

## CROSS-SECTOR RATING METHODOLOGY

# General Principles for Assessing Environmental, Social and Governance Risks Methodology

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This rating methodology replaces the *General Principles for Assessing Environmental, Social and Governance Risks* methodology published in April 2021. This methodology update includes two minor modifications to Appendix D. First, it clarifies that Carbon Transition Assessments (CTA) framework scores are only one data point and are not the sole source of information, that, where available, may help inform our assessment of carbon transition risk for some enterprises. Second, we may assign issuer profile scores and credit impact scores to non-financial corporate government-related issuers, including those whose ratings are primarily based on support from another entity.

## Introduction

In this cross-sector rating methodology, we explain our general principles for assessing environmental (E), social (S) and governance (G) risks, collectively ESG, in our credit analysis for all sectors globally.

We seek to incorporate all material credit considerations, including ESG issues, into ratings and to take the most forward-looking perspective that visibility into these risks and related mitigants permits. The materiality, time horizon and credit impact of ESG risks vary widely. Issuers' fundamental credit strengths or vulnerabilities can mitigate or exacerbate ESG credit impacts. In some cases, ESG-related benefits can be a credit strength.

**This methodology discusses the general principles underpinning our analysis of current and developing ESG risks that can affect credit quality for issuers and transactions in all sectors.**

The methodology also explains how ESG factors are considered where they are not explicitly described in a sector-specific methodology. As explained more fully in the "General Approach to Assessing ESG Risks" section, ESG considerations can be captured in a variety of ways in our analysis. In some cases, sector-specific methodologies describe in a more granular way how these considerations affect the scoring of certain scorecard factors and sub-factors, or how they form part of other considerations that are incorporated into ratings outside of a scorecard. ESG considerations may inform forward-looking metrics or scenario analyses, or they may be incorporated qualitatively.

We describe our ESG classification, including the categories of the considerations that are typically most important in our analysis within each ESG component (i.e., E, S and G). These principal categories of risk are a useful means to analyze in a consistent way the wide range of ESG considerations within a sector or across sectors.

This methodology also describes the framework under which we may indicate the respective E, S or G exposures of an issuer or transaction. We refer to these as E, S and G issuer profile scores (IPs), which are expressed on a five-point scale. Our assessment of the exposure to E, S and G risks or benefits is based on the general ESG principles described in this methodology, and the scores provide a consistent way to express this assessment. They are inputs to the rating. As IPs are established over time, they will foster comparisons of risks and benefits across issuers and sectors. There is a common issuer profile framework, described in Appendix A, and additional details for sovereigns are set out in Appendix C. This methodology may be updated from time to time to include specific issuer profile considerations for additional sectors.

This methodology also describes the framework under which we may establish an ESG credit impact score (CIS) for an issuer or transaction. The ESG credit impact score explains the impact of ESG considerations on the rating of an issuer or transaction. The CIS is based on our qualitative assessment of the impact of ESG considerations in the context of the issuer's other credit drivers that are material to a given rating. The CIS is an output of the rating process.

Please see Appendix B, which describes how we express the materiality of ESG considerations on a rating.

Our presentation of this rating methodology proceeds with (i) the scope of this methodology; (ii) a discussion of our general approach to assessing ESG risks; and (iii) our general principles for assessing (a) environmental risks, (b) social risks and (c) governance risks. In Appendix A, we describe our framework for establishing E, S and G issuer profile scores. Appendix B provides information about how we may assign a credit impact score. In Appendices C, D and E, we provide more details on how we apply the general framework for determining E, S and G IPs, described in appendices A and B, to sovereigns, enterprises and regional and local governments (RLGs), respectively. Appendix F provides a description of the types of considerations and indicators that may be generally relevant across enterprise sectors and types of RLGs for informing our assessment of E, S and G risk categories and assigning IPs.

## Scope of This Methodology

This methodology applies to all sectors globally.

## General Approach to Assessing ESG Risks

### Categorizing ESG Considerations

The term ESG refers to a broad range of qualitative and quantitative considerations that relate to the sustainability of an organization and to the broader impact on society of its businesses, investments and activities. Examples include a company's carbon footprint, or the accountability of a company's management or a nation's government. We are focused on the aspects of ESG that can have a material impact on the credit quality of an issuer.

The classification of ESG considerations across financial markets is imprecise, due largely to the multiple and diverse objectives of various stakeholders. Several institutions, notably the Principles for Responsible Investment and the Sustainability Accounting Standards Board, have sought to establish voluntary definitions for ESG, but at this point there is no single set of ESG definitions or metrics that is

This publication does not announce a credit rating action. For any credit ratings referenced in this publication, please see the ratings tab on the issuer/entity page on [www.moodys.com](http://www.moodys.com) for the most updated credit rating action information and rating history.

comprehensive, verifiable and universally accepted. The definition of ESG issues is also dynamic because what society classifies as acceptable evolves over time, resulting from new information (e.g., the impact of carbon dioxide emissions) or changing perceptions (e.g., what constitutes privacy). To provide transparency into our assessment of ESG risks and benefits, we have developed an ESG classification nomenclature that includes components (E, S and G) and, for each component, categories and subcategories of the ESG considerations that we view as most likely to have credit implications across sectors. For the E component, the categories are the same for public- and private sector issuers, and for S and G components, there are different categories for public and private sector issuers. For more details, please see the sections below.

In our credit analysis, we seek to be comprehensive, incorporating the broadest possible view into all material considerations that can affect the credit quality of an issuer or transaction. Our objective is to capture all considerations that have a material impact on credit quality.<sup>1</sup> We are focused on all material credit considerations that may influence the relative risk of default and expected financial loss in the event of default for issuers and debt obligations, regardless of whether or not they are classified as ESG risks. We typically incorporate ESG considerations in a variety of ways, either directly or indirectly in scorecard factors, models or metrics or more generically as other considerations outside the scorecard or model.

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### Characteristics of ESG Considerations

As a broad and dynamic group of factors, ESG considerations and their importance to issuers' credit profiles can vary widely across sectors. For example, the ESG issues material to a sovereign are likely to be substantially different from those that are material to a mining company. Some ESG issues can also vary widely across issuers and be important only under certain circumstances or for a subset of issuers covered by the relevant methodology scorecard.

We typically consider the credit impact of the distinct aspects of ESG for an entity in our analysis, as well as the combined impact of ESG considerations. For example, a company could have excellent governance and employee relations that do not offset the negative credit impact of a large carbon footprint. There may also be an interplay of ESG considerations. For example, a country's environmental problems or governmental policies may increase the risk of social instability or have a negative impact on the economy.

### ESG Considerations, Individually or Jointly, Often Have More Potential Credit Risk Than Credit Benefit

Some ESG issues may have greater downside risk than upside potential. As an example, a company with a track record of health and safety violations may face litigation risks that pressure its operating income, whereas another company that demonstrates outstanding health and safety practices may not see a comparable credit benefit.

ESG considerations are not always negative; they can be credit strengths. A company or government that has outstandingly strong governance is more likely to have a management culture of 360-degree risk assessment and informed decision-making, which support long-term creditworthiness. Due to the relatively low incidence of ESG strengths that are meaningful to credit profiles, they are also more likely to be considered in other rating considerations outside of a scorecard, but there are exceptions. An example is the Institutions and Governance Strength factor for sovereigns, which directly addresses the strength of each sovereign's governance. As another example, the business profiles and cash flow stability of renewable energy developers may benefit from supportive government policies.

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<sup>1</sup> Considerations that are material to credit quality may not include all investment parameters that some market participants would regard as green, sustainable or ethical.

## Sector-wide Exposure Is Common

In some sectors, most issuers have a similar level of exposure to ESG risks, although there may be variations. In some cases, ESG risks that are common to issuers in a sector may be reflected in the overall calibration of the factors and sub-factors in the sector methodology. For example, all oil refiners sell a carbon-intensive product, which entails transition risks that we incorporate into our forward-looking view of long-term demand, future cash flows, and appropriate leverage and coverage ratios for all issuers in the sector. Within the sector, carbon transition risks are a discernible ratings differentiator for oil refiners whose exposure is unusually high (e.g., refineries located in a jurisdiction with exceptionally stringent environmental requirements), or whose risks are unusually well-mitigated (e.g., a refiner that is successfully diversifying into lower-carbon business activities that are profitable).

## Assessment Challenges

The potential credit impact of many ESG considerations is challenging to assess because it must often be inferred or estimated from multiple sources based on reporting that generally is not standardized or consistent.

Assessing the credit materiality of ESG considerations often entails qualitative judgment, for example in assessing how an issuer's stakeholders may react to an issue or event, which can be difficult to predict and can vary across sectors, countries and regions. A similar exposure to an ESG risk may be perceived differently by customers, employees or policymakers depending on their own socio-political background, and thus may have different credit implications where there are different circumstances.

Environmental and social issues can often be diffuse, with long or uncertain time horizons (e.g., climate change and demographics), and are subject to the variability of potential policy measures (e.g., carbon regulations and immigration policies) and the performance of the economy. This can result in a wide range of potential credit outcomes for affected issuers.

As we do for other rating considerations, we incorporate future ESG trends into ratings when we have visibility into those trends. In most cases, however, our ability to forecast the impact of trends that will only unfold far into the future is necessarily limited. Nearer-term risks generally have a more direct impact on ratings because there is typically far greater certainty of their impact on credit profiles. As a general principle, as the time frame for a source of risk lengthens, the less certain we can be of its impact on an issuer's cash-flow-generating ability and other credit metrics, and the less clarity we have regarding the importance of that risk in relation to other risks the issuer faces. For example, longer time frames give an issuer more time to adapt by lowering costs, adopting new technologies, or realigning its business model, budgetary spending or balance sheet to changed circumstances; however, some issuers may not be able to or may fail to take effective mitigating actions.

Longer-term risks generally fall into two general categories: (i) broad risks, such as demographic change, which are more likely to have an effect across an entire sector (potentially to varying degrees by issuer); and (ii) risks with low probability but high severity (also called event risks), which more often only affect individual issuers. For both categories, the impacts of these risks may change or become more apparent over time. Event risks such as natural disasters and major operating accidents can overwhelm even an entity with a strong balance sheet.

These characteristics are not unique to ESG. Credit analysis for any sector involves an evaluation of factors with inherent uncertainty or poor visibility. While the future impact of diffuse, uncertain or very long-term risks cannot always be calibrated, fundamental credit strengths that provide resilience against short-term risks also provide resilience against most long-term risks.

## Our Ratings Reflect ESG Considerations with Material Credit Implications for Sectors and Debt Issuers

In our analysis, we identify and assess credit implications arising from all material ESG considerations that we can discern, whether they have a current impact or a potential future impact. These could include the impact that a prolonged drought has on a municipality's tax revenue and capital spending on water infrastructure, or the likely credit impacts that regulatory frameworks and ESG-related laws, policies and regulations will have on rated issuers and sectors as a whole.<sup>2</sup> We also assess any mitigating or adaptive behavior that issuers undertake. In some instances, we may identify ESG trends that are positive for an issuer's credit profile.

In order to be meaningful for ratings, ESG considerations must be material to the likelihood of default and credit loss. Issuers encounter a multitude of ESG risks and opportunities, many of which have little tangible impact on operating or financial performance. For example, a company's volunteer work, charitable activities and other such initiatives are important to the extent that they produce social value, but their potential positive impact on the company's financial health or credit standing is unlikely to be material.

The materiality of a particular aspect of ESG is typically specific to a sector or even an issuer or a transaction. For example, air pollution emission standards may be an important credit issue for the auto manufacturing sector but may not be meaningful for media companies. The strategies issuers within a given sector follow to address an ESG risk that is common to them all may result in improvements in credit strength for some issuers and deterioration in credit strength for others.

Our approach to ESG considerations is similar to our approach for other material credit considerations in that it includes an assessment of the impact on an issuer's cash flows and the value of its assets over time; the sufficiency and stability of cash flows and assets in relation to the issuer's debt burden and other financial obligations; and liquidity and the ability to access capital. Visibility into future cash flows is also an important consideration.

For example, for a non-financial corporate, we seek to assess how ESG issues such as product safety and carbon transition risks influence credit drivers such as demand for its products, the cost of production and the need for financing to make capital expenditures, as well as the potential for these drivers to change meaningfully over time. For financial institutions, we seek to assess how ESG issues such as governance and customer relations influence credit factors such as the issuer's ability to access funding in wholesale markets, its liquidity, risk tolerance, capital position and profitability, as well as the potential for these governance issues to affect the sustainability of the firm's business model. For structured finance transactions, we typically assess how ESG considerations may affect underlying asset values, in addition to considering how the special purpose vehicle's governance affects creditors. For sovereigns, meanwhile, we seek to assess how ESG considerations such as the economic effects of environmental issues, including climate change, or social and governance-related issues, such as control of corruption and the rule of law, could affect GDP, the trajectory and stability of the government's revenues and expenditures as well as the government's ability to withstand shocks, among other drivers of government creditworthiness.

## ESG Considerations Are Incorporated in Ratings in a Variety of Ways

Where ESG issues are meaningful for credit profiles, we incorporate them into our ratings analysis in a variety of ways in the application of our sector-specific methodologies. As one part of our overall credit analysis, we consider how ESG risks could affect the qualitative and quantitative factors and sub-factors in the relevant scorecard or model. ESG impacts are incorporated, for example, in our qualitative assessment

<sup>2</sup> Ratings and rating actions, even those in response to policy decisions or changes, do not express judgments on the appropriateness of any policy; rather, they reflect our view of how those policies affect the ability of an issuer to repay its financial obligations.

of scorecard factors such as business profile, institutional strength or regulatory environment. Where we have sufficient visibility, ESG considerations may be incorporated into our projections, or we may consider scorecard-indicated outcomes based on a variety of scenarios.

Even where ESG considerations do not affect the measures in a sector-specific scorecard or model, or where they cannot be quantified, we incorporate them into our overall analysis of credit drivers that are meaningful to the rating. In some cases, the expected impact of ESG risks may extend beyond the period that we can meaningfully project an issuer's scorecard metrics, or these risks may materially heighten the uncertainty of future results but we may have insufficient information to project the impact with reasonable precision. As a result, we may incorporate these ESG risks qualitatively outside the scorecard. For example, the financial impact of the long-term decline of the thermal coal industry resulting from more-stringent environmental regulations and product substitution cannot be projected over many decades with reasonable precision and thus would not be fully captured in a scorecard. However, our ratings of thermal coal mining companies qualitatively incorporate our negative long-term expectations for this industry in addition to our nearer-term projections.

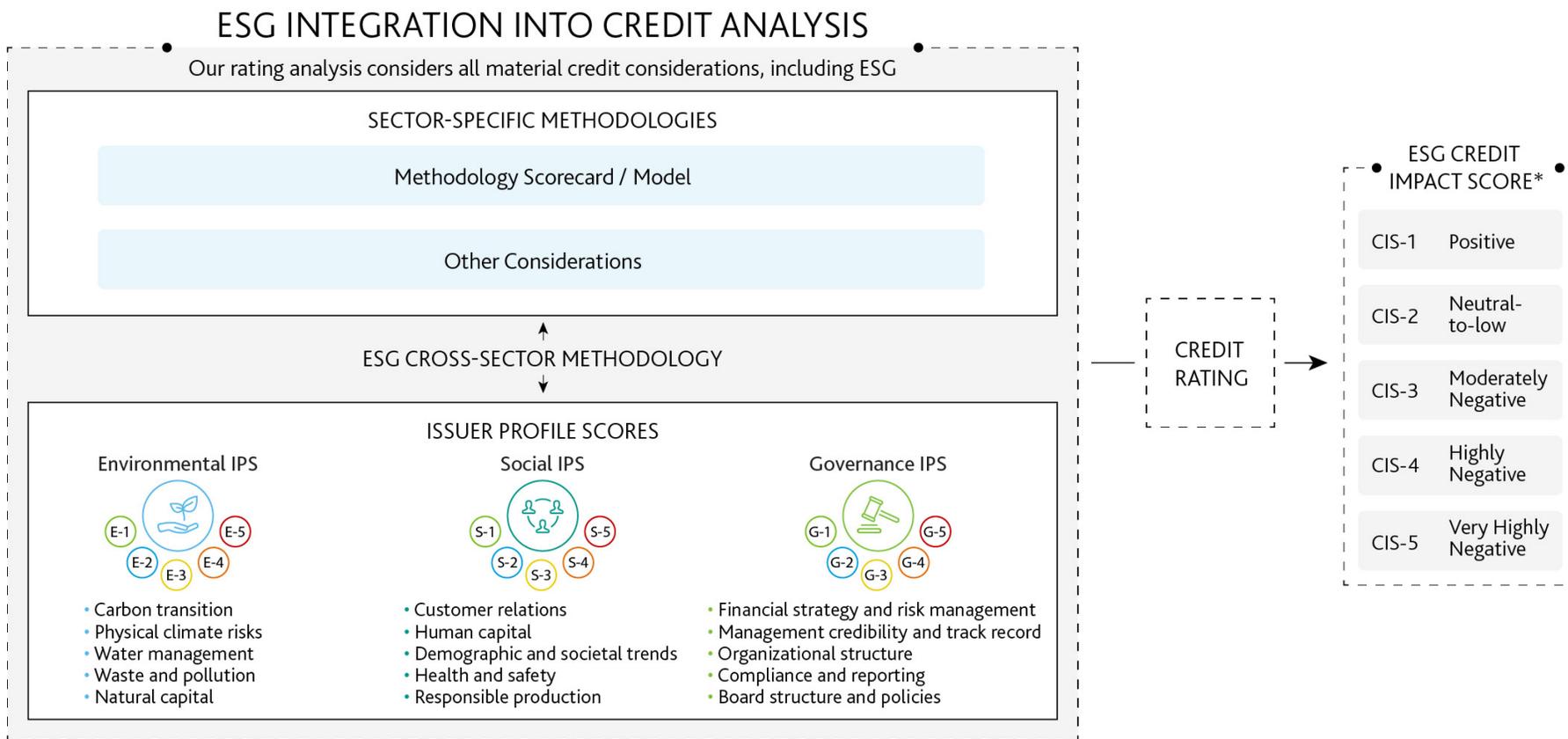
As part of our ratings analysis, we may establish Issuer Profile Scores (IPs), which indicate our opinion of the extent to which a given issuer or transaction is exposed to E, S and G risks (incorporating ESG-specific mitigants) or benefits from its exposure to E, S or G. The IPs are inputs to credit ratings. For more details on IPs, see Appendix A and *Rating Symbols and Definitions*.<sup>3</sup>

The exhibit below illustrates how we may incorporate ESG considerations into ratings.

<sup>3</sup> A link to *Rating Symbols and Definitions* can be found in the "Moody's Related Publications" section.

EXHIBIT 1

An Illustration of How ESG Considerations Are Captured in Ratings



\* The ESG credit impact score (CIS) is an output of the rating process that more transparently communicates the impact of ESG considerations on the rating of an issuer or transaction.

Source: Moody's Investors Service

## General Principles for Assessing Environmental Risk

Environmental risks are a significant consideration for a large number of issuers in the public and private sectors. We view environmental risk as falling broadly into two types of risks.

- » **The consequences of regulatory or policy initiatives that seek to reduce or prevent environmental trends or hazards or perceived trends or hazards.** These include:
  - Regulations that have been implemented or those that are likely to be introduced (given, for example, proposals by regulators or legislators or binding agreements under an international accord) have the clearest impact on the credit profiles of issuers and sectors.
  - Longer-term regulatory initiatives where implementation is unclear or subject to delays or meaningful regional variations (given, for example, very general agreements under an international accord with no enforcement mechanisms) provide less visibility into the likely impacts on the relative risk of default and credit loss for issuers. Lack of clarity may also diminish issuers' ability to adapt to regulations, adding a further layer of uncertainty regarding the credit implications.
- » **The adverse effects of direct environmental trends and hazards, such as pollution, drought, severe natural and human-caused disasters, and climate change.** Direct environmental trends such as those arising from climate change (for example, rising temperatures) are typically incremental, developing over very long time frames, with diffuse consequences and limited immediate impact on ratings. High impact environmental hazards such as hurricanes or cyclones, wildfires or floods are episodic; they can be severe, concentrated in their impact and can sometimes have an immediate impact on ratings. The credit impact of long-term environmental trends or future hazards may be curbed or offset by other influences. These could include the implementation of regulations or technological changes that mitigate the effects of the trend, adaptation strategies such as improvements in physical and institutional infrastructure, or rising income levels that increase a government's tax base, allowing it to finance needed improvements.

Some environmental considerations straddle these categories, such as waste and pollution, where we consider the policy response and the potential direct effect of the hazards that may result.

The impact of these risks may affect factor or sub-factor scoring in methodology scorecards; for example, these risks could affect our forward-looking assessment of business profile, leverage and coverage, economic strength or GDP, or they may be considered outside of the scorecard. We also consider environmental risks in tandem with other issuer or sector characteristics that may mitigate or exacerbate their impact.

For example, factors such as scale, high barriers to entry, the ability to recover rising costs from customers or taxpayers, financial flexibility, and expertise in handling operational and regulatory issues are important to the ability of issuers in most sectors to handle environmental exposures and implement adaptation strategies while maintaining their credit profiles. Conversely, small scale, geographic concentration, low income levels and deteriorating demographic trends make some issuers much more susceptible to environmental hazards or less likely to be able to implement adaptation strategies.

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### Environmental Regulation or Policy Initiatives

We seek to assess regulatory frameworks and the likely impacts that regulations will have on rated issuers and their sectors.

Relative to direct environmental risks, regulatory risks are more likely to have a focused, near-term credit impact on certain issuers and sectors, primarily in the private sector but also in the public sector. Recently implemented regulations and regulations that are likely to be introduced have the greatest potential to affect credit profiles and ratings.

### **Regulatory Risks with Visible and Immediate Impact**

When regulations are known and transparent, the credit impact is reasonably visible. In our assessments of the impacts of environmental regulations, we may consider the likely effects on product demand or production costs. We may also consider whether issuers within a sector are concentrated in a particular product or market niche, or are less efficient than peers.

For example, for coal mining companies, we typically consider how environmental regulations on air emissions, including traditional pollutants and carbon dioxide, may affect market demand and depress coal prices and sales volume. Regulations concerning land use, water scarcity and water quality are also relevant because they can contribute to higher costs. We typically consider whether environmental regulations could constrain the production of a domestic company to the benefit of a foreign producer.

Reputation and consumer preferences can also affect demand or alter market dynamics, such as a preference for hybrid or electric vehicles. As another example, finance companies could face reputational damage in addition to asset risk if their lending is concentrated in sectors or borrowers perceived as causing environmental harm.

### **Longer-Term Regulatory Initiatives Where Implementation Is Unclear**

The future course of regulatory and policy initiatives is not always clear, providing less visibility into the likely impact on the relative risk of default and credit loss for rated issuers. There can be important differences between regulations that are proposed and debated and those that are carried out.

The timing of implementation and the way regulations are enforced can be important credit considerations. Regulations may set a target (for instance, to achieve a certain percentage of power from renewable sources or a reduction in emissions relative to a baseline) with unclear repercussions if targets are not met. When there are international accords to reduce emissions, there may be important national, regional and local influences that affect the timing and method of implementation as well as the rigor or laxity of enforcement.

These influences may provide extra time for issuers to adapt to regulation, or they may create uneven playing fields or reduce visibility regarding which issuers' credit profiles will be affected. In these cases, gauging the future credit implications is complex and necessarily includes an assessment of the political landscape, including the will of the body politic to accept regulations that may result in higher costs or fewer jobs in the sector, and the ability of affected sectors to alter the course of regulation or implementation.

For example, for an independent oil and gas exploration and production company, we assess existing carbon regulations and seek to understand how the trajectory of future regulations is likely to influence demand and pricing for hydrocarbons. We also typically consider whether the effects of regulations include higher costs, capital investment or limitations on locations to explore for new resources. For sovereigns, which are also exposed to carbon transition risk, substantial reliance on hydrocarbons as a source of income is an important credit consideration. For structured finance transactions, we may consider whether a rated transaction is concentrated in a sector with carbon exposure. We may, for example, assess how emissions regulations impact automobile residual values for securitizations backed by automobile leases.

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## Environmental Hazards

We seek to incorporate risks of direct environmental hazards — such as the impacts of waste and pollution, water availability, pricing and related issues, depletion of natural capital and physical climate risks. We also may consider such aspects as liability, clean-up costs, capital costs, and carbon regulations to prevent or remediate these risks.

Many environmental hazards are incremental or evolving, and they may constitute risks over a much longer time frame than risks that can result from environmental regulations, providing much less visibility into their impact on the relative credit standing of rated issuers. While public sector entities are often the first responders, private sector entities may bear liability for disasters they have precipitated or regulations they have violated. Insurers and reinsurers may be exposed based on the liability coverage they have provided to the private or public sector.

The credit impacts of environmental trends may be delayed or eventually overshadowed. For instance, the deleterious effects of airborne mercury build up over time, such that the credit impact on a local government — in the form of poorer health, a lower tax base or emigration — may happen long in the future. But, over time, its impact may also be curbed or offset by other influences, such as rising incomes (which typically increase a government's tax base and can benefit health), implementation of regulations, more resilient physical and institutional infrastructure, or technological changes.

Environmental hazards such as major oil spills and severe hurricanes are episodic, often with intense, localized impact that is hard to predict but very meaningful to credit risk for the affected issuer or group of issuers and their insurance coverage providers. Site remediation, for example at chemical plants, oil refineries or nuclear power facilities, can create large clean-up liabilities for their owners or insurers, which could transition to governments if companies fail to fulfill their obligations. In a global economy with complex supply chains, the impact of a disaster can reverberate well beyond the area where it occurs.

In assessing how environmental hazards affect an issuer or sector, considerations such as likelihood, timing, and the potential for precautionary or remedial measures to reduce the hazard are very relevant. Due to the very low probability of severe event risks at the level of a particular issuer, they are rarely a driver of credit rating actions across a sector. However, a sector that is characterized by frequent but less severe environmental episodes may have an overall higher-risk credit profile, which may be reflected in lower ratings compared with sectors that are not affected by these risks.

For a particular issuer, we would consider the combination of exposures to incremental and episodic risks. For example, for sovereigns, we assess their dependence on weather-exposed economic sectors, such as agriculture or tourism, as part of our assessment of economic and fiscal strength. We also consider their institutional and financial capacity to deal with shocks, which may include environmental impacts such as severe hurricanes.

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## Our Environmental Risk Classification

We broadly classify the environmental risks that are generally most relevant from a credit perspective into five categories. These are (i) carbon transition; (ii) physical climate risks; (iii) water management; (iv) waste and pollution and (v) natural capital (see Exhibit 2).

While the categories of risk are reasonably distinct, in some cases there are interrelationships among the categories.

Within each category, we provide some examples of risk subcategories. The actual subcategories that pertain to different types of public and private sector entities may vary.

## EXHIBIT 2

**Moody's Environmental Risk Categories**

Note: Subcategories are representative and not exhaustive.

Source: Moody's Investors Service

## General Principles for Assessing Social Risk

Social risks represent the broadest range of considerations among the three ESG categories, and their importance to credit profiles is varied.

Social considerations tend to be more prominent for the credit quality of public sector issuers than private sector issuers. Public sector issuers' responsibilities include developing, executing and adjudicating laws, regulations and policies that address the needs of society as well as building and maintaining infrastructure and delivering services consistent with these policies. Governments, which are often major employers, also face social issues common to all employers. Social issues that affect the public sector may take years, sometimes decades, to emerge as credit concerns, and they may evolve with policy changes or economic shifts.

Within the public sector, there is a complex interplay among social considerations. The strength and resilience of the economy can influence policymakers' ability to pursue social objectives, and changes in society can influence economic strength over time. Meanwhile, social considerations partly determine and can constrain governance choices and outcomes.

For the private sector, social considerations, such as product safety, supply-chain considerations, business reputation or employee relations, are often issuer-specific or event-driven. When these issues arise, they can have an immediate impact on creditworthiness. Private sector entities are also affected by social factors in the public sector. For example, levels of education in the workforce affect a company's ability to hire qualified employees.

Our assessment of social issues may affect factor or sub-factor scoring in methodology scorecards; for example, our view of the potential for social unrest could affect our forward-looking view of a government's tax base or expenditures aimed at addressing social demands. As another example, social programs and demographics could affect our assessment of the trajectory of healthcare or pension obligations with financial implications. Some social risks, such as litigation related to product safety, may be assessed outside of the scorecard.

We also assess social risks in the context of other issuer or sector characteristics that may have a countervailing impact. For example, for sovereigns, steps to reduce gender gaps and invest in education may be relevant considerations because they could mitigate the impact of slowing growth in working-age populations.

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### Social Considerations for the Public Sector

For the public sector, we seek to assess how social issues — which can include labor and income, access to education and housing, demographic change and health and safety — are likely to affect government creditworthiness. For example, for sovereigns and regional and local governments, we may assess the fiscal, economic and political implications of poverty, social inequality, or violence and crime on economic competitiveness, growth and, ultimately, per capita income levels.

Income inequality is an important credit consideration because it can lead to demands for new types of policies, governments and political parties, with implications, positive or negative, for policy effectiveness, potential growth and fiscal strength. In addition, for sovereigns, rising income and political equality can result in higher expectations for public services, which can impose strains on public finances. At lower levels of economic development, spending to expand healthcare coverage and to increase the stock of adequate housing can also lead to fiscal pressure if this higher spending is not offset by economic benefits, such as higher worker productivity, that lead to higher government revenue.

We also typically consider the quality and availability of education and access to basic services, infrastructure and affordable housing, which have considerable influence on business and economic development, tax revenue and spending. Inadequate funding of social programs or infrastructure may result in a long-term loss of competitiveness, lower growth and the potential that infrastructure maintenance will be deferred.

Demographic changes, including aging, are important considerations. In particular, an aging population can result in higher demands for pension and healthcare spending, and in a smaller share of the total population in the workforce, which weighs on long-term economic growth. If not offset by higher revenue or lower spending on other programs, this can erode fiscal strength. And because retirees tend to save less, aggregate savings tend to slow, which could have a negative impact on debt affordability for the government and, for sovereigns, the balance of payments. Measures taken to address the effects of an aging population, such as reducing pension benefits, extending the retirement age or relaxing immigration policies, can help maintain budgetary balance and an adequate workforce but could also increase social unrest and threaten political stability.

Where governments are perceived as unresponsive to emerging social demands, lack of political representation can result in sudden and at times violent demands for greater freedom or equality, in turn increasing political turmoil and reducing economic growth. Chronic violence may curb investment or trigger capital flight. When violence necessitates sharp and sustained increases in government spending on security, it can also affect a government's fiscal strength.

## Our Social Risk Classification for the Public Sector

We broadly classify social risks for the public sector that are generally most relevant from a credit perspective into six categories: (i) demographics; (ii) labor and income; (iii) education; (iv) housing; (v) health and safety; and (vi) access to basic services (see Exhibit 3).

The six main social considerations capture a variety of trends that are important to government issuers across different sectors for different reasons, and with different credit implications. For example, demographic trends such as low population growth can indicate that economic performance will not generate sufficient revenue to meet pension promises and other spending responsibilities. A fast-growing young population, with large numbers of new entrants in the labor force, generally supports high growth potential but also raises demands for jobs, which, if not fulfilled can lead to rising social tensions. Meanwhile, efforts to maintain a sufficient stock of affordable housing can mean higher social spending but can also help moderate the cost of living, preserving disposable income and potentially driving tax revenue.

Within each category, we provide some examples of risk subcategories. The actual subcategories that pertain to different types of public sector entities may vary.

### EXHIBIT 3

#### Moody's Social Risk Categories – Public Sector



Notes: While the categories of risk are reasonably distinct, in some cases there are interrelationships among the categories. Subcategories are representative and not exhaustive.

Source: Moody's Investors Service

## Social Considerations for the Private Sector

For private sector issuers, we view social considerations as falling broadly into two categories: i) issuer-specific considerations, such as product safety problems that harm an issuer's reputation; and ii) the adverse effects of external factors, such as regulation that leads to higher compliance costs or creates rigid work rules.

Issuer-specific social risks can be material. For example, we seek to assess how social risks such as poor labor relations can lead to higher costs due to employee turnover, or how a strike would affect revenue. We may also consider the potential for costly settlements, fines and higher insurance premiums resulting from substandard health and safety practices or products and services perceived to create harm.

We may also consider how social risks could damage a company's reputation, which can lead to shifts in consumer preferences or even boycotts. For example, a company with a reputation for pay inequality and exploitative working conditions or a company whose supply chain partner engages in unethical practices may be at a competitive disadvantage. In some cases, a company that has a reputation among consumers as an environmental leader in its industry may have a competitive advantage that results in higher market share.

Exposure to regulatory and litigation risks is another important consideration. In some industries, regulation can cause business practices and health and safety standards to change considerably over time. Compliance costs related to regulation can be substantial, as can the cost of non-compliance in the form of fines and loss of business. For example, significant liabilities related to practices or products that are no longer considered socially acceptable may affect an issuer's revenue, cash flow, ability to access capital and debt markets, and its long-term viability. Examples of industries that have experienced material credit implications resulting from these considerations include asbestos producers, tobacco companies and banks (e.g., due to mis-selling of financial products such as mortgage-backed securities).

In structured finance, social risks that are material may include those that directly affect the underlying transaction assets as well as those that affect key transaction counterparties, such as the originator, servicer, swap counterparty and account bank.

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### **Our Social Risk Classification for the Private Sector**

We broadly classify social risks for the private sector that are generally most relevant from a credit perspective into five categories: (i) customer relations; (ii) human capital; (iii) demographic and societal trends; (iv) health and safety; and (v) responsible production (see Exhibit 4). These five categories help to frame the most material social issues that stem from an issuer's interaction with its major stakeholder groups. They tend to fall into one of two broader themes; those which are issuer-driven, such as how a company manages its health and safety practices, and those that are externally driven — for example, the effect of changing demographics on demand for a company's product.

Within each category, we provide some examples of risk subcategories. The actual subcategories that pertain to different types of private sector entities may vary.

For clarity, we use the private sector social categories for government-related issuers (GRIs), supranational entities and revenue enterprises. Such issuers include public utilities and mass transit enterprises, hospitals and healthcare providers and institutions of higher education.

EXHIBIT 4

**Moody's Social Risk Categories - Private Sector**

Notes: While the categories of risk are reasonably distinct, in some cases there are interrelationships among the categories. Subcategories are representative and not exhaustive.

Source: Moody's Investors Service

## General Principles for Assessing Governance Risk

Governance risks are an important consideration for all debt issuers, whether public or private. Unlike environmental and social risks, which may be driven by external factors such as regulation or demographic change, governance risks are largely issuer-driven.

Governance relates to the framework and processes through which decisions are made and related actions are carried out. For corporate entities, the different constituents of governance help direct and manage business and financial activities. For public sector entities, the institutional and governance framework includes all the actors, i.e., broadly speaking, state and non-state actors, that participate in the formation and enforcement of rules and norms and in the policymaking process. Checks and balances that allow policy and other public actions to be scrutinized and to be informed by feedback are also part of the institutional and governance framework. For structured finance transactions, the strength of the control mechanisms laid out in the transaction documentation, as well as the adherence of the transaction parties to the documentation, are critical to the governance profile.

In addition to the ways that decisions are informed, made and implemented, governance also encompasses the ways an entity gains acceptance from its various stakeholders for the decisions made, and the extent of stakeholders' acceptance. Relevant stakeholders can vary across sectors but typically include internal parties (e.g., management, owners or employees) and external parties (e.g., governments, regulators, customers, suppliers or voters), and there may be conflicting interests among stakeholders.

While the scope of governance issues is broad, our focus is on the governance risks or benefits that are material for creditors, i.e., those aspects of governance that improve the credit profile (e.g., because good governance increases the entity's resilience to other risk factors) or weaken it (e.g., because poor governance exacerbates other risks). For example, when a company makes policy, operational or financial decisions that prompt a meaningful negative response from stakeholders that weakens the credit profile, such as a prolonged strike that cuts margins or product lawsuits that decrease the availability of credit, those decisions weigh negatively in our assessment of governance.

In cases where credit quality deteriorates due to poor governance, such as a breakdown in controls resulting in financial misconduct, it can take a long time to recover. In more extreme cases, private sector firms have defaulted due to a loss of confidence among clients and creditors following the disclosure of a major governance breach. Poor governance practices in the public sector that lead to widespread corruption can weaken the economy and can affect both public and private sector issuers.

The impact of weak governance may affect scoring for scorecard factors or sub-factors that are influenced by an issuer's actions, planning and policy decisions, such as a financial policy factor or leverage and coverage metrics. Some governance considerations, such as financial controls and reporting and audit committee independence, may be assessed outside the scorecard.

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### Governance Considerations for the Public Sector

Governance considerations are part of our assessment of the fundamental credit strength of a sovereign or regional or local government.

For example, our analysis of sovereign risk includes an assessment of the quality of institutions. Relevant features of our analysis are the quality of government bureaucracy and administration and policy planning. Contract enforcement and property rights are essential elements for a well-functioning economic system, along with an independent judiciary and trust in the judicial system. The extent to which public power is exercised for private gain, as well as the transparency and accountability of the public sector, are also important considerations.

We also assess the policy effectiveness of a sovereign, including fiscal policy and monetary and macroeconomic policy.

For regional and local governments, we typically assess a government's revenue and expenditure flexibility under its existing legal framework. We may consider restrictions, such as tax limits, and laws, such as executive authority to make midyear budget adjustments. We also consider financial planning, policies and practices, which may include consensus revenue forecasts, debt affordability analyses or an assessment of whether budgeting is conservative.

Local or regional governments may have the flexibility to deviate from their own legal frameworks, which we often consider an indication of weak governance. A weak governance structure is generally reflected in ineffective institutions or long-standing practices such as a history of regular, large borrowings for operating deficits, delays in payments for commercial debt or underfunding pension plans. Weak governance may also result from weak oversight from the relevant upper level of government. The underfunding of large pension plans or a deviation from planned contributions creates a growing gap that may result in higher debt levels in the future.

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### Our Governance Risk Classification for the Public Sector

We broadly classify governance risks for public sector entities that are generally most relevant from a credit perspective into four categories: (i) institutional structure; (ii) policy credibility and effectiveness; (iii) transparency and disclosure; and (iv) budget management (see Exhibit 5).

Within each category, we provide some examples of risk subcategories. The actual subcategories that pertain to different types of public sector entities may vary.

## EXHIBIT 5

## Moody's Governance Risk Categories – Public Sector



Notes: While the categories of risk are reasonably distinct, in some cases there are interrelationships among the categories. Subcategories are representative and not exhaustive.  
Source: Moody's Investors Service

### Governance Considerations for the Private Sector

For the private sector, ownership and control, board oversight and effectiveness, and management structure and compensation are among the areas we may consider in our assessment of how governance affects creditworthiness.

Concentrated ownership and voting control are a potentially negative influence on corporate performance and credit outcomes, because owners may seek to extract private benefits at the expense of other stakeholders. In these cases, the potential for management interference and lack of independent board-level oversight and risk controls, especially around capital allocation and related-party transactions, is also heightened.

Boards have a critical oversight role in the area of risk management,<sup>4</sup> including involvement in setting and monitoring the firm's risk appetite, ensuring that a proper risk management framework is in place, and protecting the interests of all stakeholders, including creditors. Management compensation is a highly visible indicator of how a company's compensation structures might encourage excessive risk-taking by management, a negative for credit quality. Aggressive compensation policies can encourage decision-making that emphasizes equity performance over a stable credit profile. For example, asset allocation decisions driven by short-term equity compensation rewards are a potential risk to debtholders.

For structured finance transactions, we typically assess the strength of the control mechanisms described in the transaction documentation, as well as the adherence of the transaction parties to the documentation.

<sup>4</sup> This includes management of ESG-related risks.

## Our Governance Risk Classification for the Private Sector

We broadly classify governance risks for the private sector that are generally most relevant from a credit perspective into five categories: (i) financial strategy and risk management; (ii) management credibility and track record; (iii) organizational structure; (iv) compliance and reporting; and (v) board structure, policies and procedures (see Exhibit 6). Each of these risk categories may be assessed by different metrics or considerations based on the nature of the issuer. For example, the governance risks of financial institutions or structured finance transactions have certain unique aspects that differ from those of non-financial companies. In structured finance, the strength of the control mechanisms laid out in the transaction documentation, as well as the adherence of the transaction parties to the documentation generally mitigate governance-related risks.<sup>5</sup>

Within each category, we provide some examples of risk subcategories. The actual subcategories that pertain to different types of private sector entities may vary.

For clarity, we use the private sector governance categories for government-related issuers (GRIs), supranational entities and revenue enterprises. Such issuers include public utilities and mass transit enterprises, hospitals and healthcare providers and institutions of higher education.

EXHIBIT 6

### Moody's Governance Risk Categories – Private Sector



Notes: While the categories of risk are reasonably distinct, in some cases there are interrelationships among the categories. Subcategories are representative and not exhaustive.

Source: Moody's Investors Service

<sup>5</sup> See our approach to assessing counterparty risks in structured finance. A link to a list of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

## Appendix A: Establishing Environmental, Social and Governance Issuer Profile Scores

In this appendix, we describe our framework for establishing issuer profile scores (IPS) that reflect our opinion of an issuer's, obligor's or transaction's<sup>6</sup> exposure to E, S and G risks and benefits. We describe a core, common framework that fosters a consistent representation of these exposures across sectors, sometimes augmented by sector-specific scoring details in Appendix C.

E, S and G IPSs illustrate the issuer's exposure to these risks, incorporating related mitigants, or benefits, using a unified scale across all sectors. Although ESG risks and benefits are an important aspect of our rating analysis, E, S and G IPSs are not necessarily directly related to rating levels. IPSs do not reflect an issuer's overall credit strengths or weaknesses (e.g., brand strength or weakness, ability or inability to pass through cost increases, or financial flexibility). Two issuers can have the same ratings but very different IPSs, or the same IPSs but very different ratings.

For example, an issuer may have a Highly Negative or Very Highly Negative IPS (see Exhibit 7), which indicates the presence of material risks, but these risks may not preclude a high credit rating, because the issuer has important credit strengths that largely mitigate the E, S or G risks. Conversely, an issuer with a Positive IPS may face other credit risks that are substantially more immediate and material, such as weak cash flow, weak liquidity or relentless competition, and that have a much greater influence on the rating. See Appendix B for more details on how we may represent the influence of ESG issues on a rating.

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### Definitions and Scoring Scale

The E or S IPS of an issuer or transaction is our opinion of its exposure to that specific risk. Our assessment of E and S focuses on credit-relevant considerations, as outlined in our classifications, and the extent to which they are positive or negative for credit profiles. The exposure to E and S risks of an issuer or transaction depends on the composition of its activities, economic base or assets. The IPS also incorporates meaningful mitigating or strengthening actions related to those specific exposures. These include actions taken at the issuer's own initiative or actions fostered or required by external parties (such as policies, regulations or international commitments).

The G IPS of an issuer or transaction is our opinion of its relative governance strength.<sup>7</sup> Similar to our assessment of E and S considerations, our assessment of the G issuer profile focuses on credit-relevant governance considerations, as outlined in our classifications, and the extent to which they are positive or negative for credit profiles and incorporates meaningful mitigating or strengthening actions related to this specific exposure.

E, S and G IPSs are expressed on a five-point scale, from E-1, S-1 or G-1 (Positive) to E-5, S-5 or G-5 (Very Highly Negative), as show in Exhibit 7.

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<sup>6</sup> Typically, outside of structured finance, IPSs are established at the issuer level or, where the issuer is not responsible for repayment of the debt, the level of the obligor. For structured finance and certain other types of transactions, IPSs are established at the transaction level.

<sup>7</sup> We assess relative governance strength in the context of a sector, sub-sectors or a group of methodology sectors.

## EXHIBIT 7

**E, S and G Issuer Category and Issuer Profile Scoring Scale**

Score		Definition
E-1 S-1 G-1	Positive	Issuers or transactions with a Positive E or S issuer profile score typically have exposures to E or S issues that carry material credit benefits. For G, issuers or transactions typically have exposure to G considerations that, in the context of their sector, positions them strongly, with material credit benefits.
E-2 S-2 G-2	Neutral-to-Low	Issuers or transactions with a Neutral-to-Low E or S issuer profile score typically have exposures to E or S issues that are not material in differentiating credit quality. In other words, they could be overall slightly credit-positive, credit-neutral, or slightly credit-negative. An issuer or transaction may have a Neutral-to-Low score because the exposure is not material or because there are mitigants specifically related to any E or S risks that are sufficient to offset those risks. Issuers or transactions with a Neutral-to-Low G issuer profile score typically have exposure to G considerations that, in the context of their sector, positions them as average, and the exposure is overall neither credit-positive nor negative.
E-3 S-3 G-3	Moderately Negative	Issuers or transactions with a Moderately Negative E or S issuer profile score typically have exposures to E or S issues that carry moderately negative credit risks. These issuers may demonstrate some mitigants specifically related to the identified E or S risks, but they are not sufficiently material to fully offset the risks. Issuers or transactions with a Moderately Negative G issuer profile score typically have exposure to G considerations that, in the context of the sector, positions them below average and the exposure carries overall moderately negative credit risks.
E-4 S-4 G-4	Highly Negative	Issuers or transactions with a Highly Negative E or S issuer profile score typically have exposures to E or S issues that carry high credit risks. These issuers may demonstrate some mitigants specifically tied to the E or S risks identified, but they generally have limited effect on the risks. Issuers or transactions with a Highly Negative G issuer profile score typically have exposure to G considerations that, in the context of their sector, positions them weakly and the exposure carries overall highly negative credit risks.
E-5 S-5 G-5	Very Highly Negative	Issuers or transactions with a Very Highly Negative E or S issuer profile score typically have exposures to E or S issues that carry very high credit risks. While these issuers or transactions may demonstrate some mitigants specifically related to the identified E or S risks, they are not meaningful relative to the magnitude of the risks. Issuers or transactions with a Very Highly Negative G issuer profile score typically have exposure to G considerations that, in the context of their sector, positions them very poorly and the exposure carries overall very high credit risks.

Source: Moody's Investors Service

The asymmetric scale reflects our view that ESG issues are more typically a source of credit risk than strength, in particular for E and S issues. The scale nonetheless allows recognition that an issuer or transaction may benefit, from a credit perspective, from its exposure to ESG issues. For example, a company may score E-1 if we assess that it will likely obtain a material and sustainable business advantage from environmental trends.

### Overview of the Framework

To establish an IPS, we assess each component (i.e., E, S or G) for that issuer or transaction and each main category of risk for that component (e.g., for E, carbon transition, physical climate risks, water management, waste and pollution and natural capital).

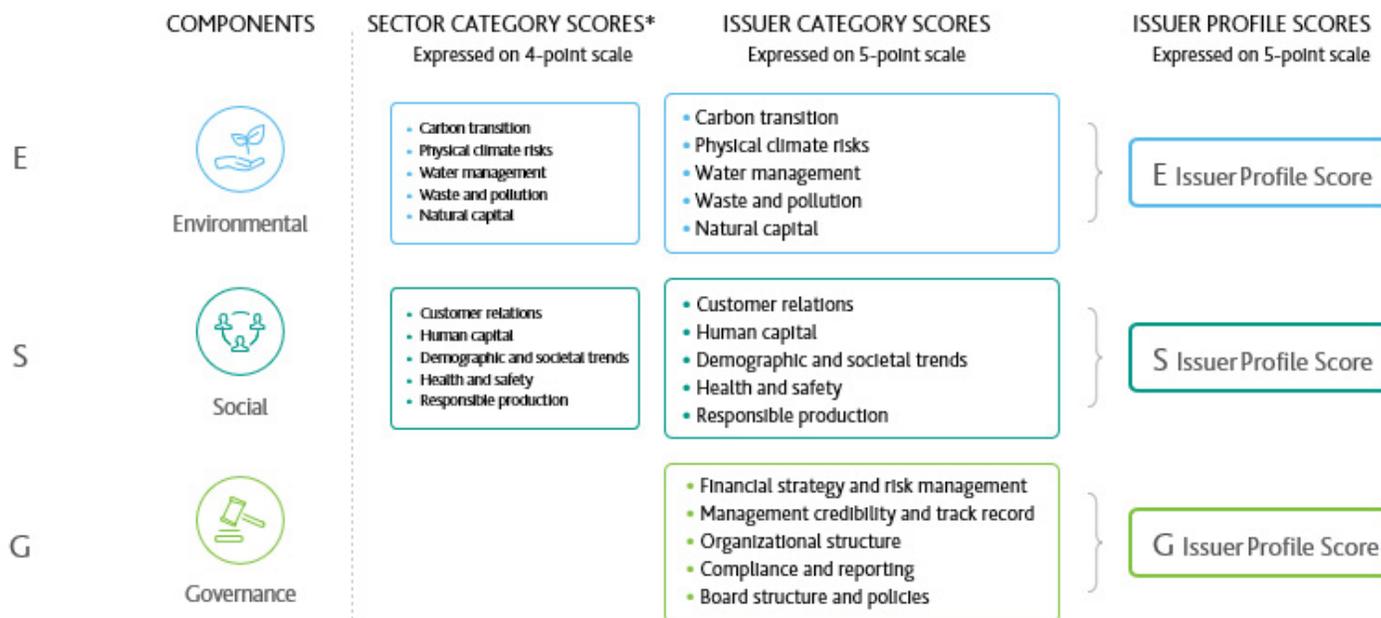
In our assessment of the E, S or G issues, we apply the same general principles as outlined above in this methodology, focusing on their credit materiality. In assessing E and S issuer category scores, we may use any relevant sector-wide information that is available, in particular our sector category scores, as general reference points, because many environmental and social risks are common to a sector or asset class. For the G component, our analysis starts at the issuer- or transaction-level. For each component, we also incorporate mitigants or strengthening actions specifically tied to identified issues in that component.

The information used in assessing the issuer category scores and the IPSs may include both quantitative and qualitative data and is generally found in or calculated from the issuer's public disclosures or any relevant third-party sources. We may also incorporate non-public information, including that obtained from issuers as part of the credit rating process.

We incorporate a long-term perspective of E and S risks into our assessments of issuer category scores and IPSs. We thus consider risks that have the potential to impact ratings over time even if these risks are expected to unfold far into the future and the longer time frames give issuers greater time to adapt.

EXHIBIT 8

**Illustrative Overview of the Framework – Private Sector**



\*Sector category scores are a general reference point for issuer category scores.  
Source: Moody's Investors Service

**Sector Category Scores Provide a General Reference Point**

The activities, economic base or assets of an issuer or transaction are a principal driver of its environmental and social risk, and our sector category scores<sup>8</sup> for E and S (see Exhibit 8) provide an initial orientation point; however, our E and S analysis is performed at the level of the issuer or transaction. We use E and S categories of our classification discussed in the "General Principles for Assessing Environmental Risk" and the "General Principles for Assessing Social Risk" sections above. These categories are consistent across the respective sectors (e.g., categories of our social classification are the same for all private sector entities and transactions).

The sector category scores illustrate the inherent exposure, from a credit perspective, to E and S categories of individual sectors, using a four-point scoring scale of Very High Risk, High Risk, Moderate Risk and Low Risk. These sector category scores are the outcome of qualitative analytical judgment and reflect our opinion of the risks that the rated issuers and transactions in a sector are currently facing. While we may consider that some issuers or transactions draw credit benefits from their E or S exposures, it is unlikely that an entire sector would collectively show a positive exposure. As a result, the sector category scores do not

<sup>8</sup> Also known as our environment and social risk heat maps.

include a positive category. Unlike IPSs, the sector category scores do not reflect mitigants at the level of an issuer, transaction or sector level.<sup>9</sup>

Issuer- or transaction-specific considerations may indicate a different level of exposure to a given E or S category than indicated by the sector category scores. As an overall score for the sector, sector category scores do not capture the dispersion in the exposure levels of issuers within a given sector (or sub-sector), nor do they capture regional variations within a sector. For example, the carbon transition issuer category score incorporated in the IPS of an automobile manufacturer that is successfully adding electric cars to its fleet may be different from the sector carbon transition score.

Sector classifications are broadly based on Moody's rating methodologies and reflect only Moody's-rated entities within a given sector. Notwithstanding these limitations, sector category scores place an issuer's sector in the context of all other rated sectors and can be useful in fostering E and S IPSs that are consistent across sectors.

We do not assign sector category scores for governance given the largely idiosyncratic and issuer-specific nature of governance. This reflects our view that the development of governance, including organizational structure, policies, practices and culture, is generally internal to an organization, with less influence from sector-specific external forces such as regulation (although there may be exceptions, e.g., banks or regional and local governments operating under specific jurisdictional arrangements).

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## Issuer Scores

Our assessment focuses on issuer-specific E, S and G attributes for each of the categories pertaining to the E, S or G component. We score each E, S or G category on the five-point scale described in Exhibit 7.

In assessing risks, benefits and specific mitigants, we use the general principles for assessing ESG risks discussed in this methodology, in addition to ESG-related scoring in the relevant sector methodology (e.g., the Business Profile factor score for a non-financial corporate may incorporate its compliance with industry E, S or G regulations or its success in meeting ESG-related customer preferences).

In establishing E, S and G issuer category scores, we make a qualitative assessment of the issuer exposure based on the scoring scale definitions (see Exhibit 7). Our assessment may be informed by metrics that are relevant to the risks, benefits and ESG-specific mitigants in each category for that issuer or transaction. We may consider third-party assessments in addition to making our own qualitative judgments.

## Scoring Incorporates Meaningful Mitigants to Specific Exposures

The E, S and G IPSs and the respective issuer category scores incorporate meaningful mitigating or strengthening actions related to those specific exposures. Meaningful mitigants typically need to be backed by clear action plans and financial commitments; a stated intention, without these elements, would typically not be meaningful. For example, we would not consider a stated intent to be carbon-neutral at some future date, by itself, to be meaningful. Also, we would not typically incorporate as mitigants to an ESG risk any financial or other resources that may be granted by a third-party in response to an ESG risk or event (e.g., a hurricane), because they do not represent concrete action taken by the issuer itself.

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<sup>9</sup> For clarity, the overall E or S sector score is an indication of credit-relevant exposure and does include sector-level mitigants. For example, regulated utilities are allowed to pass through all operating costs to ratepayers, including the cost of transitioning to a low-carbon power generation fleet, which is incorporated in the overall E score, but not in the carbon transition sector category score.

An example of a meaningful mitigant may include a case where a company or government whose facilities, workforce, infrastructure or citizens are exposed to environmental risks, such as rising sea levels, hardens its infrastructure or restores natural barriers to lower the incidence of negative events related to those risks. Similarly, a company whose workforce is exposed to safety risks, for example through repetitive motion or the handling of hazardous substances, may put into place plans or policies specifically designed to reduce the likelihood of safety incidents (e.g., through training or robotization) or to lessen their impact on exposed employees, for example by offering insurance policies related to these risks or providing supportive health policies. In some cases, a single action may be a specific mitigant to more than one category of risk, or more than one component. For example, an effective carbon-reduction strategy may be positive in terms of social responsibility (an S category) as well as carbon transition (an E category).

### Scoring Where Data Are Limited or Missing

We acknowledge that disclosure on ESG matters may vary across sectors and issuers, largely because of the differences in reporting standards across jurisdictions as well as different levels of market focus on ESG topics. Where data are limited or missing for an issuer or transaction, including on a non-public basis, we typically place greater emphasis on other known characteristics (e.g., size, domicile or regulatory environment) or sector-level scores in considering whether the issuer's exposure is likely materially different from the sector with respect to a particular E, S or G category of risk. We would typically also consider whether the exposures of issuers or transactions where we do have information indicate that these exposures are homogeneous across the sector, or whether they vary quite widely. In the latter case, we would typically make an assumption regarding the issuer's position on the spectrum of exposure of similar issuers or transactions, based on known characteristics.

### Blended Scores

Where an issuer has multiple activities or operates in multiple sectors or where a transaction has exposure to multiple asset types, this diversification may help offset the exposure of a particular business, activity or asset type that is highly exposed to E or S risks. In these cases, we typically establish a composite, or blended, E or S score. The composite score may be informed by an average score weighted by the relative portions of revenue, cash flow, profit or assets that each sector represents in the total. In our assessment, we incorporate forward-looking views of changes in the mix of activities where we consider those changes as likely to materialize in the near-future. In some instances, we may take into account cases where a company derives only a small percentage of its revenues or cash flows from a specific activity, but the E and S risks related to the activity, including reputational or regulatory risks, could severely impact its overall financial strength. For governance, we consider the totality of an issuer's businesses or a government's activities that is typically not informed by any weighted average, because governance considerations generally encompass an entire organization and are not attached to specific activities or business units. For example, governance failures at a subsidiary would typically negatively affect our view of the parent's governance strength, because it would suggest an important lack of oversight and control by the parent. As another example, even if a unit of a company demonstrates very strong governance practices on its own, the presence of entities in the same group with looser reporting standards or weaker compliance with important regulations may result in a lower governance IPS.

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### Arriving at E, S and G Issuer Profile Scores

In establishing the E, S or G IPSs, we make a qualitative assessment of the overall E S or G issuer exposure against the scoring scale definitions (see Exhibit 7), taking into account the scores assigned for each category of a component.<sup>10</sup> Reflecting our view that the highest risks often outweigh other considerations, we typically place emphasis on the worst category score.

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<sup>10</sup> In some sectors, and in particular for governance, we may directly use scorecard factor or sub-factor scores, where relevant, and map those to our category scores or IPSs.

However, our overall view may be worse than the worst category score or better in some cases, and the average score may inform the IPS. Risks can be additive across the categories of an E or S component. An issuer or transaction highly exposed to multiple risk categories may face more severe risk than an issuer or transaction exposed to one risk category only. As a result, the assigned IPS may be worse than suggested by the worst category score, typically by no more than one scoring level, where there are other risk categories pointing to meaningful risks. Conversely, in assigning the IPS we also consider the unique characteristics and circumstances of a sector, issuer or transaction, and the interplay and potential correlation among categories of risks (or strengths). This may lead to assigning a better IPS score than suggested by the worst category score.

While risk categories of the G component can also be additive, given the nature of good governance as a potential material strength, some related risk categories (e.g., for private issuers, financial strategy and risk management or management credibility and track record) may provide resilience to other governance categories of risks. As a result, we may in some cases assign a better IPS than suggested by the worst category score.

## Appendix B: Illustrating the Influence of ESG Considerations on a Rating — ESG Credit Impact Score

We seek to incorporate all material credit considerations, including ESG considerations, into ratings and to take the most forward-looking perspective that visibility into these risks and mitigants permits.

The ESG credit impact score (CIS) is an output of the rating process that more transparently communicates the impact of ESG considerations on the rating of an issuer or transaction. The CIS is based on our qualitative assessment of the impact of ESG considerations in the context of the issuer's or transaction's other credit drivers that are material to a given rating.<sup>11</sup>

Since ratings incorporate all the credit factors that we consider pertinent in assessing relative credit strength (and ESG is only one of these factors), there is not a direct relationship between a credit rating and a CIS. A high credit rating does not necessarily imply a positive CIS, nor does a low rating imply a negative CIS.

Our ex post assessment of the influence of ESG considerations on a rating is inherently qualitative, in part because ESG and non-ESG considerations may be difficult to isolate. While ESG risks, benefits and mitigants are typically a fairly enduring characteristic of an issuer or transaction, their influence on a rating can change over time because of changes in E, S or G exposures (e.g., because of new regulations or because a transformative event fundamentally changes the business mix) or because of changes to other credit drivers that are material to the rating.

When we establish ESG credit impact scores, they are expressed on a five-point scale (see Exhibit 9). The CIS provides a consistent means to describe our opinion of the relative influence of ESG considerations on a given rating, for comparisons within and across sectors.

### EXHIBIT 9

#### ESG Credit Impact Score Scale

Score	Category	Definition
CIS-1	Positive	For an issuer scored CIS-1 (Positive), its ESG attributes are overall considered as having a positive impact on the rating. The overall positive influence from its ESG attributes on the rating is material.
CIS-2	Neutral-to-Low	For an issuer scored CIS-2 (Neutral-to-Low), its ESG attributes are overall considered as having a neutral-to-low impact on the current rating; i.e., the overall influence of these attributes on the rating is non-material.
CIS-3	Moderately Negative	For an issuer scored CIS-3 (Moderately Negative), its ESG attributes are overall considered as having a limited impact on the current rating, with greater potential for future negative impact over time. The negative influence of the overall ESG attributes on the rating is more pronounced compared to an issuer scored CIS-2.
CIS-4	Highly Negative	For an issuer scored CIS-4 (Highly Negative), its ESG attributes are overall considered as having a discernible negative impact on the current rating. The negative influence of the overall ESG attributes on the rating is more pronounced compared to an issuer scored CIS-3.
CIS-5	Very Highly Negative	For an issuer scored CIS-5 (Very Highly Negative), its ESG attributes are overall considered as having a very high negative impact on the current rating. The negative influence of the overall ESG attributes on the rating is more pronounced compared to an issuer scored CIS-4.

Source: Moody's Investors Service

<sup>11</sup> For non-financial corporates, securities firms, finance companies and asset managers, the reference rating for the CIS is the senior unsecured rating or issuer rating where the entity is an investment grade issuer or the corporate family rating (CFR) where the issuer is speculative grade. For banks, the reference rating is the deposit rating or, in the absence of a deposit rating, the senior unsecured or issuer rating. For insurers, the reference rating is the Insurance Financial Strength Rating (IFSR). For closed-end funds, the reference rating is the senior unsecured rating (or the implied senior unsecured rating if the fund only has other ratings). For sovereigns and sub-sovereigns, the reference rating is the issuer rating or senior unsecured rating. For US public finance, the reference rating is the issuer rating where available. If the entity does not have an issuer rating, the reference rating is the senior-most unenhanced, uncollateralized full faith and credit obligation of the entity, or in the absence of such a rating, the senior-most unenhanced, uncollateralized revenue debt rating. For structured finance transactions, we may have more than one reference rating.

These CIS scoring levels indicate the extent, if any, to which the rating of an issuer or transaction would likely be different if exposure to ESG risks did not exist. Where the score is CIS-4 (Highly Negative) or CIS-5 (Very Highly Negative), it means we think the rating is lower than it would have been if ESG risk exposures did not exist. Where the score is CIS-3, ESG risks have a limited impact on the current rating with potential for greater future negative impact over time. For example, exposure to ESG risks may materialize over a multiyear period with significant uncertainty as to how the exposure will develop, the extent of related risks or the effectiveness of credit mitigating steps the rated entity may take to reduce the impact. Where the score is CIS-1, we perceive material positive ESG impacts, with a positive rating impact.<sup>12</sup> We cannot fully or precisely disaggregate ESG in our credit analysis, since these considerations are pervasive and embedded in many aspects of an issuer's or transaction's credit profile. While the scoring definitions are broad, they are intended to provide investors and issuers with a useful indicator of the impact ESG considerations have on the rating.

When we establish a CIS, we consider the ESG exposures that are pertinent to the rating, including the relevant IPSs (if assigned) as well as the broader ESG considerations described in this methodology and in the sector-specific rating methodology we use to rate the issuer or transaction. There is some minimum relationship between the IPSs and the CIS: if exposure to ESG risks is limited, then it is likely that ESG has a limited impact on the rating. Conversely, if ESG is found to have a large impact on the rating, then exposure to ESG risk is likely to be significant. As a result, for a CIS-1, we would generally expect an issuer or transaction to derive a material benefit from at least one ESG component, for example as reflected in an issuer profile score of E-1, S-1 or G-1. Where the CIS is in any of the three weakest categories, we would generally expect that the issuer or transaction would face a material credit risk from at least one ESG component, for example as reflected in an IPS in one of the three weakest categories. The assignment of the CIS is wholly qualitative.

While outright exposure to ESG risks and benefits is an important consideration in assessing the influence of these factors on a rating, there is not necessarily a direct relationship between ESG IPSs and the CIS.<sup>13</sup> The reasons for this are typically quite specific to the issuer or transaction. For example, while in some cases E, S and G exposures may be additive in terms of credit risk, in some cases one component could mitigate another component, e.g., good governance could offset certain E or S exposures. As another example, and as mentioned above, the expected time horizon of the E, S or G exposure may mute the effect on the rating; where these risks are expected to become material over a relatively long time frame, an issuer may have sufficient time and financial strength to adapt as needed to meet its ESG challenges.<sup>14</sup> An issuer or transaction may be resilient in other ways; for example, a structured transaction may benefit from structural features such as a liquidity facility. There may be non-ESG-related positive credit factors that strengthen the ability of an issuer or transaction to withstand a variety of potential risks, including ESG risks. For example, an issuer or transaction may benefit from the strength of its balance sheet (to the extent not already captured in its governance IPS) or from external support. Conversely, there may be non-ESG-related weaknesses that are relatively more prominent and sufficiently serious that, even in the absence of ESG-related risks, the rating would not be higher. As a result, it is possible to have a high IPS and a low CIS.

<sup>12</sup> In cases where the impact of ESG exposure is viewed as positive but not material for the rating, the score would be CIS-2.

<sup>13</sup> For example, an issuer may have very meaningful environmental exposures but may nonetheless have a high rating and a Neutral-to-Low CIS, because other ESG-related or non-ESG related factors confer sufficient credit strengths to offset this exposure.

<sup>14</sup> For example, longer time frames give an issuer more time to adapt by lowering costs, adopting new technologies, or realigning its business model, budgetary spending or balance sheet to changed circumstances; however, some issuers may not be able to or may fail to take effective mitigating actions. For structured transactions, we consider the impact of ESG risks that are expected to unfold within the legal final maturity of the transaction.

## Appendix C: Issuer Profile Scores and Credit Impact Scores for Sovereigns

In this appendix, we describe how we apply the general framework for determining E, S and G IPSs and ESG CISs (described in Appendices A and B, respectively) to sovereigns.

In line with our general approach, the E and S sector category scores provide a useful general reference for our issuer profile analysis. For sovereigns, we have defined two sectors, each of which is broad and diverse: advanced economy sovereigns and emerging market sovereigns. As a result, individual sovereigns' E and S category scores may vary, potentially significantly, from the sector category scores. Starting from quantitative metrics and applying qualitative judgment, we assess issuer-specific exposure to E and S risk categories and E and S overall. In the sections below, we describe the principal metrics<sup>15</sup> we use where available.<sup>16</sup> These metrics are indicative; to the extent more data become available or other indicators are viewed as more relevant, we may broaden or adjust our metrics over time. When our main metrics are not available for particular sovereigns, we may rely on other data sources or solely on qualitative judgment.

As described in Appendix A, we incorporate meaningful mitigating or strengthening actions specifically tied to E and S weaknesses in the respective category scores and in the IPS.

For governance, risk category scores and the G IPS are based, respectively, on mapping from certain sub-factor scores in the Institutions and Governance Strength factor in our methodology for rating sovereigns and from the factor score.<sup>17</sup>

As discussed in Appendix B, the CIS helps to explain the impact of ESG considerations in the context of the issuer's other credit drivers that are material to a given rating.

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### Issuer Profiles

#### Environmental Issuer Profile

We view environmental considerations as a source of risks for sovereigns, which to varying degrees are exposed to long-term trends, such as climate change, that manifest in recurrent and increasingly severe natural disasters and erode economic foundations, negatively affect government revenues and require increasing government expenditures to mitigate these risks; global decarbonization trends that affect the economies and government finances of hydrocarbon-producing sovereigns; and other environmental risks. As a result, we do not expect that the environmental IPS for sovereigns are stronger than E-2.

#### *Assessing E Categories*

In addition to the principal metrics described below, we apply qualitative judgment, in particular regarding the effectiveness of mitigants to environmental risks, considering the extent to which a sovereign's policies and plans designed to address these risks are sufficiently concrete and material. These mitigating measures may include investment in climate change adaptation, actions to reduce the dependence of the economy or the government's finances on hydrocarbons, and substantial investments in the preservation of natural capital or water resources. As a result, we may differentiate between two sovereigns whose core metrics signal similar exposure to E risks but where environment-specific mitigating factors differ in effectiveness. However, the potential for such measures to significantly offset high exposure to one of the environmental

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<sup>15</sup> Principal metrics are the metrics, indicators or estimates we use in the quantitative tool. We may use other metrics or indicators to inform our qualitative assessment.

<sup>16</sup> Indicators that are relevant and globally available may vary over time. Where data are unavailable, we may substitute similar indicators, or we may omit that metric, using the other metrics for that risk category or establishing the score based on a qualitative assessment of available information.

<sup>17</sup> A link to a list of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

categories of risk for sovereigns is likely to be relatively limited in most cases due to the large scale and persistent nature of the risks.

In the sections below, we also describe the principal credit implications from environmental considerations for sovereigns.

**CARBON TRANSITION:**

A sovereign's economy, finances and balance of payments can be vulnerable to a potential global shift toward lower consumption of hydrocarbons. This is particularly the case for sovereigns significantly reliant on the sector, while other sovereigns face limited exposure to carbon transition.

Principal metrics used in our assessment include indicators of the hydrocarbon sector as a share of GDP, government revenue and exports. Typical data sources are national statistical offices, Rystad Energy and the United Nations Conference on Trade and Development (UNCTAD). We may use scenario analysis to support our forward-looking assessment of the implications of carbon transition for hydrocarbon-producing sovereigns' revenues, exports and economic activity.

**PHYSICAL CLIMATE RISK:**

In our assessment of exposure to physical climate risk, we consider the likelihood that events related to climate change will occur and have a negative and lasting impact on a sovereign's economy, finances or balance of payments. We typically also consider a country's specific characteristics that indicate lower or higher sensitivity to these risks. Sensitivity primarily depends on the share of weather-dependent economic activities (e.g., agriculture and tourism), and the quality of infrastructure and health care systems.

Principal metrics providing a basis for our assessment are indicators of relative exposure to heat stress, water stress, flooding and extreme precipitation, hurricanes and typhoons, sea level rise and wildfires such as those provided by Four Twenty Seven Inc. (427).

**WATER MANAGEMENT:**

Freshwater scarcity can negatively impact a country's economic and political stability.

Principal metrics used in our assessment include indicators of annual freshwater withdrawal as a percentage of total available freshwater and the share of population exposed to unsafe drinking water, both provided by the World Bank.

**WASTE AND POLLUTION:**

Waste and pollution may have a material negative economic, social and financial impact, and addressing their effects on the population and ecosystem may lead to significant costs.

Principal metrics used in our assessment are indicators of the population-adjusted mean levels of fine particulate matter (PM2.5) in cities, provided by the United Nations, and annual municipal solid waste production per capita, provided by the World Bank.

**NATURAL CAPITAL:**

Natural capital forms the foundation to economic activity. Depletion of natural capital generally has economic, fiscal and social costs, for example when a country risks losing an important source of revenue or faces threats to food security.

Principal metrics used in our assessment include indicators of the share of a country's terrestrial and marine areas and forest area that are protected; and the share of the country's land area covered by forests, both provided by the World Bank.

### *Arriving at the E Category Scores and IPS*

We normalize<sup>18</sup> the data for each metric in a category, and take the average of these normalized metrics (the normalized category metric). We then rank the sovereigns, which gives us a starting point to our assessment of a given category score. The actual category score incorporates qualitative judgment, as described above.

To arrive at the overall environmental IPS, we consider a sovereign's highest and average risk exposure and generally place more emphasis on the highest exposure as conveyed by the quantitative metrics and our qualitative judgment. Where risks are additive, we may assign an IPS that is worse than the worst category score. However, in assigning the IPS we also consider the unique characteristics and circumstances of a sovereign, and the interplay and potential correlation among categories. This may lead to assigning a better IPS score than suggested by the worst category score.

We score sovereigns' environmental IPSs on a scale of E-2 (Neutral-to-Low) to E-5 (Very Highly Negative).

### **Social Issuer Profile**

Sovereigns are exposed to a wide variety of social issues related to the very specific characteristics and structure of the society of each country. These considerations typically pose credit challenges to sovereigns and more rarely may present benefits.

### *Assessing S Categories*

Consistent with our approach to environmental risks, in addition to the principal metrics described below, we apply qualitative judgment in particular about the effectiveness of mitigants to social risks, considering the extent to which a sovereign's policies and plans designed to address these risks are sufficiently concrete and material. Such measures may include pension reforms that we expect to effectively diminish the economic and fiscal impact of population aging, or relatively recent investment in education or healthcare that we expect to improve outcomes compared to what historical data convey.

In the sections below, we also describe the principal credit implications from social considerations for sovereigns.

### **DEMOGRAPHICS:**

Demographics represent a source of risk for economic growth, which may be restricted by an aging population, and to finances, which may be strained by the provision of social services to the elderly. Social tensions can also emerge at times of rapid increases in immigration that affect or are perceived to affect the quality of provision of social services or economic prospects for parts of the population. Moreover, high or persistent gender inequality is also a source of social risk, to the extent that it constrains productivity, competitiveness and growth potential, and potentially is the subject of social tensions.

Principal metrics used in our assessment include the dependency ratio,<sup>19</sup> working age population growth, the share of the immigrant population in the country's total population and an index of gender inequality, all sourced from the United Nations and the World Bank.

<sup>18</sup> For each metric, we calculate the average and the standard deviation across all rated sovereigns. Each sovereign's normalized metric is equal to the metric value minus the average metric value, divided by the standard deviation.

<sup>19</sup> The dependency ratio measures the ratio of inactive (generally, 65 and older and under 15 years old) to active (15-64 years old) members of the population.

**LABOR AND INCOME:**

Employment levels, labor conditions, or inequality of living standards affect a sovereign's economy, finances, social cohesion and political risk.

Principal metrics used in our assessment include the youth unemployment rate, the poverty gap such as those published by the World Bank,<sup>20</sup> and the United Nations Development Programme's inequality-adjusted income index.<sup>21</sup>

**EDUCATION:**

Potential limitations on the development of human capital can constrain growth and raise the likelihood of increasing social demands.

Principal metrics used in our assessment include government expenditure on education as a percentage of GDP, government expenditure on secondary education per student as a percentage of GDP per capita, secondary school enrollment rates, inequality-adjusted education outcomes.<sup>22</sup> The data are published by the World Bank and the United Nations.

**HOUSING:**

Lack of adequate housing hampers growth potential, may lead to greater demands for government spending to support housing access, potentially pressuring fiscal accounts, or may undermine social cohesion and raise political risk.

The Legatum Institute's housing deprivation indicator is a metric used in our assessment.

**HEALTH AND SAFETY:**

Health and safety issues can affect economic growth potential (including by deterring investments), demands on public spending and public finances. Prevalence of crime or unequal access to healthcare may affect political risk.

Principal metrics used in our assessment include the level of healthcare spending per capita (adjusted for differences in living costs), the intentional homicide rate, the under-5 mortality rate, the prevalence of undernourishment, and life expectancy at birth, all sourced from the World Bank.

**ACCESS TO BASIC SERVICES:**

Provision of basic services supports economic activity, and failure to provide access is a key source of social protest and discontent.

Principal metrics used in our assessment include measures of access to a range of services including electricity, safe drinking water, sanitation services and mobile cellular service subscriptions, such as data available from the World Bank.

<sup>20</sup> The poverty gap is the mean shortfall of the total population from the poverty line, expressed as a percentage of the poverty line. In the metric we use, the poverty line is defined as incomes below \$5.5 per day on a purchasing power parity basis.

<sup>21</sup> The indicator adjusts per capita gross national income (GNI) data to take into account differences in income distribution.

<sup>22</sup> The index adjusts for inequality in distribution of years of schooling. Two countries may have the same average number of years of schooling; if in one country, parts of the population attend school for significantly fewer years than average, its inequality education index will be weaker than the other country with a more equal distribution.

*Arriving at the S Category Scores and IPS*

We use essentially the same approach as for E. We normalize the data for each metric in a category and take the average of these normalized metrics (the normalized category metric).<sup>23</sup> We then rank the sovereigns, which gives us a starting point to our assessment of a given category score. The actual category score incorporates qualitative judgment.

To arrive at the overall social IPS, we consider a sovereign's highest and average risk exposure and generally place more emphasis on the highest exposure as conveyed by the quantitative metrics and our qualitative judgment. Where risks are additive, we may assign an IPS that is worse than the worst category score. However, in assigning the IPS we also consider the unique characteristics and circumstances of a sovereign, and the interplay and potential correlation among categories. This may lead to assigning a better IPS score than suggested by the worst category score.

We score sovereigns' social IPSs on a scale of S-1 to S-5.

**Governance Issuer Profile**

Governance is a key driver of sovereign credit quality, and governance considerations are explicitly incorporated as a scorecard factor in our methodology for rating sovereigns.<sup>24</sup>

*Assessing G Categories*

Our assessment of the governance issuer profile relies on our assessment of the Institutions and Governance Strength factor under the sovereign rating methodology.

**INSTITUTIONAL STRUCTURE:**

The institutional structures category score is mapped from the Quality of Institutions sub-factor of the Institutions and Governance Strength factor.

**POLICY CREDIBILITY AND EFFECTIVENESS:**

The policy credibility and effectiveness category score is mapped from the Policy Effectiveness sub-factor of the Institutions and Governance Strength factor.

Two categories are parts of our assessment of policy credibility and effectiveness:

**TRANSPARENCY AND DISCLOSURE:**

The transparency and disclosure category score is part of our assessment of Fiscal Policy Effectiveness sub-sub-factor of the Institutions and Governance Strength factor. Our assessment is primarily qualitative, informed by various indices assessing transparency of fiscal reporting (for example, the Open Budget Index and certain dimensions of the World Bank's Country Policy and Institutional Assessment) as well as the IMF assessment on the adequacy of data for surveillance.

**BUDGET MANAGEMENT:**

The budget management category score is mapped from the Fiscal Policy Effectiveness sub-sub-factor of the Institutions and Governance Strength factor.

<sup>23</sup> For demographics, we apply a double weight on the current dependency ratio and working age population growth to reflect the importance of immediate exposure to population ageing poses in pointing to higher risk.

<sup>24</sup> A link to a list of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

### *Arriving at the G Category Scores and IPS*

We arrive at the governance IPS by mapping from the Institutions and Governance Strength factor under the sovereign rating methodology. We map Institutions and Governance Strength factor scores of aaa to a3 to G-1; baa1 to baa3 to G-2; ba1 to ba3 to G-3; b1 to b3 to G-4; and caa1 to ca to G-5. Our governance issuer category scores follow a similar mapping scale in respect to the sub-sub factor scores mentioned above.

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### **Assessing the Credit Impact Score**

As discussed in Appendix B, the CIS explains the impact of ESG considerations in the context of the other credit drivers that are material to the issuer's given rating.

Assessing the credit impact of ESG exposure requires an assessment of other features of the sovereign's credit profile that may create resilience to the ESG exposure or exacerbate the exposure. For sovereigns, resilience determines the capacity to respond to costly environmental hazards or social demands. Typical aspects of a sovereign's resilience include higher income levels, greater fiscal strength and stronger governance. Our assessment of resilience is largely qualitative, although it is informed by quantitative metrics or factor scores under our sovereign rating methodology. We also consider other material credit issues that are relevant to arriving at a rating to assess the credit impact of ESG.

Higher incomes tend to buffer shocks and mitigate the demands on the government's finances or provide a revenue base to prevent or respond to them. In particular, higher incomes can increase resilience in a population in the aftermath of a natural disaster, or counterbalance a falling share of active population and the related pension costs. Under our sovereign rating methodology, we measure income levels based on GDP per capita at purchasing power parity.

The higher a government's fiscal capacity to respond or adjust to risks, including environmental and social risks, the higher the resilience. Using its fiscal capacity, a government can help preserve growth potential against negative environmental or social pressure. Moreover, investors' assessment that a government has material fiscal room tends to diminish liquidity and external risks. Conversely, a sovereign facing environmental or social risks with an already high debt burden and low debt affordability will be constrained in its ability to mobilize financial resources toward mitigating these risks. Our assessment of fiscal strength under the sovereign rating methodology provides a summary of a government's fiscal capacity to respond to risks.

Governance typically plays an important role in determining sovereigns' resilience, or the absence of resilience. Sovereigns that display relatively stronger institutions tend to show better capacity to manage environmental risk and natural resources and to address social demand pressures. Governance also shapes the effectiveness of policy response to all types of crises or shocks, influencing the resilience of a sovereign to these events. Where a sovereign exhibits weak governance, as evidenced for example by weak checks and balances, executive corruption or a weak track record of delivering on policy objectives, it would weigh negatively on our assessment of ESG risks and the CIS.

Other credit considerations may play a role in our assessment of the credit impact of ESG risks for some sovereigns. For example, some emerging markets may benefit from high and steady levels of remittances that may help an economy withstand shocks. The level of economy-wide savings<sup>25</sup> may also differentiate capacity to absorb shocks or adjust to trends.

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<sup>25</sup> We typically assess the availability of savings using the ratio of adjusted net savings as a share of gross national income. According to the United Nations, which publishes these data, net savings are adjusted to capture differences among economies set on more or less sustainable paths, because (i) current public expenditure on education is added to account for investment in human capital; (ii) estimates of the depletion of a variety of natural resources are deducted to reflect the decline in asset values associated with extraction and depletion; and (iii) deductions are made for damages from carbon dioxide and particulate emissions.

## Appendix D: Issuer Profile Scores and Credit Impact Scores for Enterprises

In this appendix, we describe how we apply the general framework for determining E, S and G IPSs and ESG CIs (described in Appendices A and B, respectively) to enterprises. The issuers covered under this framework are non-financial corporations and project financings, including utilities, corporate infrastructure and REITs, as well as public sector issuers that have business-like revenue-raising capacity through the implementation of fees for service, such as municipal utilities, airports, toll roads, ports, mass transit enterprises, hospitals, housing agencies and higher education institutions.<sup>26</sup> All of these sectors are categorized under the private sector in our ESG heat maps.

In establishing E, S and G issuer category scores and overall IPSs for enterprises, we make a qualitative assessment of the issuer's exposure to the related risks or benefits. Our assessment of E, S and G focuses on credit-relevant considerations and the extent to which they are positive or negative for credit profiles. Issuer category scores reflect our assessment of the likelihood and magnitude of current and future credit exposures related to the category of risk, including their effect on earnings, cash flow, business strategy and business profile. These assessments are forward-looking but may also be informed by the entity's previous experience of these risks. In some cases, our assessment may be informed by scenario analysis, for example for risks that are event-driven risks or are long term, such as carbon transition risk or some physical climate risks. As described in Appendix A, we incorporate a long-term perspective of risks into our assessments of issuer category scores and IPSs. We consider risks that have the potential to impact ratings over time, which for enterprises could include, for example environmentally or socially driven changes in demand for products or services or increases in costs that alter the competitive landscape, even if these risks are expected to unfold far into the future. Longer time frames may give enterprises greater time to adapt to these risks, for example by adjusting business plans or using cash flow from existing businesses to invest in sustainable businesses.

The IPS and category scores also incorporate meaningful mitigating or strengthening actions related to those specific exposures. Risk mitigation on its own does not indicate an IPS or category score of 1. To score an IPS of 1 on any category or for the E, S or G overall IPS overall, an enterprise must derive a material credit benefit. For example, an enterprise may score E-1 if we assess that it will likely obtain a material and sustainable business advantage from environmental considerations.

Our assessment may be informed by metrics that are relevant to risks, benefits and ESG-specific mitigants. These metrics are indicative and are often not available for all rated entities. Metrics also typically vary across different sectors (e.g., packaging, airlines) reflecting varying relevance of particular metrics across sectors and differences in reporting standards and disclosure levels. The metrics are generally found in an issuer's public disclosures or relevant third-party sources. We may also consider scorecard factors or sub-factors in our sector methodologies, in particular for governance (e.g., a financial policy factor score). We may also incorporate non-public information. Please see Appendix F for a description of the types of indicators that may be generally relevant across enterprise sectors for informing our assessment of E, S and G risk categories and assigning IPSs for enterprises. Over time, we may broaden or adjust our metrics, for example, as more data become available or other indicators are viewed as relevant to our analysis, and we may update these examples. We may also over time add examples of qualitative considerations and metrics for more sectors.

<sup>26</sup> For clarity, this framework applies to non-financial corporate GRIs and public sector revenue enterprises that are not classified as GRIs.

The E and S sector heat map category scores provide useful general references for an issuer profile analysis. However, dispersion within a sector may vary, and sector scores do not, for example, capture regional variations. Some sectors, such as airlines, include entities with largely similar business models that typically face comparable environmental and social risks and opportunities. For these sectors, we may consider whether an issuer has characteristics that suggest a different exposure than that of its sector. Other sectors, such as business services and manufacturing, may include a more diverse group of entities likely to face more disparate risks and opportunities, in which case we would generally expect more dispersion around the sector score. Sector heat map category scores also do not incorporate E and S specific mitigants, which may result in an issuer category score that is better than the respective sector category score.

E, S and G risks may cross multiple categories. For example, risks pertaining to water could manifest themselves in water management risk (e.g., restricted access) or in natural capital (e.g., damage to water sources an enterprise relies on for operations). Legal and reputational risks may arise in multiple categories. Operational failures related to health and safety could drive heightened risks across other E, S and G categories (e.g., disruption of production, poor community relations, greater regulatory oversight). When assigning an E, S or G IPS, we consider the interplay and potential overlap among categories in that component to avoid overstating or understating the risks or benefits.

As discussed in Appendix B, the CIS helps to explain the impact of ESG considerations in the context of the issuer's other credit drivers that are material to a given rating.<sup>27</sup>

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## Issuer Profiles

### Environmental Issuer Profile

Environmental considerations are often a source of risks for enterprises. Regulatory or policy initiatives aimed at reducing or preventing negative environmental trends or hazards, as well as the trends and hazards themselves, may affect market demand, revenue, costs or cash flow for enterprises. For some enterprises, environmental considerations are a source of credit strength, for instance because consumers' concerns about reducing their carbon footprint or increased storm severity increase demand for certain products or services.

In the sections below, we describe the principal credit implications from environmental considerations for enterprises.

### CARBON TRANSITION

Carbon transition risk encompasses policy, legal, technological and market changes likely to be associated with a transition to a lower carbon economy. Tightening of global or regional regulatory regimes related to carbon dioxide and other greenhouse gases may affect and, in some cases, disrupt business models and long-term financial and strategic planning. For some entities, the shift to a lower carbon economy may reduce demand, increase compliance costs, or necessitate significant investment to adapt and diminish expected return on assets.

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<sup>27</sup> For the CIS, the reference rating for non-financial corporates is the senior unsecured rating or issuer rating where the enterprise is an investment grade issuer or the corporate family rating (CFR) where the issuer is speculative grade. For sub-sovereigns outside the US, the reference rating is the issuer rating or senior unsecured rating. For US public finance, the reference rating is the issuer rating or the rating of the senior-most unenhanced, uncollateralized obligation of the enterprise, i.e., the senior-most unenhanced, uncollateralized revenue debt rating or the rating of the senior-most unenhanced, uncollateralized full faith and credit obligation, as applicable. For government-related issuers (GRIs), the reference rating for the CIS is the issuer rating or senior unsecured rating, while our IPS analysis is based on the standalone operations and characteristics, which, for entities that have a Baseline Credit Assessment (BCA) are also reflected in the BCA. For project finance issuers, the reference rating is the senior secured rating.

An enterprise's business mix, including its exposure to the hydrocarbon value chain and the contribution of different activities to revenue, profits and cash flow is typically an important consideration. Entities that rely on carbon-intensive assets to operate and those selling products or services that result in significant emissions generally have higher exposure to this risk than those with low carbon footprints and those that sell more carbon neutral products. The extent to which operations are subject to changes in technology, market and policy changes related to carbon transition may also indicate inherent exposure.<sup>28</sup>

Greenhouse gas emissions intensity and energy consumed by operations may be a relevant consideration, as well as the location of assets, because regulations and policies may vary by geography. In some sectors where a carbon market may exist, whether an issuer sells or buys carbon credits may be a relevant consideration. Current or expected "stranded assets" (i.e., assets that become unprofitable due to carbon transition risk) may indicate higher risk. The level of expertise related to climate and carbon transition within an enterprise, the timeliness and effectiveness of actions taken to adapt, and the likely credit effect of its strategy for carbon reduction and energy transition and investment in alternatives under different scenarios may also be relevant.

Entities may diversify their business mix from higher risk assets, and some may benefit from shifts in end-user demand. Increased availability of scalable, more energy-efficient technologies may also help to offset risk. In some sectors, regulatory frameworks may provide reimbursement mechanisms that help to offset risk. The transition to lower-carbon inputs, processes and products has the potential to provide competitive advantage to enterprises that adapt while meeting market needs and maintaining cost efficiency, potentially at the expense of enterprises that fail to adapt or control costs.

#### PHYSICAL CLIMATE RISKS

The nature and the location of an enterprise's activities may create vulnerability to heat stress, water stress or extreme weather events (e.g., hurricanes, floods, wildfires), as well also long-term trends such as rising sea levels.<sup>29</sup>

For example, rising sea levels and droughts may affect production or distribution costs. Some types of entities have materially lower intrinsic exposure, because their activities are less reliant on physical facilities or they can easily relocate their activities without incurring substantial cost. The appeal of products or services to customers may vary based on long-term trends and hazards. For example, customer demand may increase or decline with extended periods of higher temperature as well as climate events.

Floods and hurricanes can damage infrastructure and disrupt operations, so the location of an enterprise's operations may be a relevant consideration. For example, assets in low-lying coastal areas are more susceptible to rising sea levels and storms, whereas the risk of wildfires, which may create material liabilities, is more prevalent in or near forested drought-prone areas. Other relevant considerations for an enterprise with at-risk assets may include whether it has meaningful reserves or insurance to help recoup damage-related costs as well as whether it benefits from cost recovery mechanisms (e.g., in regulated rates or tariffs).

Some physical climate risks may lend themselves better to physical mitigation, for example by hardening of infrastructure assets against flooding. Issuers may manage exposure through operational redundancies, technological deployment, geographic diversification of assets, or cost recovery mechanisms.

<sup>28</sup> In addition to any other relevant data, and where available, we may use Moody's Carbon Transition Assessment (CTA) framework scores or the data underpinning those scores to inform our assessment of the category score. Please see appendix F to access a compendium document that provides a description of the indicators that may be generally relevant across enterprise sectors for informing risk categories scores.

<sup>29</sup> The physical climate risks category excludes geophysical risks, such as earthquakes, volcanoes and tsunamis.

## WATER MANAGEMENT

This category focuses on the management and governance of water resources. These include, for example, water consumption, availability, efficiency and access, pricing, quality and pollution, which may affect profitability. Environmental restrictions may affect an enterprise's ability to operate, violation of regulations related to water usage (e.g., overuse or pollution of water) may result in fines, and difficulty in obtaining permits may raise costs. Climate change considerations such as drought or changing rainfall patterns that could affect water supply are covered under our physical climate risk category.

Enterprises that rely heavily on water as a critical component of operations generally have higher exposure to water management risk, and certain locations have higher water stress (i.e., a greater supply/demand imbalance). For example, an issuer that needs a significant amount of water to operate may compete with local communities for limited water resources. The necessity of the enterprise's product or service may affect its access to water; for example food production may receive priority in water usage over other products and services. Relevant considerations may include an issuer's consumption patterns, the availability and pricing of water in its areas of operations, ease of water access and distribution, water quality, and water costs relative to overall costs of the product or service. Enterprises with a track record of significant enforcement actions against them and poor governance around water management generally have higher risk than entities with better water management practices or those with limited water usage.

Enterprises that rely heavily on water may pursue efforts to offset water management risk, e.g., through the use of recycled water, improved efficiency of water use and better wastewater management. For some entities, an ability to relocate operations to lower water stress locations can reduce risk exposure.

## WASTE AND POLLUTION

Pollution<sup>30</sup> may harm the health of the local population, as well as animals, plants and the land itself, which may lead to clean-up costs, increased expenses related to ongoing monitoring and regulatory compliance, fines, employee and community health concerns, delays in production, and reputational and litigation risk. Increased consumer focus on pollution and waste, for example from plastics, may reduce demand for products; enterprises perceived to be significant contributors to waste and pollution may face both diminished demand and increasingly onerous environmental restrictions. However, these trends may create market opportunities for enterprises selling products or services related to recycling and reuse or for less-polluting competitors.

Enterprises with operations that generate pollutants and hazardous and non-hazardous waste, manufacture products that may create material clean-up concerns, or require significant amounts of packaging generally have more inherent risk exposure than those that do not, particularly if more environmentally friendly alternatives exist. Relevant considerations may include how much pollution and waste the issuer creates, its compliance with waste disposal and pollution regulations, its use of recycled content and renewable sources in production, sales of reusable products and history of spills, contamination, waste and pollution-related violations, fines and settlements.

To help offset risk exposure, entities may enact and execute policies that reduce waste and pollution, including through waste control and treatment technologies, packaging efficiency and increased recycling, as well as to ensure regulatory compliance. Some entities may benefit from new market opportunities related to customer demand.

<sup>30</sup> This category includes greenhouse gases that have been regulated as pollutants independent of their contribution to global warming and therefore excludes carbon dioxide and methane emissions. Water pollution considerations are covered in the water management category.

## NATURAL CAPITAL

An enterprise's level of reliance on the natural environment to provide goods and services generally indicates its exposure to natural capital risk. Damage to the ecosystem caused by enterprises can lead to a loss of revenue, consumer backlash, increased environmental compliance costs and regulatory penalties. Damage from and costs to avoid pollutants released into the air and soil are captured in the waste and pollution category. An enterprise with more reliance on land, air or marine resources, or one that operates within protected areas or habitats of endangered species would be more affected by degradation of the environment caused by the enterprise itself or an external party. Extractive industries such as mining may damage the land, soil or forest through the course of operations, creating potential risks related to land reclamation and land governance (although the mineral itself is not part of natural capital).

Significantly altering the natural environment could lead to penalties, lower future revenue and cleanup and restoration expenses. An extensive history of environmental regulation, enforcement actions, fines and settlements, and large asset retirement obligations related to cleanup and restoration may indicate high risk exposure. We may also consider whether an abundance of sustainable natural capital confers a material advantage.

Preventive measures, effective policies and corrective actions taken to ensure compliance with restrictions and regulations, as well as to minimize adverse ecological effects, may help to offset credit risk. Some entities may mitigate exposure or benefit by producing products that maintain or restore biodiversity.

### *Arriving at the E IPS*

To arrive at an issuer environmental IPS, we typically place the most emphasis on the worst category score. Where risks are additive, we may assign an IPS that is worse than the worst category score. However, in assigning the IPS we also consider the unique characteristics and circumstances of an enterprise, and the interplay and potential correlation among categories. This may lead to assigning a better IPS score than suggested by the worst category score.

## Social Issuer Profile

For an enterprise, social risks and opportunities typically stem from an enterprise's interaction with employees, customers, supply chain partners, counterparties, other core stakeholders and society at large. Social issues generally affect credit quality through reputational, operational and policy or regulatory channels, or through litigation.

In the sections below, we describe the principal credit implications from social considerations for enterprises.

## CUSTOMER RELATIONS

The perceived fairness and integrity of an enterprise's customer interactions may have meaningful consequences for its earnings. The importance of brand perception may indicate inherent exposure to issues related to the enterprise's reputation. Reputational impact on customer relations may stem from a variety of sources, for example product safety or hiring practices, that relate to other social risk categories.

Information security is another critical aspect of customer relations. Data breaches may result in fines, reputational damage and loss of market share. An enterprise that stores significant amounts of personal data or confidential information may have greater potential risk exposure. For these issuers, a track record for maintaining the integrity of its information technology and other storage systems to protect customer data and confidential information, along with related policies and the composition and strength of dedicated information security staff, may be relevant characteristics.

Regulatory restrictions on sales or marketing, tax increases, fines and litigation can constrain an enterprise's engagement with its customers, increase costs and possibly reduce its revenues. Regulations or pressure from regulators or governmental organizations may also limit an enterprise's pricing flexibility, and pricing perceived as unfair or discriminatory may lead to fines and loss of market share. Issuers may gain a competitive advantage or face disadvantages due to their relative ability to comply with regulations. Customer retention, possibly strengthened through customer engagement, is also a relevant consideration.

Legal exposure related to pricing, or poor labeling or disclosure, may result in reputational risk that weakens sales. Some industries face more onerous disclosure regulations, for example because of greater potential health and safety implications for consumers. Relevant considerations may include the pervasiveness and severity of complaints as well as fines and lawsuits.

Geographic or operational diversity, robust IT systems and a strong framework for ensuring data security, as well as compliance with relevant regulations, may help entities offset potential customer relations risks. The ability to quickly adapt to changing consumer preferences may also offset risk or create competitive advantage.

#### **HUMAN CAPITAL**

The presence of unfavorable labor relations and rigid workforce provisions, as well as reliance on specialized skills, may indicate inherent exposure to labor relations risk. An inability to reduce staff and costs during an industry or economic downturn, rising compensation and benefits costs to attract scarce talent, challenges in attracting, training and retaining people with required skills, or a loss of productivity due to strikes may negatively affect earnings. External or internal perceptions of a lack of diversity or a hostile culture may lead to reduced productivity or lawsuits or may hurt an enterprise's ability to attract employees. Relevant considerations may include the impact of working days lost due to strikes, employee lawsuits, or fines related to labor regulations, as well as an enterprise's track record of successfully negotiating and renewing wage and benefits agreements and its relationship with unions or work councils.

Adherence to collective wage agreement, effective negotiations with employee representatives on working conditions and a strong monitoring framework to ensure compliance may minimize disputes and disruptive actions. Outreach to and partnerships with educational institutions may facilitate a dependable supply of workers. Diverse and inclusive hiring and promotion policies may facilitate a diverse and inclusive workplace, which may attract talent.

#### **DEMOGRAPHIC AND SOCIETAL TRENDS**

Changing demographics and consumer preferences and societal trends, as well as government policy agendas and funding, may affect an enterprise's revenue and earnings.

An enterprise's reliance on a narrow or shrinking demographic base for sales may indicate inherent risk exposure, whereas an issuer may benefit from sales to a sector of the population that is growing. Some products or services, for example education, medicine and medical care, or utilities, may be more vulnerable to consumer activism and societal or governmental pressure than other sectors, because access to these products and services at an affordable price has broad ramifications to social cohesion. Entities in regulated sectors may be particularly exposed to socially driven policy agendas that can significantly change their business and finances, and enterprises that rely on government funding may also have more exposure. Regulatory and legislative changes may advantage or disadvantage entities based on societal trends, such as pricing scrutiny.

Demand or access to capital may decline for enterprises that sell products or services misaligned with social expectations in their markets, particularly where a highly visible product affects public perception of the enterprise. Customer awareness of an organization's business practices, as well as its products or service,

may also influence demand and public perception. Topics relevant to our analysis may include revenue and earnings by product line, geography and age group using the product or service.

Geographic and product diversity as well as an ability to quickly adapt to consumer preferences, regulatory changes and societal trends may help mitigate risk or lead to competitive advantages. In some cases, an enterprise may also put in place actions or communication plans to try to blunt customers' negative perception of its products and services.

#### **HEALTH AND SAFETY**

Health and safety issues are related to the work environments that entities create for their employees and contractors.<sup>31</sup> These conditions are important because accidents may generate negative publicity and disrupt operations. Regulatory pressure may result in higher costs or sustained downtime, and potentially unsafe environments may lead to increased labor costs, labor shortages and necessary investment in training and the physical workspace to create safer conditions.

Enterprises in industries that involve heavy equipment and machinery, handling of hazardous materials, and dangerous operating conditions generally have higher exposure to health and safety risk than, for example, an enterprise that relies on knowledge workers. Relevant considerations may include fatality and injury rates and working hours lost due to employee safety, as well as regulatory interventions and fines related to safety failings. The credit implications of a health and safety violation may depend on the location of the operations, so geographical distribution of employees may be a relevant consideration for some issuers.

Entities may offset risk exposure, for example, through compliance with regulations or through advances in technology and monitoring equipment. Societies generally expect employers to maintain a safe workplace, so its health and safety practices are important to credit profiles; however, an extremely safe workplace is unlikely to confer material credit benefits. As a result, a score of 1 for this consideration is very unusual.

#### **RESPONSIBLE PRODUCTION**

Responsible production incorporates the risks and opportunities of how an enterprise manages its production processes and supply chain or delivery of services. These risks include the potential impact of product failures, recalls or contaminations, as well as from supply chain practices such as human rights controversies and violations. Product failures may lead to a damaged reputation with suppliers and regulators, fines and lawsuits, or additional costs (e.g., remediation or retooling of production), whereas a well-established reputation for consistently high product quality may create a competitive advantage. The complexity and potential harm related to the end use of a product or service may indicate inherent risk exposure, and an enterprise's adherence to manufacturing standards may be a relevant consideration.

Supply chain weaknesses can lead to supply disruption, increased costs or reputational damage, making an enterprise's framework for vetting and managing suppliers, as well as the diversity, resilience, reputation, and cost efficiency of its suppliers relevant considerations. This is especially the case for entities with complex supply chains. Legal frameworks in jurisdictions of key operations may also be important, and entities whose products and service are complex or viewed by countries as critically important may have greater exposure to risks related to responsible production.

Entities may depend on the communities in which they operate for their workforce, so their engagement with those communities may affect their ability to attract and retain employees as well as their revenue. For some entities, there may be a governmental expectation to support citizens during a downturn, leading to higher costs or lower revenue. Poor relationships can hinder greenfield investment projects, raising potential execution challenges (e.g., lengthier consultation processes or settlement costs). Statements from

<sup>31</sup> We consider health and safety issues that affect the community in which an entity operates under responsible production.

community leaders, the effectiveness of an enterprise's media strategy, evidence of stakeholder engagement policies, and the severity and persistence of negative publicity or governmental hearings and investigations may be relevant considerations.

Concerns about the legality and social acceptability of dealings with suppliers that may be involved with human rights controversies and violations may damage the enterprise's standing among external constituents, potentially leading to loss of contracts related to non-compliance, fines, or criminal charges or convictions. Relevant considerations may include an enterprise's internal compliance systems and the stringency of its oversight measures. For some entities, the severity or pervasiveness of allegations and lawsuits may indicate high risk exposure.

Entities may be able to mitigate exposure through diversification of the supplier base to ensure alternative suppliers in case of supply disruptions or disputes. Positive community relationships and comprehensive due diligence that considers potentially meaningful positive and negative effects of new investment decisions on the community or region may help to offset risk and for some enterprises may enhance their reputation, which may lead to credit benefits. For example, an enterprise could upgrade existing production facilities to minimize the impact of contamination.

#### *Arriving at the S IPS*

To arrive at an issuer social IPS, we typically place the most emphasis on the worst category score. Where risks are additive, we may assign an IPS that is worse than the worst risk category score. However, in assigning the IPS we also consider the unique characteristics and circumstances of an enterprise, and the interplay and potential correlation among categories. This may lead to assigning a better IPS score than suggested by the worst category score.

#### **GOVERNANCE ISSUER PROFILE**

Governance risk tends to be issuer-driven, compared with environmental and social risks, which may be driven by external factors and often have a sector-wide impact. Governance can support or erode credit quality for all enterprises, and governance considerations are incorporated into many of our sector rating methodologies.<sup>32</sup> Weak board governance or executive management can result in a flawed operating strategy or an inability to execute business plans effectively. Serious governance failures can lead to severe reputational and financial risks, including increased debt-financing costs or loss of access to capital markets. Governance considerations may also be credit positive. For example, strong internal controls may help to offset a broad variety of other risks, including ESG risks. Strong structural features and well-defined contracts of a project financing may also mitigate many of these risks.

The strength of institutions or rule of law incorporated in our assessment of a sovereign's governance may be an indicator of governance standards in those jurisdictions, and issuers operating in sovereigns with weaker governance standards may themselves exhibit lower governance standards. However, the G IPS of a sovereign does not directly constrain the G IPS of enterprises with operations in that country. Where there is a lack of disclosure, it may, but not always, indicate governance risk, and we would typically consider the level of disclosure relative to regional and industry peers as well as requirements (by country of domicile and for credit agreements) and whether less disclosure indicates information gaps.

In the sections below, we describe the principal credit implications from governance considerations for enterprises.

<sup>32</sup> A link to a list of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

For some categories, including for Compliance and Reporting and for Board Structure, Policies and Procedures, we may use quantitative indicators<sup>33</sup> based on public data, as a starting point for our qualitative assessment. The indicative scores are based on a defined set of questions using data sourced from public filings and can only be obtained for issuers where the set of questions is applicable and the related data are available. We may also use nonpublic information. For Financial Strategy and Risk Management, we may use factor scores from our sector scorecards as a starting point for our qualitative assessment.<sup>34</sup>

### **FINANCIAL STRATEGY AND RISK MANAGEMENT**

Financial strategy and risk management reflect the board and management's tolerance for risk, which often directly affects debt levels, the future direction for the enterprise and the risk of adverse changes in financing and capital structure.

Relevant considerations may include an issuer's desired capital structure or targeted credit profile, its dividend policy, and its history of prior actions related to financial strategy and risk management, including its track record of risk and liquidity management and whether it has consistently maintained its targeted capital structure. In some cases, a highly covenanted financial structure explicitly limits leverage and requires key risks to be hedged or insured, and the terms of key debt agreements may be relevant considerations. A commitment to a conservative credit profile and strong liquidity may support financial flexibility that benefits creditors. On the other hand, an aggressive focus on shareholders at the expense of creditors may indicate high risk tolerance. For example, the private equity business model typically involves an aggressive financial policy and a highly leveraged capital structure to extract value. The sponsor's track record of dividends may be a relevant consideration for these enterprises.

How management uses cash during different economic and industry cycles and responds to key events such as changes in financial markets, legal actions, competitive challenges or regulatory pressure may indicate risk exposure. For some entities, management's M&A strategy, including the frequency and materiality of acquisitions, how they are financed, or the objective of the transactions (e.g., maintaining core competency or shifting to new business) may be relevant. The issuer's record for enterprise risk management, including operational and commodity risks, may also be relevant, particularly for entities with significant exposure to commodity risk (e.g., energy and mining companies).

### **MANAGEMENT CREDIBILITY AND TRACK RECORD**

The credibility and track record of management<sup>35</sup> helps inform our opinion of its ability to achieve its target credit profile and operational goals and may provide insight into likely future performance, including in stressed situations.

Relevant considerations include management's track record for meeting, surpassing or missing public and private guidance, including during periods of market fluctuations, and variability of operating results. An organization that consistently provides and meets its guidance, maintains its target credit profile during downturns, and anticipates and adapts to evolving business or market conditions generally has a track record that supports greater management credibility than one that does not provide any guidance or frequently misses its guidance. Guidance may include financial forecasts as well as key performance indicators related to the enterprise's industry (e.g., subscriber trends, units sold).

<sup>33</sup> Please click [here](#) to access a description of how we arrive at indicative scores to inform our qualitative assessment for Board Structure, Policies and Procedures and for Compliance and Reporting. The indicative scores are based on a defined set of questions using data sourced from public filings.

<sup>34</sup> As a starting point to inform our qualitative analysis, where available we map Financial Policy factor scores of Aaa to A to 1; Baa to 2; Ba to 3; B to 4; and Caa, Ca and C to 5.

<sup>35</sup> For private-equity-owned enterprises, the track record and credibility of the sponsor, who, for example, may change the enterprise's management or its goals in a way that is deleterious to creditors or may provide effective oversight, operational expertise or an ability to cut costs, may be a relevant consideration. For project financings, we typically consider the experience and credit quality of the operator and the commitment of both sponsor and operator to the project.

Significant shifts in strategy, for example entering a new business line or geographic region where management has limited experience, can increase risk. Contractual limitations on an issuer's permitted businesses can help to mitigate this risk.

Consistent achievement of synergies from business integration and a successful strategy for and execution on M&A may indicate the ability to manage risk effectively or gain benefits from future transactions, whereas a weak track record of achieving synergies, poor execution on M&A and an aggressive risk appetite may suggest higher risk exposure. Management's ability to pivot in response to industry and market conditions, or its failure to do so, may be a relevant consideration. High executive turnover or, in some cases, failure to remove top management despite weak performance, may point to governance risk. Dependence on one individual or a group of executives can pose risk to management credibility, because that loss of key people could adversely impact operations, especially in the absence of a succession plan.

For some enterprises, success in managing regulatory relationships may be a relevant consideration, particularly where a sector or issuer may be a target of scrutiny from politicians or requires permits for successful operations. Where entities outsource operations or rely on support from partners or governments, the internal process for choosing partners and management's track record of and strategy for stepping in to support an initiative may be a relevant consideration.

#### **ORGANIZATIONAL STRUCTURE**

Organizational structure is unlikely to materially improve the credit profile of an enterprise, but may create risk if, for example, financial engineering or significant cross-shareholdings or frequent changes in organizational structure obscure performance or create conflicts of interest. Complexity by itself does not necessarily create credit risk, but a complex structure with, for example, multiple holding companies and joint ventures may allow for the transfer of funds at the expense of creditors or may indicate overly aggressive tax strategies. For example, an ownership structure that blurs the financial separation of entities within the organization can lead to relationships between parents and subsidiaries, or governments and their associated enterprises, that lack protection from restricted payments covenants, which may expose creditors to cash leakage and may also reduce financial transparency. Parent or holding companies with multiple subsidiaries that also hold voting rights in the parent or other subsidiaries or that can directly or indirectly transfer financial obligations to other subsidiaries may create risk. Reliance on minority holdings or joint ventures to support earnings can limit earnings predictability. Legal ownership structures such as master limited partnerships or real estate investment trusts may incentivize the distribution of profits to equity holders rather than for debt reduction.

Relationships between parents and subsidiaries, related party transactions, agreements (e.g., bond indentures, credit agreements) governing the flow of funds between entities within an organization, and the presence, structure and purpose of joint ventures and special purpose vehicles may be relevant considerations for some enterprises. Clear contractual allocation of risks between lenders, owners and contractors is often an important strength of project finance structures.

#### **COMPLIANCE AND REPORTING**

The timeliness and accuracy of required disclosures are important because, for example, a qualified audit opinion may indicate higher exposure to governance risk that could result in a potential default under debt agreements. Regulatory or legal actions or investigations may result in fines and management distraction, as well as reputational risk.

Considerations relevant to our assessment may include the timeliness, transparency and comprehensiveness of financial statements, restatements of financial data, whether audit opinions are qualified or non-qualified, frequent changes in auditors, and any auditor comments regarding the quality of internal controls. In assessing the materiality of legal actions we may consider whether a judgment or penalty is likely to affect

an issuer's access to capital markets, its competitive position or reputation, and the magnitude and level of management involvement. For all compliance and reporting risks, we may also assess the likely efficacy of corrective measures and the likely timeline to resolution. Dismissal of top management for cause (related to compliance and reporting issues) may point to weak governance.

#### **BOARD STRUCTURE, POLICIES AND PROCEDURES**

Board oversight and effectiveness are important because boards generally perform a critical role in the oversight of risk management, including setting and monitoring a firm's risk appetite and the risk management framework of the enterprise.

Ownership concentration, as well as the degree of control of and protections afforded to different shareholders may be relevant considerations. Ownership by hedge funds or activist investors may in some cases be detrimental to an enterprise's credit profile if it leads to a strategic change that favors equity holders over creditors. Ownership by private equity typically indicates a shareholder-friendly, rather than creditor-friendly, structure, which typically increases risk tolerance. Government-owned and affiliated enterprises may face a different set of priorities. Competing priorities could increase risk, for example by encouraging the enterprise to fund or subsidize other public policy goals that are not aligned with creditor interests. On the other hand, enterprises that fulfill a government policy mandate or provide vital services (e.g., healthcare, education) may benefit from additional governance oversight, early intervention and ongoing support.

The design, disclosure and oversight of management compensation (which is typically set by the board) may also affect the enterprise's credit profile, depending on the incentives (e.g., short-term or long-term incentives). For example, pay and compensation structures not aligned with sustainable operating performance or excessive compensation plans that incentivize short-term outcomes, such as aggressive growth, over a stable credit profile may encourage excessive risk-taking that negatively impacts creditors. Director independence, levels of relevant experience, succession planning, board turnover and diversity may be relevant considerations when assessing overall board oversight.

#### *Arriving at the G IPS*

Risk categories of the G component may be additive, as is the case for the E and S components. However, given the nature of good governance as a potential material strength, some related risk categories (e.g., financial strategy and risk management or management credibility and track record) could offset other governance categories of risks. As a result, we may assign a better G IPS than suggested by the worst category score.

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### **Assessing the Credit Impact Score**

As discussed in Appendix B, the CIS explains the impact of ESG considerations in the context of the other credit drivers that are material to the enterprise's rating. The CIS score indicates the extent, if any, to which the rating of an issuer would likely be different if exposure to ESG risks did not exist.

Credit factors that may help to offset ESG exposure for enterprises include, for example, strong liquidity and good access to capital, or external support (e.g., from affiliates or governments) that we believe will allow the issuer to manage E, S and G risks. In addition, the expected time horizon of the E, S or G exposure may mute the effect on the rating, as explained in Appendix B. Many enterprises have meaningful exposure to risks that are expected to become material over a relatively long timeframe; however, an enterprise may have sufficient time and financial strength to adapt as needed to meet its ESG challenges. Examples of non-ESG-related credit weaknesses that may be relatively more prominent, resulting in a high IPS and a low CIS, include constraints related to the country of primary operations, as reflected in the sovereign rating and country ceiling, or a liquidity shortfall not directly related to its E, S or G exposure.

## Appendix E: Issuer Profile Scores and Credit Impact Scores for Regional and Local Governments Globally

In this appendix, we describe how we apply the general framework for determining E, S and G issuer profile scores (IPs) and ESG credit impact scores (CISs), (described in Appendices A and B, respectively), to regional and local governments (RLGs) globally.

The issuers covered under this framework are governments below the level of the sovereign, such as states, regions, provinces, territories, counties and cities. These include public school districts, public utility districts and other special purpose districts. Non-financial public sector issuers that have business-like revenue raising capacity through the implementation of fees for service, such as municipal utilities, airports, toll roads, ports, mass transit enterprises, hospitals, housing agencies, and higher education institutions are covered under the framework for enterprises.<sup>36</sup>

In establishing E, S and G issuer category scores and overall IPs for RLGs, we make a qualitative assessment of the issuer's exposure to the related risks. Our assessment of E, S and G focuses on credit-relevant considerations and the extent to which they are positive or negative for credit profiles. Issuer category scores reflect our assessment of the likelihood and magnitude of current and future credit exposures related to the category of risk, including their effect on economic growth, budget revenues and spending. These assessments are forward-looking but may also be informed by an entity's previous experience of these risks.

The IPS and category scores also incorporate meaningful mitigating or strengthening actions related to those specific exposures. These include actions taken at the issuer's own initiative or actions fostered or required by external parties (such as policies, regulations or international commitments). For example, where requirements or policies set forth by a higher-tier government result in RLG actions that materially benefit the RLG relative to how it might act on its own, the IPS would reflect the positive influence of that higher-tier government's requirement.

Our assessment may be informed by metrics that are relevant to the risks, benefits and ESG-specific mitigants. These metrics are indicative and may not be available for all rated issuers. Metrics may also vary across different RLG types (e.g., US states and regional governments outside the US) reflecting differences in reporting standards and disclosure levels as well as varying relevance of particular metrics across RLG types. The metrics used in our assessment are typically sourced from governmental agencies or statistical offices, or in some cases from multilateral agencies or other third-party providers of ESG information. Where data are unavailable for a specific RLG, we may use the data of relevant higher-tier or lower-tier governments, with possible disaggregation or aggregation of that data. We may also consider scorecard factors or sub-factors in our sector methodologies, in particular for governance (e.g., an institutional framework factor or sub-factor score). We may also incorporate non-public information, including that obtained from issuers as part of the credit rating process. Please see Appendix 2 for examples of associated metrics for different types of RLGs. Over time, we may broaden or adjust our metrics, for example, as more data become available or certain indicators are viewed as more or less relevant to our analysis.

The E and S heat map sector category scores provide a useful general reference for an RLG's issuer profile analysis. For RLGs, we have defined two groups, each of which is broad and diverse: advanced economy RLGs and emerging market RLGs. As a result, an RLG's E and S category scores may vary, potentially significantly, from the heat map sector category scores. Heat map sector category scores also do not incorporate specific mitigants, which may result in an issuer category score that is better than the respective heat map sector category score.

<sup>36</sup> In our sector heatmaps, we use private sector classifications for these entities.

Our assessment of an RLG's exposure to E and S may also be informed by the scores of corresponding higher-tier governments (e.g., referencing the E score of a sovereign when analyzing a region within that sovereign). We may also consider the E and S scores of related lower-tier governments, where risk scores for these governments provide useful information. An RLG's exposure may be influenced by the actions or policies of higher-tier governments, such as the corresponding sovereign. In many cases, these policies, restrictions or actions are largely out of the RLG's control, but may greatly influence, positively or negatively, its exposure to an E, S or G risk.

E, S and G risks may cross multiple categories. For example, risks pertaining to water (e.g., drought) could manifest in water management risk (e.g., consumption levels) or in natural capital (e.g., damage to water sources for an RLG). Legal, reputational and policy risks may arise in multiple categories. For example, insufficient or unreliable water supply could drive risks across other E, S and G categories (e.g., heighten social tensions, depress economic growth, result in greater oversight). When assigning an IPS, we consider the interplay and potential overlap among E, S or G categories to avoid overstating or understating the risks.

As discussed in Appendix B, the CIS helps to explain the impact of ESG considerations in the context of the issuer's other credit drivers that are material to a given rating.<sup>37</sup>

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## Issuer Profiles

### Environmental Issuer Profile

Vulnerability to environmental risks for RLGs can vary significantly depending on the RLG's geography, economic base, population, its particular responsibilities and the maturity of its institutions. Exposure to environmental risks can increase an RLG's operating costs and capital expenditures. For example, environmental hazards, such as hurricanes, can result in an immediate adverse impact on economic activity and result in revenue disruption, while longer-term environmental trends such as rising sea levels can cause more prolonged pressure on budgeting and spending priorities.

RLGs may derive some benefit from one or more environmental categories. In principle, an RLG could have an IPS of E-1 if it significantly benefited from environmental considerations. For example, an RLG may have a clear and lasting advantage in terms of economic growth and revenue generation because entities firmly rooted in its jurisdiction are involved in the production of environment-related technological innovation. This case is expected to be unusual. Moreover, E risks are pervasive and do not offset one another. As a result, assigning an overall IPS of E-1 to an RLG is highly unusual.

In the sections below, we also describe the principal credit implications from environmental considerations for RLGs.

#### **CARBON TRANSITION:**

A global shift away from the consumption of hydrocarbons can pose risks for RLGs, particularly those whose economies and finances are heavily dependent on the non-renewable energy sector. Decreasing investment or disinvestment in this sector can negatively affect economic growth and the base from which the RLG collects revenue.

For an RLG, addressing the effects of the underlying economy's transition to a lower carbon future may include efforts to reduce the reliance on revenues linked to non-renewable resources, for example, by attracting investments that diversify its economy.

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<sup>37</sup> For the CIS, the reference rating for sub-sovereigns outside the US is the issuer rating or senior unsecured rating. For US public finance, the reference rating is the issuer rating, where available. If the entity does not have an issuer rating, the reference rating is the senior-most unenhanced, uncollateralized full faith and credit obligation of the entity, or in the absence of such a rating, the senior-most unenhanced, uncollateralized revenue debt rating.

Some RLGs may enact policies, either self-driven or imposed by third-parties, that are environmentally beneficial, but could hamper the RLG's growth or revenue. Some examples may include the phase out of gasoline-powered vehicle sales in the RLG's jurisdiction or restrictions on the use of gas utilities in newly developed areas. Such policies, enacted to facilitate a shift away from carbon, could lead to a loss of revenue or population for the RLG over the long term if not counterbalanced by changes to its revenue structure or policies that, on balance, encourage sustainable growth.

We make a qualitative assessment of the exposure to carbon transition risk of an RLG's major economic sectors and the share of RLG revenue generated from them. Our assessment would also include considerations of economic vibrancy resulting from sectors that benefit from carbon transition.

#### **PHYSICAL CLIMATE RISK:**

An RLG's exposure to heat stress, water stress or extreme weather events (e.g., hurricanes, floods or wildfires), is driven in great part by its geographic location.<sup>38</sup> The severity and frequency of these events have increased in recent decades, in some cases causing significant economic losses, hazards for the local population and environmental damage.

The sensitivity to physical climate risk of an RLG also depends on the share of weather-dependent economic activities (e.g., agriculture and tourism), exposed physical assets (e.g., utilities or housing located in flood plains) and RLG infrastructure assets (e.g., tunnels, subways, bridges) that can be impacted meaningfully by these events.

Weather events such as floods and hurricanes can damage the RLG's revenue base, temporarily or over a longer period. As a consequence, RLGs might face budgetary pressures to repair damaged infrastructure or to invest in the hardening or relocation of existing infrastructure that is subject to physical climate risk. Where the impact of severe weather events is increasing, this trend will also likely weigh on investment and economic growth.

In general, long-term environmental trends can also hurt an RLG's economic activity and infrastructure. Considerations such as the share of the population living close to sea level and the susceptibility of an area to droughts or wildfires contribute to an RLG's sensitivity to physical climate risk. Heat stress and water stress can also negatively affect economic growth, for example, by causing losses in productivity and decreases in agricultural production, burdening health care systems and increasing energy demand.

RLGs may mitigate their exposure to physical climate risks, for example through the provision of dedicated funds to prepare for and respond to such events.

Indicators that may inform our assessment include metrics such as exposure to heat stress, water stress, flooding and extreme precipitation, hurricanes and typhoons, and sea level rise, such as those provided by Four Twenty Seven Inc. (427).

#### **WATER MANAGEMENT:**

This category focuses on the management and governance of water resources. This includes, for example, water consumption, availability, efficiency and access, quality, treatment and pollution, all of which may affect an RLG's economy and finances. Because water is a vital resource for all economic activity, water shortages can destabilize an RLG's revenue and expenditures and affect its overall economic and political stability. RLGs that have economies largely based in water-intensive industries like mining, pulp and paper,

<sup>38</sup> The physical climate risks category excludes geophysical risks, such as earthquakes, volcanoes and tsunamis.

textile and agriculture are more exposed. Climate change considerations, such as drought or changing rainfall patterns that could affect water supply are covered under our physical climate risk category.

RLGs can mitigate their exposure to water management through the implementation of effective policies and strategies, including oversight of RLG-owned water and wastewater utilities, encouraging demand reduction for water and wastewater treatment, or building an integrated water management system that may result in more diverse water sources for the RLG.

In our qualitative assessment of water management, we may consider an RLG's trend of water availability and consumption and the actions an RLG is taking to manage its water-related risks. We also consider whether an RLG's abundance of sustainable water resources is a material advantage.

#### **WASTE AND POLLUTION:**

Hazardous waste and nonhazardous waste from residential, commercial and industrial activities, including municipal solid waste, can have a material negative economic, social and financial impact on an RLG. For many RLGs, efforts to prevent or address the effects of these risks on the population and ecosystem, such as the implementation of recycling programs or the cleanup of hazardous waste sites, may lead to significant costs.

RLGs can, in part, reduce their exposure with long-term waste-management planning and with regulation to reduce or treat waste and pollution of the industries that compose their economy. To reduce pollution, some RLGs have also put in place congestion pricing for vehicles entering their city centers. However, some areas of regulation may be outside the RLG's control and ineffective regulation by a higher tier of government may leave the RLG exposed to the effects of pollution, while an overly restrictive policy by a higher tier of government, for example non-GHG emission standards, could negatively affect the RLG's economy and its ability to attract certain types of investment.

In our qualitative assessment of waste and pollution, we may consider the amount of municipal waste per capita generated in the jurisdiction and indicators of air pollution. We may also consider the extent to which air and land-based pollution or related regulations are material risks for the population and the major industries in an RLG's economy.

#### **NATURAL CAPITAL:**

An RLG with an economy based in sectors that provide goods and services derived from agricultural products, raw materials or other products derived from plants or animals or ecotourism, has an elevated exposure to the natural capital being damaged or depleted. Damage to an RLG's environment caused by government action or a failure to protect natural systems, whether from human causes or natural erosion, can lead to a loss of economic activity and revenue for an RLG. For example, for an RLG whose natural capital drives a significant tourism sector, a deterioration of its natural landscape and the accompanying loss of visitors over time will result in lowering the revenue and growth in the sector.

In our qualitative assessment, we consider the extent of an RLG's dependence on revenue from industries that are directly exposed to or reliant on the natural environment. We also consider whether there is potential damage to an RLG's and natural capital to the extent that such damage could adversely affect the RLG's economic and revenue stability, if not remediated. An RLG that places significant emphasis on preserving its natural landscape and biodiversity can derive material economic benefits.

### *Arriving at the E IPS*

We make a qualitative assessment of the overall environmental issuer exposure, taking into account the scores assigned for each category. For environmental categories for which we have good availability of data, we typically normalize<sup>39</sup> the data for each metric in a category, and take the average of these normalized metrics (the normalized category metric). We then rank the RLGs, which gives us a starting point to our assessment of a given category score. The actual category score incorporates qualitative judgment.

To arrive at the overall environmental IPS, we consider an RLG's highest and average risk exposure and generally place more emphasis on the highest exposure as conveyed by the quantitative metrics, for categories where they are available, and our qualitative judgment. Where risks are additive, we may assign an IPS that is worse than the worst category score. However, in assigning the IPS we also consider the unique characteristics and circumstances of an RLG, and the interplay and potential correlation among categories. This may lead to assigning a better IPS score than suggested by the worst category score.

We score an RLG's environmental IPS on a scale of E-1 (Positive) to E-5 (Very Highly Negative).

### Social Issuer Profile

An RLG is exposed to a wide variety of social issues related to the sometimes very specific characteristics and structure of its society. The exposure of an RLG to social risks depends greatly on the particular responsibilities of the RLG, which may vary across jurisdictions.

In the sections below, we also describe the principal credit implications from social considerations for RLGs.

#### **DEMOGRAPHICS:**

Population growth partly drives an RLG's capacity to generate revenue from sources such as income taxes, sales taxes, property taxes and, in some cases, transfers from higher-tier governments. Inversely, an aging population, lower birth rates or negative net migration weigh on population growth and may diminish an RLG's revenue generation capacity.

Where demographics are shifting toward an older population, an RLG may face an increase in demand for related social services and healthcare spending. Some RLGs are also responsible for social security benefits for their citizens, in addition to pensions or healthcare.

RLGs can employ different strategies that may encourage positive demographic trends. Some of these include the provision of high-quality infrastructure and amenities or a low tax environment, which encourage inward migration. Some RLGs may implement policies that encourage household formation and higher birth rates.

Population growth is typically positive for RLGs, but may present challenges, and an RLG's capacity to respond to these can either lower or exacerbate its exposure to demographic risk. Challenges associated with growth include increased demand for employment, housing, healthcare and infrastructure. Similarly, inward migration, whether local or international, may present benefits by attracting a younger or skilled population, but may also raise costs and create social tensions. Outward migration, on the other hand, can lead to a depletion of a younger or educated workforce.

<sup>39</sup> For each metric, we calculate the average and the standard deviation across all rated RLGs. Each RLG's normalized metric is equal to the metric value minus the average metric value, divided by the standard deviation.

Indicators that may inform our assessment include those related to population growth, age composition of the population (e.g., working age compared to non-working age), birth and mortality rates, net migration and related trends.

**LABOR AND INCOME:**

Employment levels and income inequality affect an RLG's economy, finances, social cohesion and political risk. High unemployment or weak employment prospects can exacerbate income inequality, and negatively pressure an RLG's revenue base. Some RLGs also have large informal economies, which constrain tax revenue. Income inequality may contribute to high crime rates and political risks, or it may drive spending for social programs such as affordable housing.

Within a country, regional inequalities including those related to wealth, income, employment and infrastructure can also drive internal migration, which can exacerbate the social risks of the different regions. An RLG relying on a weaker tax base may need to spend a relatively higher portion of its budget on the provision of services than its wealthier counterparts.

There is typically some scope for RLGs to manage labor and income risks. Policies aimed at attracting a wide range of businesses, offering jobs in different sectors and at different skill levels can mitigate some of these risks. Some RLGs can also implement policies to promote good working conditions and benefits. Also, the presence of large, vibrant higher education, healthcare and high-tech sectors may contribute to employment stability or growth.

Indicators that may inform our assessment include labor force participation, employment, unemployment, income levels, and income inequality and related trends.

**EDUCATION:**

Education is a key responsibility of many RLGs. The education level of an RLG's citizens influences social cohesion, income levels, workforce and business development, which are all characteristics that may directly affect an RLG's growth potential and revenue raising ability.

Vast differences in access to education may exist across RLGs due to differences in resources, investment, or the physical capacity or quality of schools.

Where educational attainment is low, in particular for primary and secondary education, the relevant RLG(s) may face pressures to invest in basic needs such as teachers and educational facilities. RLGs may also implement a range of policies to improve educational access and affordability. For example, RLGs may regulate the tuition at a university or offer grants to encourage access to education.

Indicators that may inform our assessment include literacy rates and the share of the RLG's population with secondary and post-secondary education.

**HOUSING:**

Rising housing costs and the lack of affordable housing can curb economic growth and decrease an RLG's revenue base. They also put pressure on the government to increase spending on housing quality, access and availability. A lack of affordable housing can lead to increased social tensions stemming, for example, from homelessness or the health and safety issues associated with overcrowding, and can raise political risk. RLGs can mitigate their exposure to housing risks by implementing a range of programs to support access to housing, such as providing rental benefits or constructing affordable housing.

Strong demographic trends can boost housing markets; however, very rapid growth can also contribute to lower affordability and availability of housing.

Indicators that may inform our assessment include those related to housing access and affordability.

#### **HEALTH AND SAFETY:**

Health and safety issues, including healthcare access and availability, personal safety and food security, can impinge on economic growth, in particular when they affect health outcomes throughout a person's life. A challenging health and safety environment may also deter investment and result in a loss of population and employment, while pressuring an RLG's spending on healthcare, social services, and public safety. The prevalence of crime or unequal access to healthcare also increases political risk.

Indicators that may inform our assessment include life expectancy, the proportion of an RLG's population that has health insurance, and measures of violent crime, such as the homicide rate.

#### **ACCESS TO BASIC SERVICES:**

Access to basic services including utilities, transportation, internet and financial services supports productivity and fosters economic growth. On the other hand, residents' lack of access to these basic services not only can thwart economic expansion and revenue growth, but also can generate discontent and lead to social protests.

The responsibility for the provision of certain basic services, such as utilities and transportation, may belong to different levels of RLGs, and RLGs may fulfill the mandate either directly or through a government enterprise. Governments that do not invest in such basic services or infrastructure when needed, either directly or through partnerships with the private sector or arrangements with other governments, may have lower leverage and a stronger financial performance in the near-term. Over time, however, a lack of investment increases the RLG's exposure to these risks because it may require substantial spending and may drive private sector disinvestment or population loss.

Other basic services such as basic broadband and financial services are typically the purview of private sector providers. While some RLGs may not have direct control over the provision of these services, they can affect the offer of these services through regulation and actions that attract or deter private sector investment. Jurisdictions where services are limited may find it more difficult to attract population, industry and higher-income employment.

Indicators that may inform our assessment include an RLG's capital spending per capita and various measures of a population's access to basic services, such as broadband access.

#### *Arriving at the S IPS*

We use essentially the same approach to arrive at the social IPS as we use for the environmental IPS. For social categories for which we have good availability of data, we typically normalize<sup>40</sup> the data for each metric in a category, and take the average of these normalized metrics (the normalized category metric). We then rank the RLGs, which gives us a starting point to our assessment of a given category score. The actual category score incorporates qualitative judgment.

To arrive at the overall social IPS, we consider the highest and average risk exposure and generally place more emphasis on the highest exposure as conveyed by the quantitative metrics, for categories where they are available, and our qualitative judgment. Where risks are additive, we may assign an IPS that is worse than the worst category score. However, in assigning the IPS we also consider the unique characteristics and

<sup>40</sup> For each metric, we calculate the average and the standard deviation across all rated RLGs. Each RLG's normalized metric is equal to the metric value minus the average metric value, divided by the standard deviation.

circumstances of an RLG, and the interplay and potential correlation among categories. This may lead to assigning a better IPS score than suggested by the worst category score.

We score an RLG's social IPS on a scale of S-1 (Positive) to S-5 (Very Highly Negative).

### Governance Issuer Profile

Governance is a key driver of an RLG's credit quality. Governance practices can also mitigate or exacerbate environmental or social risks, in addition to having positive or negative influences on other fundamental aspects of an issuer's credit profile.

The strength of institutions or rule of law incorporated in our assessment of a sovereign's governance may be an indicator of governance standards in the public sector, and RLGs in sovereigns with weaker governance standards may themselves exhibit lower governance standards. However, the G IPS of a sovereign does not directly constrain the G IPS of an RLG in that country. An RLG in a country where the sovereign has strong standards may exhibit those standards, but it may also have a G IPS that is lower than that of its sovereign. Where there is a lack of disclosure, it may, but not always, indicate governance risk, and we would typically consider the level of disclosure relative to peers and local requirements and consider whether less disclosure indicates information gaps. Some governance considerations are explicitly incorporated as scorecard factors or sub-factors into our sector methodologies for rating the different types of RLGs globally.<sup>41</sup> For some types of RLGs, we use the corresponding sector methodology scorecard factor or sub-factors to arrive at the governance IPS.

In the sections below, we also describe the principal credit implications from governance considerations for RLGs.

#### **INSTITUTIONAL STRUCTURE:**

The quality of institutional structure is a core element of public-sector governance and can signal the likely effectiveness of policy decisions and the predictability of government decisions. The transparency, stability, predictability and accountability embedded in an RLG's institutional structure, the flexibility it affords to government decision-makers, the ability to alter the structure in response to changing needs, and the way in which changes are managed provide an indication of the institutional structure's effectiveness and of the strength of governance qualities.

Relationships among the various levels of government play a key role in determining an RLG's powers and responsibilities, its revenue-raising flexibility and its ability to adjust spending as needed. These relationships can vary meaningfully across RLGs in different countries.

#### **POLICY CREDIBILITY AND EFFECTIVENESS:**

The ability to effectively develop and implement transparent and meaningful fiscal, economic and social policies is critical to governing and is necessary to maintain economic stability, foster growth and deliver adequate and stable or improving living standards. Some features of policy credibility may be found in local law, others in institutional practices and political traditions that have developed over time.

The quality of public administration is key to the formulation and implementation of government policy. An administration that is operating with limited resources typically constrains the effectiveness of government policy.

We consider an RLG's quality of internal controls, its policy setting and the related policy implementation.

<sup>41</sup> A link to a list of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

**TRANSPARENCY AND DISCLOSURE:**

The ability of governments to produce timely, accurate and transparent financial statements and to disclose other relevant data or information are important governance considerations because transparency and consistency help to establish predictability and accountability, which in turn supports effectiveness.

Infrequent and limited data reporting and major revisions may indicate a weak institutional setting. In addition, gaps in data availability and quality may impair policymaking and hinder an RLG's accountability. As an extreme case, fraudulent financial statements are a direct blow to transparency and disclosure, and may result in large penalties, costs or legal or regulatory sanctions that could destabilize an RLG's financial stability.

Strong transparency and disclosure is characterized by institutionalized best practices that include multiyear financial plans, monthly financial status reports, debt affordability projections and periodic budgetary revisions.

**BUDGET MANAGEMENT:**

Strong budget management is distinguished by an ability to consistently achieve fiscal targets and by a degree of fiscal flexibility that allows an RLG to adjust revenue and spending when needed to restore fiscal balance. A government's ability to consistently produce accurate revenue and expenditure forecasts, monitor its budget execution and avoid large fiscal imbalances on a regular basis is a key consideration.

Multiyear planning for operating and capital spending and experience in accessing external funding sources are indicative of sound budget management practices. In some cases, higher-tier governments require RLGs to have a certain level of budgetary planning and execution, which, if rigorous, can foster better budget management practices at the RLG.

Arriving at the G IPS

We use governance-related scorecard factors and sub-factors in relevant sector methodologies for RLGs globally to arrive at the governance IPS.

For US states, the Governance scorecard factor score in the sector methodology is mapped to an indicative score for the G IPS based on the following mapping: Aaa through Aa to G-1; A to G-2; Baa to G-3; Ba to G-4; and B and below to G-5. Our assessment of the governance risk categories is heavily influenced by the overall G IPS.

For US local governments we use the Institutional Framework factor or sub-factor score as a reference point for our assessment of the G IPS. Our overall IPS assessment incorporates the differences in governance among local governments within a state, which in some cases are meaningful. Differences in scores between risk categories and the G IPS reflect an issuer's sensitivity to specific exposures.

To arrive at the G IPS for regional and local governments outside the US, we combine the Institutional Framework and the Governance and Management factor scores from the sector methodology and map the result to an indicative G IPS.<sup>42</sup> Our governance issuer category scores follow a similar mapping approach based on certain factor and sub-factor scores.<sup>43</sup>

We may assign a different G-IPS or different category scores than those indicated by the mapping, based on other considerations in the sector methodology not captured in these factor or sub-factor scores.

We score an RLG's governance IPSs on a scale of G-1 (Positive) to G-5 (Very Highly Negative).

### Assessing the Credit Impact Score

As discussed in Appendix B, the CIS explains the impact of ESG considerations in the context of the other credit drivers that are material to the issuer's rating.

Assessing the credit impact of ESG exposure requires an assessment of other features of an RLG's credit profile that may create resilience to the ESG exposure or exacerbate the exposure.

An RLG's resilience determines its capacity to respond to environmental hazards or social demands, among other challenges. Typical determinants of an RLG's resilience include its intrinsic fiscal and governance strength, income levels of the population and support that might be provided by a higher-tier government or other third parties (external support). Our assessment of resilience is largely qualitative, although it may be informed by quantitative metrics or factor or sub-factor scores in the corresponding sector methodologies for the various types of RLGs globally. We also consider other material credit issues that are relevant to arriving at a rating to assess the credit impact of ESG.

High income levels of a population typically provide a large revenue base for an RLG to tap into when responding to E and S risks. For example, higher income populations have more private resources to rebuild after a weather event, and thus may require less financial support from the RLG. Higher incomes can therefore increase the economic resilience of an RLG in the aftermath of a natural disaster or counterbalance a falling share of an active working population and the related pension costs. Our sector methodologies for the various types of RLGs typically include one or more metrics related to income and wealth.

Strong fiscal capacity is also key to resilience. An RLG that maintains strong unrestricted reserves relative to its budget is more prepared to meet increased costs from environmental and social risks than one that maintains a smaller amount relative to its budget. We recognize that any such reserves are finite and may not be easily rebuilt after an extreme E or S event. We take into account the potential costs of the risks over time and the pace at which reserves could persistently be drawn. Moreover, an RLG that has good access to credit and the capital markets can tap additional financial resources to prepare for or respond to these risks. Under our sector methodologies for the various types of RLGs, we consider an RLG's liquidity and reserve levels as part of our assessment of an RLG's financial flexibility.

<sup>42</sup> We apply proportional weights to the Institutional Framework and the Governance and Management factor scores, based on their respective weights in the sector methodology. The resulting scores are mapped to indicative G IPS based on the following mapping:  $\leq 2$  to G-1; 2 – 5 to G-2; 5 – 6.9 to G-3; 6.9 – 7.9 to G4; and  $> 7.9$  to G-5.

<sup>43</sup> The indicative score for the Institutional Structure category is mapped from the numeric Institutional Framework factor score based on the following mapping: factor score  $\leq 3$  to category score 1; 3 - 5 to 2; 5 - 6 to 3; 6 – 8 to 4; and  $> 8$  to 5. The indicative scores for the categories Policy Credibility and Effectiveness, Transparency and Disclosure, and Budget Management are mapped from the numeric sub-factor scores for Management Policies and Practices, Quality of Information, and Quality of Internal Controls and Planning, respectively, based on the following mapping: sub-factor score 1 to category score 1, 5 to 2, 9 to 4.

Governance typically plays an important role in determining an RLG's resilience, or the absence of resilience. RLGs that demonstrate sound governance practices tend to show better capacity to manage environmental risks and to address social demand pressures. Governance also shapes the effectiveness of the policy response to all types of crises or shocks, influencing the resilience of an RLG to these events. Weak governance practices, marked, for example, by a track record of not adhering to policies and procedures, weak pension funding, frequent budget imbalances or debt funding of operating deficits would weigh negatively on our assessment of ESG risks and the CIS.

External support, typically from a higher-tier government but potentially also from supranational entities, can take various forms including direct assistance (e.g., providing emergency services or reconstruction following an extreme weather event, such as a hurricane) or financial assistance to the RLG or its residents. A higher level of external support confers resilience and tends to lower the credit impact to an RLG of environmental and social exposures and of governance risks.

Other credit considerations may also play a role in our assessment of the credit impact of ESG risks for specific RLGs. In addition, the expected time horizon of the E, S or G exposure may mute the effect on the rating, as explained in Appendix B. Many RLGs have meaningful exposure to risks that are expected to become material over a relatively long time frame; however, an RLG may have sufficient time and financial strength to adapt as needed to meet its ESG challenges.

## Appendix F: Sector Compendiums

Please click [here](#) to access a compendium document that provides a description of the indicators that may be generally relevant for different types of RLGs (e.g., for US states or RLGs outside the US) for informing our assessment of some E, S and G risk categories and assigning IPSs for RLGs.

Please click [here](#) to access a compendium document that provides a description of the types of considerations and indicators that may be generally relevant across enterprise sectors for informing our assessment of E, S and G risk categories and assigning IPSs for enterprises.

## Moody's Related Publications

Cross-sector credit rating methodologies are typically applied in tandem with sector credit rating methodologies, but in certain circumstances may be the basis for assigning credit ratings. A list of sector and cross-sector credit rating methodologies can be found [here](#).

For data summarizing the historical robustness and predictive power of credit ratings, please click [here](#).

For further information, please refer to *Rating Symbols and Definitions*, which is available [here](#).

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