very heterogeneous credit profiles. Our analysis shows lower year-on-year consistency for high-beta countries than for our full EMD universe. Also, our research shows that the explanatory power of our ESG indicators is relatively high for the high-beta subset, compared with our full EMD universe. Improving statistics and explanatory power could also be linked to the upward momentum seen in the majority of high-yielding countries over the three-year trajectory.

Figure 6: Our continuous ESG integration efforts



ESG integration in all steps of the EMD sovereign investment process

We have integrated ESG factors into all parts of our investment decision-making process, across all the EM sovereign portfolios that we manage. The above figure and text explain how we implement this in practice, on a quarterly, monthly, weekly and annual basis.

Quarterly

On a quarterly basis, we incorporate NN IP’s ESG Stability and Development scores into our Sovereign Risk Model (SRM), which represents an enhancement from the prior governance-heavy model. The SRM is a quantitative tool that is the first step in our bottom-up country analysis. We use this as input into the decision-making process, alongside qualitative components and judgement contributed by the portfolio managers, who fill out scorecards per country detailing their views.

Monthly

We hold a monthly discussion among Hard Currency and Local Currency Sovereign team members to align our country ESG outlook from weekly assessments across EMD sub-asset classes.

Weekly

We assess our ESG outlook for each country on a weekly basis, using qualitative input from our portfolio managers. This ESG outlook acts as a fourth input that we use when taking active investment decisions, on top of fundamentals, valuations and technical analysis. Table 1 shows how we weight these individual components.

Table 1: How we calculate a country’s overall score

	Weight
Fundamentals	40%
Valuation	40%
Technical	20%
ESG	20%
Overall	100%+20% ESG

Annually

Together with NN IP’s Responsible Investment team, we engage with issuers to pursue structural ESG improvements. Regular sovereign issuers are in close contact with investors like ourselves who buy their bonds. Unresolved ESG issues may decrease an issuer’s market access or increase its cost of raising capital as ESG considerations become more important to investors.

Within NN IP, we focus on three engagement themes. Of these, the first is “strong governance”, which includes engagement with countries. We often do this in collaboration with other investors; for example, we are a member of the Institutional Investors Group on Climate Change (IIGCC) and signatory to the United Nations Principles for Responsible Investment (UN PRI).

How we use the ESG outlook score

"The ESG outlook score can notch the overall score for a country up or down. For example, the deployment of the military in northern Ethiopia in response to ethnic clashes poses a risk of further escalating already-high social tensions in the country and ultimately impacting Ethiopia’s positive growth story. We notched the overall score down to incorporate this risk in our assessment. In Sri Lanka, however, we decided against notching down the overall score as a result of constitutional changes. On balance, we believe these changes are neutral for the country’s outlook. They further consolidate power in a select few hands, but also simplify its tedious policy-making process."

Jasper Tintel, sovereign ESG analyst

Our innovative approach to ESG integration in EM sovereigns

Our innovative ESG integration approach overcomes issues that often arise when integrating ESG in EM sovereign issuers. One such issue is data. In many cases, ESG assessment is based on lagging indicators that are updated only once or twice a year. To overcome the issue of stale and infrequent updates, we take a more dynamic approach to ESG integration. We assess ESG factors in our weekly, monthly and quarterly country assessments and use big data to provide our PMs with real-time input about what is driving the countries we invest in. This is supplemented by qualitative analysis from our EM Sovereign ESG analysts. Although data sources have improved and our innovative tools overcome part of the data issues inherent with ESG

investing, the qualitative information added by our ESG analysts is invaluable.

Further, our analysis provides support for the addition of environmental and social factors in our quantitative Sovereign Risk Model. This supports our qualitative views that environmental factors in particular may become more dominant. Increasing the number of variables to include environmental, social and governance factors is especially valuable when analysing high-beta spread levels. Finally, our focus on engagement rather than exclusion underpins our approach, and also enables the PMs to identify mispricing opportunities ahead of consensus.

Chapter 3

EM Corporate Debt: A diverse toolbox for ESG assessment

ESG integration has a longer and more developed track record in corporate credit, where mandatory ESG disclosures and clear reporting guidelines have propelled ESG integration forward, than in sovereign debt. This is especially the case in developed markets, but EM companies have also largely acknowledged that taking ESG aspects into account plays a pivotal role in proactive risk management as a way to avoid reputational and financial damage.

While ESG-related risks can be higher in emerging markets than in developed markets, EM companies have made significant strides in recent decades. Improved data availability and transparency mean that ESG-focused investors are better equipped than ever to navigate the complexities of emerging credit. Companies in emerging markets have unquestionably become more open to ESG considerations as the responsible investing framework is now mainstream. We believe it also demonstrates good business sense to incorporate an ESG framework into business models. In our experience, companies that consider these factors are also prudent when it comes to cost structure and other financially tangible elements.

The ESG assessment process in EM corporate debt

When we initiate coverage on a new company – for example when an issuer announces it will come to market for the first time, or when we find an issuer's bonds to be attractively valued for the first time – we analyse both the issuer's fundamentals and its ESG profile. We incorporate the outcome of the ESG assessment into our traditional credit analysis.

Our analysts have multiple tools at their disposal for assessing an issuer's ESG profile, the most thorough of which is NN IP's EMD Corporate ESG Scorecard. This is an in-depth qualitative assessment that the analyst performs manually; it requires significant research and inference on top of available third-party data. We compare the resulting issuer ESG score with sector peers, putting the issuer's ESG profile into perspective.

The second comprehensive tool that our analysts can use is NN IP's ESG Lens. When applied to corporate analysis, the ESG Lens provides further insight into a company's environmen-

tal, social and governance-specific performance. This smart, data-driven model is available for a large part of the investible universe and supports the analyst's assessment of the strength of an issuer's ESG profile versus its sector peers.

For issuers with a relatively strong ESG Lens score and no severe controversies as indicated by the Sustainalytics Controversy Score, the analyst can depend on the ESG Lens for guidance on how ESG factors impact the overall risk assessment of an issuer – i.e., its internal credit rating. For other issuers, the analyst will perform a more thorough analysis and complete an ESG Scorecard.

Our aim is to cover around 90% of the issuers in the portfolio with either the ESG Scorecard or the ESG Lens. For the few issuers with a low Controversy Score and for which there is no ESG Lens score available, usually due to a lack of available data, we fall back on Sustainalytics' Company ESG Risk Ratings reports and Controversy Scores for insight into the issuer's ESG profile.

If the issuer's ESG profile relative to its sector peers in the EM corporate bond universe is either poor or strong, we will down- or upgrade its internal credit rating (which results from the traditional analysis) by one notch, unless the analyst believes this change is unwarranted. As such, the ESG assessment directly impacts our analysts' investment recommendations.

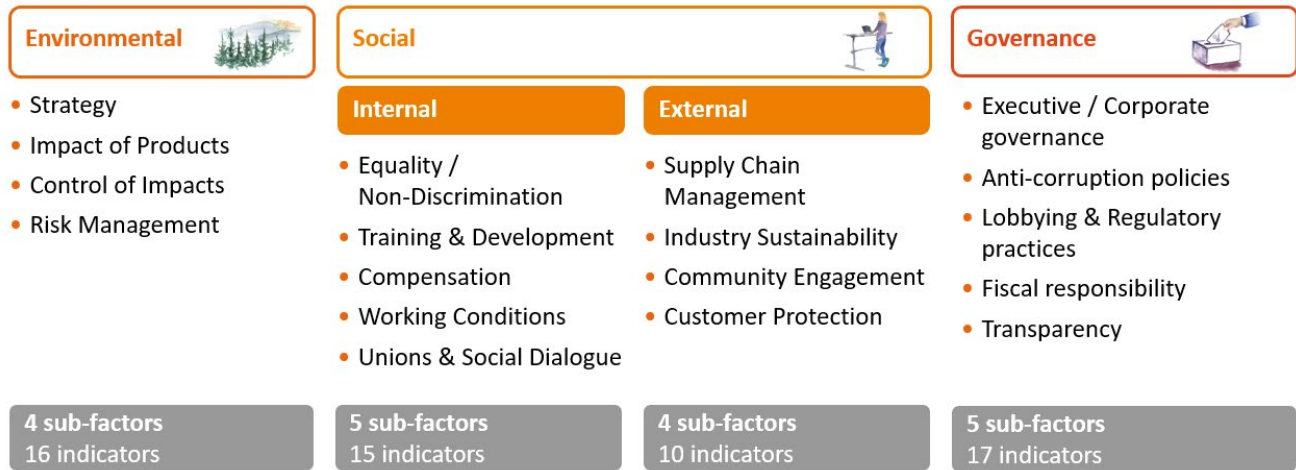
The proprietary NN IP ESG toolbox

As described above, our analysts make use of two proprietary tools in their ESG analysis of individual companies: the EMD Corporate ESG Scorecard and NN IP's ESG Lens. This section explains how these tools help us ensure that a company's ESG standards are rigorously examined, documented, and put into perspective.

The EMD Corporate ESG Scorecard

The EMD Corporate ESG Scorecard represents an in-depth qualitative assessment that the analyst conducts manually. This tool was developed by the corporate analyst team in cooperation with the Responsible Investment team. To systematically

Figure 7: How our EMD Corporate ESG Scorecard works



to assess an issuer’s ESG profile, the ESG scorecard divides environmental, social, and governance factors into subfactors, which are scored using several indicators.

These indicators are first scored with inputs from Sustainalytics, Refinitiv and TruValue Labs. Subsequently, the analyst also scores each indicator, providing a qualitative assessment. This proprietary analyst research allows us to develop an exhaustive picture of an issuer’s ESG risks. Our analysts use a range of sources for the qualitative analysis, such as an issuer’s annual reports and publications such as ESG or sustainability reports, in addition to third-party and public sources such as research services, news outlets, NGO reports, and so on. Further, analysts address ESG issues in their discussions with company management and integrate those findings in the ESG scorecard.

Based on the findings of this research, the analyst scores each indicator with a value between 0 and 100. We have developed rigorous guidelines to define what a score of 0, 25, 50, 75, or 100 implies, resulting in more standardized scores between the different analysts. The resulting indicator scores are aggregated into a score for each subfactor with a value between 0 and 100, which in turn results in a score between 0 and 100 for each of the three E, S and G factors. Finally, the three factor

scores are aggregated into an ESG Sustainability Score for the issuer.

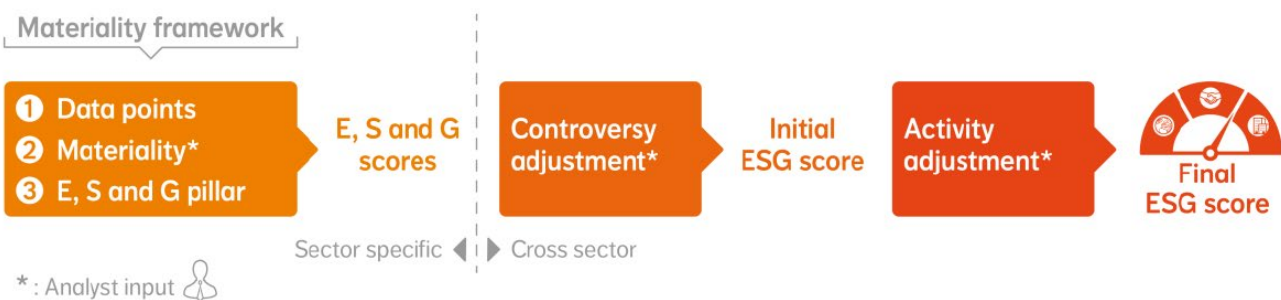
To capture the varying risks that companies in different sectors face, the weight for each factor (E, S, and G) differs between sectors. For example, environmental concerns are of much less importance for issuers in the financial sector than for issuers operating in the mining or oil and gas sectors.

We compare an issuer’s ESG Sustainability Score with that of its peers in the EM corporate bond universe, and then combine it with the internal rating that results from our traditional credit analysis. A relatively poor or strong ESG profile will result in a one-notch down- or upgrade of the internal credit rating, unless the analyst believes this change is unwarranted. Therefore, the ESG assessment directly impacts our analysts’ investment recommendations.

The ESG Lens in corporate analysis

NN IP’s proprietary ESG Lens enables analysts to easily review, track, and compare a corporate issuer’s ESG profile. The overarching ESG Lens is made up of two frameworks: one for sovereign analysis, and one for corporate analysis⁸. On the corporate side, the ESG Lens provides a score between 1 and

Figure 8: How our ESG Lens works for corporate analysis



8 To learn how we apply the ESG Lens in sovereign analysis, please see page 7 of this document.

100 for every company in the NN IP investment universe that meets the minimum data requirements. A higher score reflects a better ESG profile, and vice versa. The score reflects NN IP's proprietary view on a company's ESG profile and is constructed using a sophisticated methodology.

The ESG Lens collects data from external data providers and inputs from our in-house analysts to calculate an overall ESG score. The first step is to derive a company's initial environmental, social and governance scores by using NN IP's ESG materiality framework⁹. These scores are then adjusted twice, for controversies and activities, to arrive at a final ESG score.

The materiality framework is designed to ensure that the ESG score represents material ESG issues that affect the company's financial stability or are a core part of its operations. The ESG Lens employs six materiality factors that are distributed across the environmental, social and governance pillars and are weighted depending on their materiality to the sector in question. The sector weightings were set following discussions by the RI team and several analysts. Drawing on data from third-party data providers, a score is derived for each of the company's environmental, social and governance factors.

Next, the E, S and G scores are penalized for controversies, if any. This controversy adjustment incorporates a company's malpractices and other questionable behaviour, and incorporates an outlook (negative, neutral, or positive) for each controversy. Once this adjustment is made, the separate factors are combined to form an initial ESG score.

Finally, this score is adjusted for the impact of a company's business activities. Activities are categorized as sustainable or unsustainable, for example education or animal testing, and the percentage of total revenue gained from each of those activities is combined in the activity adjustment factor. This factor is then applied to the initial ESG score, and the outcome is the final ESG score. As with the ESG Scorecard, the issuer's ESG profile is then compared with that of its peers. A relatively poor or strong ESG profile can result in a one-notch down- or upgrade of the internal credit rating that results from the traditional credit analysis.

The model incorporates three external data providers – Sustainalytics, Refinitiv, and TruValue Labs – into the construction of the ESG Lens. Sustainalytics and Refinitiv provide medium- and longer-term data on a company's ESG standing, collected from company policies and annual reports, among others. Sustainalytics also aggregates and analyses data on controversies. These insights are augmented by the timely and dynamic insights from TruValue Labs, which analyses and quantifies the news flow around companies in near real-time fashion by applying big data analysis and natural language processing.

The final data input is the analyst's expert opinion on the company. The analyst can suggest changes to the weighting of the materiality factors, the outlook of a company's controversies, and the weighting of business activities. Analysts are also encouraged to submit qualitative comments if they believe that the score or its underlying components do not yet capture certain information. A bi-weekly committee can discuss these comments and incorporates them if they are deemed to enhance our insight into the company's ESG profile.

Forward strides in ESG integration for EM corporates

First and foremost, the quality of our ESG assessment is derived from our team of analysts, who have a robust set of tools and data at their disposal when assessing an issuer's ESG profile and who incorporate the outcome of this assessment into our traditional credit analysis.

Two proprietary tools have proven instrumental in the analysis of individual companies: the EMD Corporate ESG Scorecard and the ESG Lens, which ensure that a company's ESG standards are rigorously examined, documented, and put into perspective. We believe the NN IP ESG Lens represents an objective, reliable and unique technology-based advancement in ESG analysis, based on the combination of human and machine input, big data and data based on company policy, and slow-moving and fast-moving data. Meanwhile, the EMD Corporate ESG Scorecard enables analysts to conduct an in-depth manual analysis of companies that have previously faced controversies or that may initially appear to have a weaker ESG profile.

Over time, we expect investor focus on ESG considerations to lead to higher standards and further development of ESG data and analysis. We also expect positive knock-on effects that will benefit the companies we invest in, as increased focus on ESG practices should ultimately lower the cost of capital for the issuers that manage this transition best and lead to a more sustainable world.

⁹ For more information on the materiality framework, see the ESG Materiality Framework document on [this page](#).

Authors

Marcin Adamczyk
Head of Emerging Markets Debt



Bregje Roosenboom
Client Portfolio Manager EMD



Joep Huntjens
Head of Asian Fixed Income



Jerrell Che
EMD Data Scientist



Leo Hu
Co-Lead PM EMD
Hard Currency strategies



Jasper Tintel
EM Sovereign ESG Analyst



Ken Dijkstra
Product specialist
Asian Fixed Income



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