FitchRatings

2020

ESG IN CREDIT

WHITE PAPER

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Foreword

Ian Linnell
President of Fitch Ratings

From its origins in the socially responsible investing movement, ESG has grown to become a ubiquitous theme in global financial markets. Issuers, intermediaries and investors face growing demands to provide measurable clarity about the influence of ESG factors on their activities.

While the initial focus of ESG centered primarily on equity markets, debt investors are an increasingly important voice in shaping future progress. Credit poses a particular set of demands on the investor — particularly when it comes to managing more immediate risk which is a critical focus. We are indebted to the United Nations-supported Principles for Responsible Investment (UN PRI) for its important work with investors in articulating specific needs and developing a framework and taxonomy around which the financial community can rally.

The implications of ESG for Fitch are clear. Since 2015, investors have been calling on credit rating agencies to systematically incorporate ESG characteristics into issuer ratings. Their demands include greater clarity around material ESG characteristics at a sector level, transparency on how ESG affects rating reviews, proactive identification of ESG risks, and highlighting insufficient disclosure of material ESG elements. Fitch's approach to ESG is a direct response to these investors, placing their needs at the heart of our thinking.

Fitch Ratings is the only credit rating agency with an entity/issue specific integral, comprehensive and credit-focused approach to displaying sector and issuer level ESG credit risks across all the entities we rate. Since the launch of our ESG Relevance Scores in January 2019, we are now maintaining over 140,000 individual Environmental, Social or Governance scores for more than 10,000 entities and transactions worldwide. The scope of our coverage includes high-yield and investment-grade credits, Emerging and Developed Markets, and issuers from Corporates, Financial Institutions, Sovereigns, Public Finance, Project Finance, Covered Bonds and Structured Finance.

Fitch maintains over 140,000 individual Environmental, Social or Governance scores for over 10,000 entities and transactions worldwide.

ESG relevance scores are fully integrated into our core research, derived by our regular analysts and supported by a team of Sustainable Finance specialists. This granular, data-intensive activity also informs our thematic ESG research, complementing issuer-level detail with wider context.

Clearly there is still much to do. ESG scores of all types remain notoriously incomparable. Companies are wrestling with the practical challenges of ESG measurement. Investors are striving to comprehend new types of data and incorporate them into meaningful dialogue with stakeholders. These challenges will be overcome as methodologies are refined and understanding grows. As a trusted provider of data and analysis to financial decision makers, we recognize our important role in making this transition happen.

As we continue to strengthen our capabilities, Fitch aims to examine each ESG component in greater depth to surface insights that matter from an investment perspective. We will do so with an eye on our core goal of providing investors with the highest quality analysis to support investment decisions. The following chapters provide a comprehensive overview of Fitch's contributions to this effort so far.

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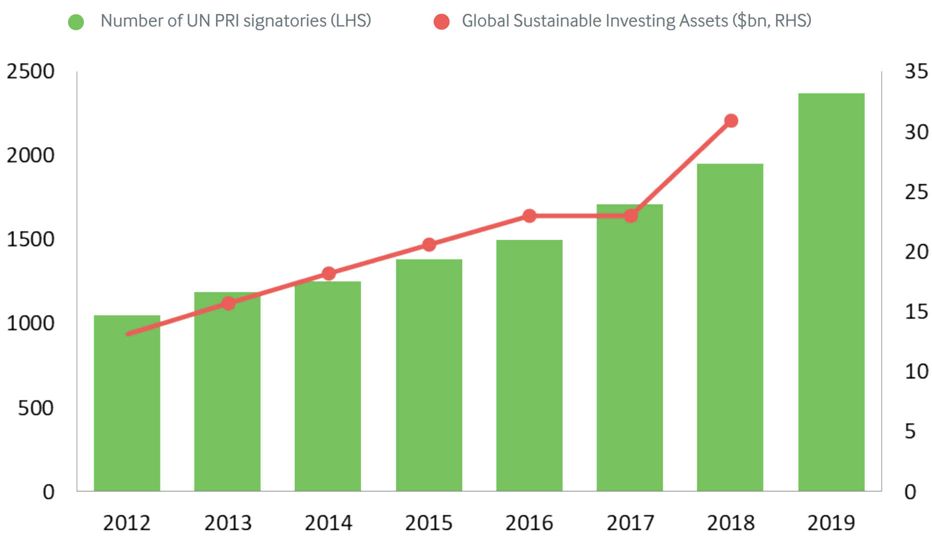
Growing Importance of ESG in Credit

What was once a niche investment strategy and a distinct fund class is now practiced in many (if not all) major financial markets and by investment firms worldwide, including in emerging markets. ESG investing – also referred to as responsible investment and historically as socially responsible investing (SRI) – has seen huge growth in the past few years, as evidenced by the number of signatories of the UN PRI and the global sustainable investing assets (see chart below).

This growth has been accompanied by an explosion of coverage by news outlets, including mainstream financial and non-financial newspapers and online magazines. Furthermore, an industry for ESG products and services has developed to cater to the demands of asset owners and investment managers.

ESG Investing Becomes Mainstream

Number of UN PRI Signatories, Global Sustainable Investing Assets ($bn)



Source: Fitch, UN PRI, IMF

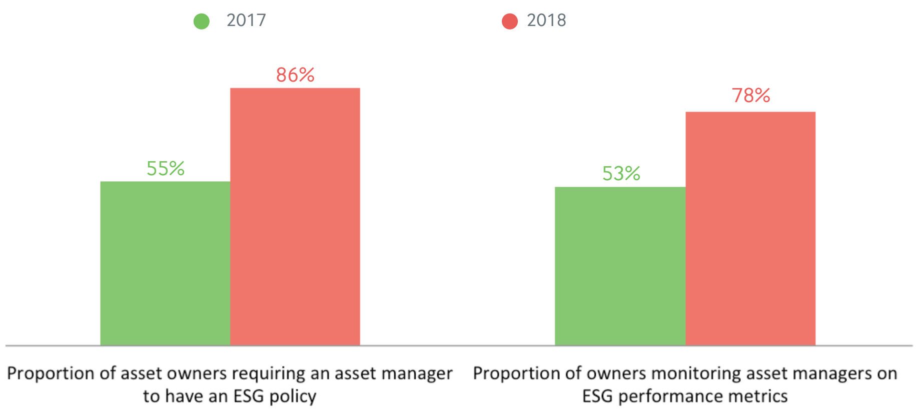
While the initial focus was on equities, the much bigger fixed income universe has taken an increased interest in ESG investing across all asset classes: financial and non-financial corporates; public finance; project finance; and structured finance – although some areas are encountering more demand than others. Asset owners are the main driver behind this change and have implemented responsible investment practices, such as screening for ESG factors in their fixed income portfolios, since the beginning of this century. The knock-on effect of this process is early and late adopters exploring the financial advantages of ESG investing, mainly from risk management and by attracting and retaining clients.

What is Driving Change and Interest in ESG in the Debt Capital Markets?

Many factors are leading to increased interest from the debt capital markets in ESG, including an overall desire to be seen as an industry that is promoting "doing good" as well as "doing well".

Many factors are propelling interest from the debt capital markets in ESG, including an overall desire to be seen as an industry that promotes "doing good" while "doing well". Probably the biggest single change in the last few years has been the rapid acceleration of asset owners wanting reports from asset managers about the ESG performance of funds being invested. Between 2017 and 2018, the proportion of asset owners requiring an asset manager to have an ESG policy in place to meet their selection criteria grew to 86% from 55%. Over the same period, the proportion of owners monitoring asset managers on ESG performance metrics also increased to 78% from 53%. This demand resulted in a marked acceleration in asset managers integrating ESG considerations into their investment processes.

ESG Policy and Metrics, a Must Have for Asset Managers



Source: UN PRI

An investor who only held companies with above-average ESG scores on both Environmental and Social scores would have avoided most U.S. bankruptcies.

The main application of ESG considerations is through risk management, which itself is a major driver of ESG investing. Industry studies have demonstrated that ESG integration techniques can help identify unknown or undervalued credit drivers and that material ESG issues can affect credit spreads.

For example, a study by Bank of America Merrill Lynch[1] shows that an investor who only held companies within the S&P 500 with above-average ESG scores on environmental and social subsectors would have avoided 15 out of 17 (90%) shows bankruptcies between 2008 and 2015. Another study by Hermes Investment Management[2] showed an inverse relationship between CDS spreads and their proprietary ESG scores of North American and European corporates. In addition, the study showed corporates with the highest ESG scores — issuers that perform well based on ESG factors — have the narrowest distribution of spreads, which should result in a more stable return profile.

1. S Subramanian, D Suzuki, A Makedon, J C Hall, Marc Pouey and J Bonilla, "Equity strategy focus point: ESG: good companies can make good stocks", Bank of America Merrill Lynch, December 2016
2. M Reznick and M Viehs, "Pricing ESG risks in Credit Markets", Hermes Investment Management, April 2017

ESG Integration

Due to client demand and the large number of studies showing links between ESG factors and investing and financial performance, investor awareness and understanding of the financial benefits of ESG investing has grown tremendously.

As a consequence, integration has become the preferred and dominant ESG investment strategy among asset owners and investors looking to decrease their downside risk and/or boost their upside potential. ESG integration techniques and tools include ESG materiality frameworks, ESG-integrated research notes and centralized dashboards for financial and ESG information and valuations. CFA Institute's[3] and PRI's ESG Integration Framework[4] provide a comprehensive list of ESG integration techniques.

One of the biggest obstacles to integrating ESG credit considerations into credit analysis, investment decisions and portfolios is the availability of ESG data and, by extension, the quantification of ESG credit considerations. To circumvent incomplete and incomparable datasets, investors collect and purchase ESG information from multiple sources and vendors, including company websites, NGOs, intergovernmental organizations and ESG data providers.

Transparency regarding the influence of ESG issues on credit ratings has also concerned investors, as highlighted by PRI's Statement on ESG in credit risk and ratings[5]. As signatories to the statement and in keeping with our core values, the Fitch Ratings' ESG Relevance Scores were developed to assist investors with their credit analysis and to provide transparency around the material ESG issues that have influenced Fitch's credit ratings.

ESG Relevance Scores were developed to assist investors with their credit analysis and provide transparency around the material ESG issues that have influenced Fitch's credit ratings.

Fitch signed UN PRI and is an active member of ESG in Credit Ratings Initiative

In September 2018, Fitch Group signed the United Nations-supported Principles for Responsible Investment (UN PRI), underlining its commitment to incorporating environmental, social and corporate governance (ESG) issues into investment practices and developing a more sustainable global financial system.

PRI Principles for Responsible Investment

Sustainability is a core principle for Fitch Group. By signing UN PRI, Fitch recognized the increasing importance being placed on ESG by the investor community and other market participants. This action formally underlined our ongoing commitment to increasing and improving the level of transparency of our credit ratings business and playing our role in helping to better align investors with the long-term objectives of broader society.

Global taxonomy surrounding ESG continues to emerge and Fitch views the UN PRI initiative as a key forum for refining and developing the dialogue between investors and service providers. Investor demand for sustainable investment opportunities — and a better understanding of how ESG factors can impact fundamental fixed income credit analysis — has flourished in recent years.

"By joining the PRI, Fitch has underscored its commitment to sustainable investing strategies," said PRI CEO Fiona Reynolds. "Not only are we delighted to welcome them as a signatory, we are also very pleased that they will be formally participating in our ESG in Credit Ratings Initiative[6], launched in 2016. The addition of Fitch means we will be able to further widen our ongoing dialogue between investors and rating agencies."

3. https://www.cfainstitute.org/en/research/survey-reports/guidance-case-studies-esg-integration-survey-report
4. https://www.unpri.org/the-esg-integration-framework/3722.article
5. https://www.unpri.org/credit-ratings/statement-on-esg-in-credit-risk-and-ratings-available-in-different-languages/77.article
6. https://www.unpri.org/credit-ratings

ESG in Fitch's Credit Ratings: ESG Relevance Scores

Fitch is the first credit rating agency to apply a systematic approach to publishing opinions about how ESG issues are relevant and material to individual entity or transaction credit ratings.

Fitch is the first credit rating agency (CRA) to apply a systematic approach in publishing how ESG issues are relevant and material to individual entity, transaction or program credit ratings. Our credit research reports clearly integrate our scoring system to show how ESG factors impact individual credit rating decisions.

Why Did Fitch Introduce ESG Relevance Scores?

Launched in 2019, ESG Relevance Scores are a Fitch research product intended to augment market transparency and satisfy investor demand for more thorough and robust reporting on how ESG affects credit risk. Fitch spent several months gathering the views and opinions of a range of market stakeholders on what they wanted credit rating agencies to provide before devising our relevance scores. The investor-based UN PRI's CRA initiative was also instrumental in vocalizing what investors want from CRAs: public disclosure of ESG credit issues at an industry and sector level, and transparent descriptions of how ESG issues affect individual company credit ratings, as well as identification of systemic ESG risks.

While investors can access many and varied data sources when seeking to manage portfolios in a more sustainable manner, nothing specifically highlighted entity- and sector-level ESG risk elements for fundamental credit risk. Fitch's focus is purely on fundamental credit analysis, so ESG Relevance Scores aim solely at addressing ESG in that context. This approach represents a significant step forward in providing transparency around our treatment of ESG factors from a credit risk perspective when making rating decisions.

Fitch's approach provides investors with the opportunity to examine, discuss, and challenge opinions about how ESG factors impact individual rating decisions. Investors also benefit from Fitch's long track record of analyzing issuers and its broad market coverage with 80%+ of the debt in global fixed-income indexes carrying a Fitch rating.

Fitch's ESG Relevance Score Framework

ESG Relevance Scores, which are assigned by the same analysts as the final rating of an entity/transaction or program, transparently and consistently display both the relevance and materiality of individually identified ESG risk elements to the rating decision. Together with Fitch's dedicated Sustainable Finance Group, each ratings team within Fitch worked globally to categorize and classify ESG credit risks at a sector level and subsequently score them for individual entities/transactions/programs within that sector. Individual E, S and G relevance scores range from '5' to '1'. A score of '5' indicates factors that on a standalone basis have a direct impact on the rating. Conversely, a score of '1' indicates factors which have no credit impact or are irrelevant to the sector and the entity/transaction/program from a credit perspective.

Relevance Scores of '4' and '5' indicate that the ESG risk is either a rating driver or a key rating driver to the credit decision, and therefore a debate point at committee. While the vast majority of elevated scores are negative, there are also incidences of positive credit influence and in this case the scores carry an additional '+' identifier.

Credit-Relevant ESG Scale – Definitions

How relevant are E, S and G issues to the overall credit rating?

5	Highly relevant, a key rating driver that has a significant impact on the rating on an individual basis. Equivalent to "higher" relative importance within Navigator.
4	Relevant to rating, not a key rating driver but has an impact on the rating in combination with other factors. Equivalent to "moderate" relative importance within Navigator.
3	Minimally relevant to rating, either very low impact or actively managed in a way that results in no impact on the entity rating. Equivalent to "lower" relative importance within Navigator.
2	Irrelevant to the entity rating but relevant to the sector.
1	Irrelevant to the entity rating and irrelevant to the sector.

ESG Relevance Scores are observational — they look at how much an ESG element affects a rating. The scores provide granularity on why ratings change and make the impact of ESG risks on a rating decision under Fitch's existing criteria much more transparent. The scores do not make value judgments on whether an entity engages in good or bad ESG practices, nor do they assess how broadly sustainable a practice is, but they draw out which E, S and G risk elements are influencing the credit rating decision.

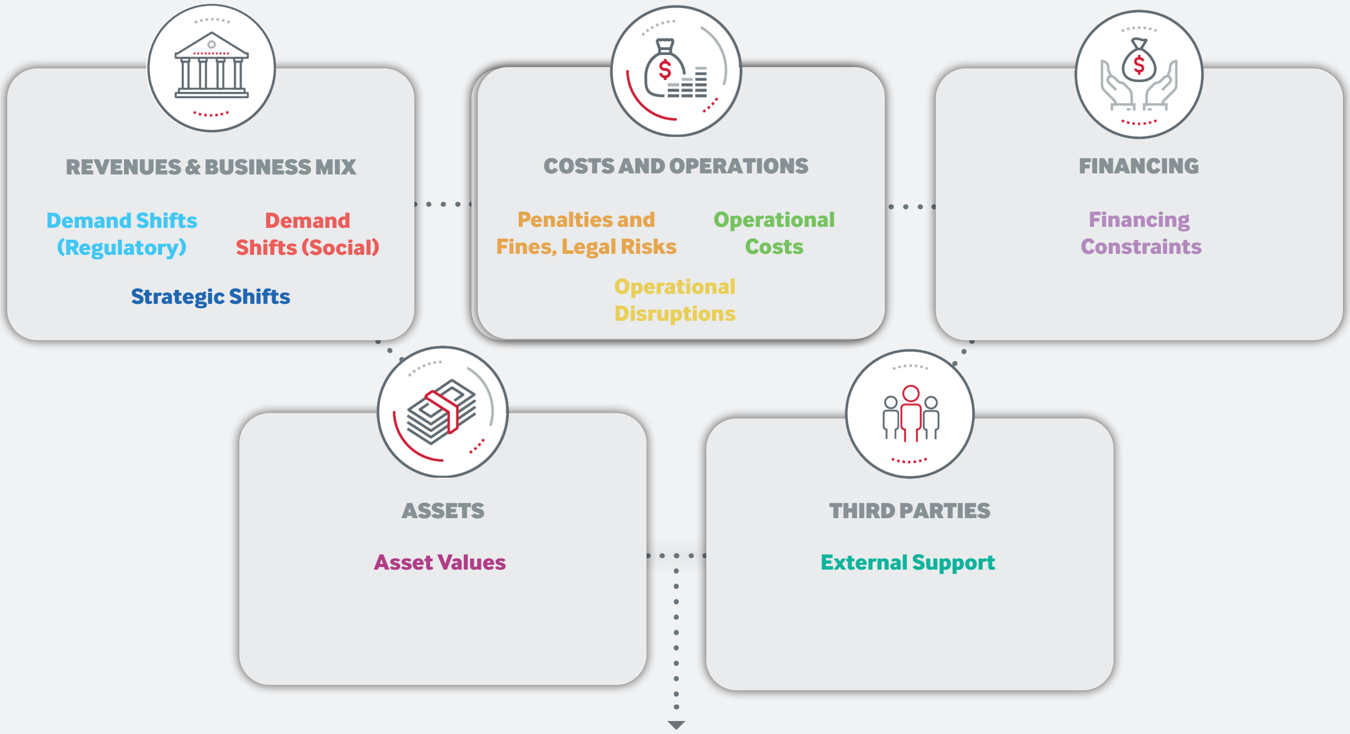
The indicators frequently used to gauge sustainability or "ESG performance" can align with credit risk, but not always. To illustrate, carbon intensity (carbon emissions per unit of revenue or energy produced) is frequently used as an indicator of environmental performance. While carbon intensity in itself is not relevant to credit analysis, it could be in jurisdictions where tighter regulation leads to additional costs associated with higher carbon intensity, or when changing social preferences present challenging financing conditions for carbon-intensive entities. The relevance to a credit rating will also depend on the broader credit profile, including the ability of the entity to absorb or pass on higher costs, or its reliance on particular funding sources.

Environmental and Social risk can materialize into credit factors, depending on the factor and sector-specific nuances.

While Governance risks are typically assessed directly in Fitch's credit rating criteria, they can also affect other areas such as profitability and financing flexibility. In contrast, environmental and social risks are generally assessed in reference to other credit factors.

Environmental and Social risks can materialize in credit factors, depending on the risk and sector-specific nuances. ESG risks can affect credit profiles both on an entity-specific and sectorwide basis and be considered in credit analysis either as potential risks or as impacts that have already taken place. The risk and impact can be one-off (such as legal liabilities for a particular incident or event), or ongoing (such as demand shifts or strategic changes driven by secular trends). As detailed in the asset class sections of this report, Fitch's unique templating system clearly highlights the aspects of ESG risk considered to be credit relevant to individual industry sectors.

Environmental and Social Risks in Credit: Transmission Mechanisms and Financial Impacts



Financial Impacts	Examples of Entities/Sectors Affected	Causation/ESG Risk
Demand Shifts (Regulatory)	Chilean Utilities With Coal Exposure	Government regulations leading to reduced use of coal.
Demand Shifts (Social)	Tobacco	Continued decline in consumption and regulatory risk connected with the widespread well-publicized health effects of tobacco products.
Penalties and Fines, Legal Risks	Australian Banks	Remediation programs underway following Royal Commission investigation into misconduct.
Operational Costs	San Francisco Bay Area Rapid Transit District (CA)	Recent strikes with resulting contracts more favorable to unions than to the issuer, limiting expenditure flexibility.
Operational Disruptions	Cenovus Energy Inc (Canadian corporate)	High exposure to pipeline and logistics takeaway capacity, which has been delayed multiple times due to social resistance to pipelines in Canada. This has widened the Canadian oil price differential to record levels and negatively impacts producers like Cenovus.
Financing Constraint	Corecivic Inc (US Prison REIT)	Withdrawal of funding of financing from U.S. and international banks following social welfare issues that has resulted in access to capital concerns
Strategic Shifts	Global Auto Manufacturers	Tightening global emissions legislation remains a pivotal issue for the industry. Adoption rate of electric vehicles (EV) is still uncertain and depends on factors outside of car makers' control, such as the development of charging infrastructure. In addition, EVs are less profitable, so an increasing share of EVs will initially burden manufacturers' earnings.
Asset Values	FLNG Liquefaction (2&3) LLC (infrastructure project)	Hurricane Harvey caused delays and cost overruns, which remain an issue.
External Support	Structured Agency Notes	GSE program focused on customer welfare and fair messaging while driving strong performance contributing to reduced expected losses, which has a positive impact on the credit profile, and is relevant to the ratings in conjunction with other factors.

The Policy Agenda: Climate Regulation and Disclosure Standards

What role is government and regulation playing in the shift towards ESG?

From a credit ratings perspective, an emerging 'climate policy gap' poses a significant regulatory risk for both financial and non-financial corporates. The gap between government pledges to cut carbon emissions and policies currently in place highlights the potential risk of a sharp shift in the policy landscape (governments have tackled only a few to date). Climate regulations have been relevant to credit ratings for only a handful of sectors, with existing policies often lacking financial impact or immediacy. Carbon pricing schemes are among the most convenient levers for policymakers to expand the reach and impact of climate policies; Fitch expects to see more activity surrounding these in 2020 and the following years.

How easy will it be for these policy changes to be brought in? What are the main obstacles?

Lack of a clear, simple and transparent global disclosure standard for corporates is one of the biggest obstacles to implementing change — it is very hard to track and incentivize change without a consistent, comparable and clear way of measuring it. A number of initiatives are underway to tackle this issue. One of the most developed is the EU Taxonomy. Fitch does not expect the establishment of the EU's Taxonomy for Sustainable Activities to have credit implications in the short-term, but we do believe that it lays the foundation for a sustainable finance ecosystem. Such activities could also become the target of policies, with direct financial incentives as policymakers decide to take a more aggressive stance toward directing capital.

How Are ESG Relevance Scores Derived?

To assign ESG Relevance Scores (ESG.RS), Fitch identified a holistic set of general ESG risk issue categories for consideration by its analysts across sectors. The general issue categories align with headline risk categories from widely accepted classification standards published by entities such as the Sustainability Accounting Standards Board (SASB[7]), Global Reporting Initiative and UN PRI. The Fitch ESG Relevance Score templates list these General Risk Issues under the relevant Environmental, Social or Governance headings. The template then provides Fitch's view of specific credit issues related to the sector covered by the template for each of the general issue categories.

The E, S and G scales each indicate an aggregate E, S and G score. Aggregate scores are calculated based on the highest ESG relevance scores for general issues in a particular category and the number of general issues categories receiving that score. The E scoring example on the next page shows one bar in the '2' score range, indicating '2' is the highest ESG relevance score for environmental general issues, and one or two general issues receive that score. This rises to two bars in the score range if three or four general issues have the highest ESG relevance score, and three bars if all general issues receive the highest score.

7. http://materiality.sasb.org

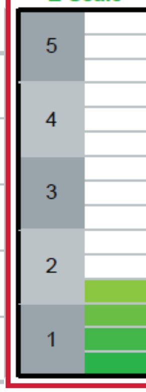
Fitch ESG Scoring in Practice

Example of ESG Scoring in the Environmental Category

Environmental (E)

General Issues	E Score	Sector-Specific Issues	Reference
GHG Emissions & Air Quality	1	n.a.	n.a.
Energy Management	1	n.a.	n.a.
Water & Wastewater Management	1	n.a.	n.a.
Waste & Hazardous Materials Management; Ecological Impacts	2	Environmental site risk and associated remediation/liability costs; sustainable building practices including Green building certificate credentials	Asset Quality; Financial Structure; Surveillance
Exposure to Environmental Impacts	2	Asset, operations and/or cash flow exposure to extreme weather events and other catastrophe risk, including but not limited to flooding, hurricanes, tornadoes, and earthquakes	Asset Quality; Financial Structure; Surveillance

E Scale



As shown in the hypothetical example below, Fitch uses an additive approach to calculate the aggregate score, rather than an average. This is because the aggregate score is designed to indicate the materiality of E, S or G factors overall to an entity, transaction or program's credit rating. Lower materiality for other general issues in a category will not offset the materiality of the highest scoring issue to the credit rating. However, multiple incidences of the highest ESG relevance score could indicate greater overall materiality to the credit rating, relative to a similar entity, transaction or program where only one general issue receives the highest score. The analysis undertaken by Fitch across over 10,000 entities clearly shows that weighting risks by sector can often be misleading as the business and financial profile of an individual entity plays a significant role in determining the way in which an ESG risk impacts a credit profile should it materialize.

Fitch uses an additive approach to calculate the aggregate score, rather than an average.

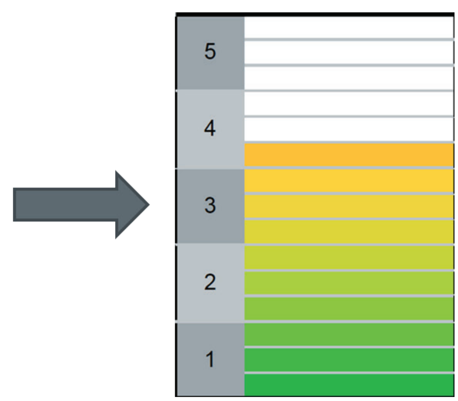
Fitch ESG Scoring In Practice

An additive approach

Hypothetical Issuer ABC

Score level		N# of General Issues scored at the level
Key Driver	5	0
Driver	4	1
Potential Driver	3	6
Not a Rating Driver	2	2
	1	5

Overall ESG Scale



Fitch ESG Relevance Score Framework

Incorporating Sector Specifics in Broad E, S and G Categories

GENERAL ISSUE CATEGORIES

5 ENVIRONMENTAL CATEGORIES
5 SOCIAL CATEGORIES
4 or 5 GOVERNANCE CATEGORIES

- Set of General Issue categories for consideration across sectors.
- Align with widely accepted classification standards like the one published by the Sustainability Accounting Standard Board (SASB).
- Standardized across sectors.
- Different for non-Sovereign and Sovereign (including state and local government) entities.
- Governance General Issue categories are different for Structured Finance transactions and Covered Bond programs.

SECTOR SPECIFIC CREDIT ISSUES

96 UNIQUE ESG SECTOR TEMPLATES

- Extract the elements of ESG that affect fundamental credit at a sector level.
- Identify sector-specific ESG credit issues that relate to each of the General Issue categories.
- For some sectors, one or more General Issue categories are not material to the credit quality of entities in that sector and denoted as "n.a."
- The specific rating criteria factor(s) within which the corresponding ESG issues are captured in Fitch's credit analysis is (are) highlighted in each General Issue category.

SCORING OF MATERIALITY TO CREDIT RATING

14 or 15 SCORES AND 1 AGGREGATE SCORE FOR EACH ENTITY/TRANSACTION/ PROGRAM

- Individual E, S and G relevance scores range from 5 to 1.
- A score of 5 indicates factors that on a standalone basis have a direct impact on the credit rating.
- Conversely, a score of '1' indicates factors that have no credit impact or are irrelevant to the credit rating.

ESG Navigators Examples

Consistently Displaying the Outcome at Issuer, Program, and Transaction Level

FitchRatings

Green Storm 2017 B.V.

SF ESG Navigator
RMBS

Credit-Relevant ESG Derivation

Green Storm 2017 B.V. has 1 ESG rating driver and 6 ESG potential rating drivers

- Green Storm 2017 B.V. has exposure to accessibility to affordable housing which, in combination with other factors, impacts the rating.
- Green Storm 2017 B.V. has exposure to compliance risks including fair lending practices, mis-selling, repossession/foreclosure practices, consumer data protection (data security) but this has very low impact on the rating.
- Green Storm 2017 B.V. has exposure to macroeconomic factors and sustained structural shifts in secular preferences affecting consumer behavior and underlying mortgages and/or mortgage availability but this has very low impact on the rating.
- Governance is minimally relevant to the rating and is not currently a driver.

			Overall ESG Scale
key driver	0	issues	5
driver	1	issues	4
potential driver	6	issues	3
not a rating driver	2	issues	2
	5	issues	1

Environmental (E)

General Issues	E Score	Sector-Specific Issues	Reference	E Scale
GHG Emissions & Air Quality	1	n.a.	n.a.	5
Energy Management	1	n.a.	n.a.	4
Water & Wastewater Management	1	n.a.	n.a.	3
Waste & Hazardous Materials Management; Ecological Impacts	2	Environmental site risk and associated remediation/liability costs; sustainable building practices including Green building certificate credentials	Asset Quality; Financial Structure; Surveillance	2
Exposure to Environmental Impacts	2	Asset, operations and/or cash flow exposure to extreme weather events and other catastrophe risk, including but not limited to flooding, hurricanes, tornadoes, and earthquakes	Asset Quality; Financial Structure; Surveillance	1

How to Read This Page
ESG scores range from 1 to 5 based on a 15-level color gradation. Red (5) is most relevant and green (1) is least relevant.

The Environmental (E), Social (S) and Governance (G) tables break out the individual components of the scale. The right-hand box shows the aggregate E, S, or G score. General Issues are relevant across all markets with Sector-Specific Issues unique to a particular asset class. Scores are assigned to each sector-specific issue. These scores signify the credit-relevance of the sector-specific issues to the transaction's or program's overall credit rating. The Reference box highlights the factor(s) within which the corresponding ESG issues are captured in Fitch's credit analysis.

Social (S
G
Human Righ
Access & Af
Customer W
Privacy & D
Labor Relati
Employee W
Exposure to
Governa
G
Rule of Law
Regulatory (
Transaction
Transaction
Data Transp
SF ESG N
Publish Date

FitchRatings

JSC Medical Corporation EVEX

Corporates Ratings Navigator
US Healthcare Providers

Credit-Relevant ESG Derivation

JSC Medical Corporation EVEX has 1 ESG key rating driver and 8 ESG potential rating drivers

- JSC Medical Corporation EVEX has exposure to social pressure to contain costs which, on an individual basis, has a significant impact on the rating.
- JSC Medical Corporation EVEX has exposure to waste & impact management risk but this has very low impact on the rating.
- JSC Medical Corporation EVEX has exposure to access/affordability risk but this has very low impact on the rating.
- JSC Medical Corporation EVEX has exposure to patient accountability risk but this has very low impact on the rating.
- JSC Medical Corporation EVEX has exposure to labor relations & practices risk and employee recruitment & retention risk but this has very low impact on the rating.
- Governance is minimally relevant to the rating and is not currently a driver.

			Overall ESG Scale
key driver	1	issues	5
driver	0	issues	4
potential driver	8	issues	3
not a rating driver	4	issues	2
	1	issues	1

Environmental (E)

General Issues	E Score	Sector-Specific Issues	Reference	E Scale
GHG Emissions & Air Quality	2	Emissions from operations	Profitability; Financial Structure; Financial Flexibility	5
Energy Management	2	Energy use in operations	Profitability; Financial Structure; Financial Flexibility	4
Water & Wastewater Management	2	Water usage in operations	Company's Market Position; Profitability; Financial Structure; Financial Flexibility	3
Waste & Hazardous Materials Management; Ecological Impacts	3	Management of medical waste	Profitability; Financial Structure; Financial Flexibility	2
Exposure to Environmental Impacts	2	Business disruption from climate change; environmental impacts changing human health requirements	Management and Corporate Governance; Profitability; Financial Structure; Financial Flexibility	1

Social (S)

General Issues	S Score	Sector-Specific Issues	Reference	S Scale
Human Rights, Community Relations, Access & Affordability	3	Low-income patient access	Revenue Defensibility; Profitability	5
Customer Welfare - Fair Messaging, Privacy & Data Security	3	Data privacy; care quality and safety outcomes; controlled substance management; pricing transparency	Management and Corporate Governance	4
Labor Relations & Practices	3	Impact of labor negotiations and employee (dis)satisfaction; recruitment and retention of skilled healthcare workers	Management and Corporate Governance; Profitability; Financial Flexibility	3
Employee Wellbeing	1	n.a.	n.a.	2
Exposure to Social Impacts	5	Pressure to contain healthcare spending growth; highly sensitive political environment	Revenue Defensibility; Service Line Trends; Company's Market Position	1

Governance (G)

General Issues	G Score	Sector-Specific Issues	Reference	G Scale
Management Strategy	3	Strategy development and implementation	Management and Corporate Governance	5
Governance Structure	3	Board independence and effectiveness; ownership concentration	Management and Corporate Governance	4
Group Structure	3	Complexity, transparency and related-party transactions	Management and Corporate Governance	3
Financial Transparency	3	Quality and timing of financial disclosure	Management and Corporate Governance	2
				1

How to Read This Page
ESG scores range from 1 to 5 based on a 15-level color gradation. Red (5) is most relevant and green (1) is least relevant.

The Environmental (E), Social (S) and Governance (G) tables break out the individual components of the scale. The left-hand box shows the aggregate E, S, or G score. General Issues are relevant across all markets with Sector-Specific Issues unique to a particular industry group. Scores are assigned to each sector-specific issue. These scores signify the credit-relevance of the sector-specific issues to the issuing entity's overall credit rating. The Reference box highlights the factor(s) within which the corresponding ESG issues are captured in Fitch's credit analysis.

The Credit-Relevant ESG Derivation table shows the overall ESG score. This score signifies the credit relevance of combined E, S and G issues to the entity's credit rating. The three columns to the left of the overall ESG score summarize the issuing entity's sub-component ESG scores. The box on the far left identifies the [number of] general ESG issues that are drivers or potential drivers of the issuing entity's credit rating (corresponding with scores of 3, 4 or 5) and provides a brief explanation for the score.

Classification of ESG issues has been developed from Fitch's sector and sub-sector ratings criteria and the General Issues and the Sector-Specific Issues have been informed with SASB's Materiality Map.

CREDIT-RELEVANT ESG SCALE
How relevant are E, S and G issues to the overall credit rating?

5	Highly relevant, a key rating driver that has a significant impact on the rating on an individual basis. Equivalent to "higher" relative importance within Navigator.
4	Relevant to rating, not a key rating driver but has an impact on the rating in combination with other factors. Equivalent to "moderate" relative importance within Navigator.
3	Minimally relevant to rating, either very low impact or actively managed in a way that results in no impact on the entity rating. Equivalent to "lower" relative importance within Navigator.
2	Irrelevant to the entity rating but relevant to the sector.
1	Irrelevant to the entity rating and irrelevant to the sector.

Fitch Ratings maintains 96 unique ESG sector templates across analytical groups (see sample list below). Credit analysts use these in assessing each entity, transaction or program when assigning ESG Relevance Scores. These templates assist the analysts by framing ESG risk elements contained within our existing ratings criteria that affect fundamental credit at a sector level, helping them to clearly identify and display which ESG risk elements have played a part in each entity or transaction's credit rating decision. The templates can be used to identify ESG issues that are potentially relevant to the credit profiles of issuers and transactions in a specific sector, as the auto manufacturing example illustrates on next page.

Fitch's Main ESG Sector Templates

Corporates (C)

- Aerospace & Defense
- Airlines
- Alcoholic Beverages
- APAC Property & Real Estate
- APAC Regulated Network Utilities
- Asia Pacific Utilities
- Australia Regulated Network Utilities
- Automotive Manufacturers
- Auto Suppliers
- Building Materials
- Building Products
- Business Services
- Business Services DAP
- Chemicals
- Chinese Homebuilders
- Commodity Processing & Trading
- Consumer Products
- Diversified Industrials & Capital Goods
- Diversified Media
- EMEA Real Estate & Property
- EMEA Regulated Networks
- EMEA Utilities
- Engineering and Construction
- Food Retailing
- Gaming

Corporates (C)

- Generic
- LATAM Utilities
- Latin America Real Estate
- Lodging
- Medical Products
- Mining
- Non-Alcoholic Beverages
- Non-Food Retailing
- Oil & Gas Production
- Oilfield Services
- Oil Refining & Marketing
- Packaged Food
- Pharmaceuticals
- Pipeline & Energy Midstream
- Protein
- Restaurants
- Shipping Companies
- Steel
- Technology
- Telecommunications
- Tobacco
- US Equity REITS & REOCs
- US Healthcare Providers
- US Homebuilders
- US Utilities

Financial Institutions (FI)

- Banks
- Life Insurance
- Non-Life Insurance
- NBFI

Sovereigns

- Sovereigns

Structured Finance and Covered Bonds (SF & CvB)

- ABS Secured (Aircraft, Auto, Consumer ABS-Secured, Equipment, SME, Utility Tariff Bonds)
- ABS Unsecured (Credit Card, Consumer ABS-Unsecured, U.K. Student Loans, U.S. Student Loans)
- ABS General (Future Flow Receivables, Oil Vessel-Backed, Spring Spectrum, Timeshare Loans)
- CMBS
- RMBS
- Covered Bonds - Commercial Real Estate Loans and Mixed Mortgage
- Covered Bonds - Residential Mortgage and Public Sector
- Covered Bonds - Multi-Issuer Cedulas Hipotecarias

US Public Finance (USPF)

- Higher Education
- Hospitals
- Life Plan Communities
- Public Power
- Revenue Master
- State & Local Governments
- Water & Sewer

International Public Finance (IPF)

- Government-Related Entities
- Local & Regional Governments

Global Infrastructure and Project Finance (GIG)

- Generic
- Oil & Gas Production
- Pipeline & Energy Midstream
- Power Transmission
- Renewable Energy
- Social
- Infrastructure
- Sports (GIG)
- Thermal Power
- Transportation

Fitch's dedicated Sustainable Finance Group worked with sector credit analysts to identify the sector-specific ESG credit issues related to each of the General Issue categories; these were then split into three broad groupings: Environmental, Social and Governance. These general issues are standardized across all sectors in a particular analytical group, but social and governance categories vary slightly for tax-supported and Sovereign (including state and local government) entities. Governance General Issue categories are also different for Structured Finance transactions and Covered Bond programs.

For some sectors, one or more General Issue categories were considered immaterial to the credit quality of entities in that sector. In this case, "n.a." was input in lieu of a sector-specific issue. For example, the sector-specific issues for auto manufacturers are shown below and, in E and S, highlight the importance of emissions, fuel economy, recycling, vehicle safety, labor negotiations, and shift in consumer preferences, among others. G sector-specific issues are common across most sub-sectors in non-financial corporates.

Templates assist the analysts in extracting the ESG elements that affect fundamental credit at a sector level.

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Fitch's ESG Scoring Template: The Example of Auto Manufacturers

Environmental (E)

General Issues	E Score	Sector-Specific Issues	Reference
GHG Emissions & Air Quality		Emissions and pollutants from vehicles sold	Brand Positioning; Profitability; Financial Structure
Energy & Fuel Management		Fuel economy requirements of the product	Brand Positioning; Profitability; Financial Structure
Water & Wastewater Management		Water usage in manufacturing	Competitive Position; Cost Structure; Profitability; Financial Structure
Waste & Hazardous Materials Management; Ecological Impacts		Waste and recycling in manufacturing operations; use of environmentally friendly materials	Brand Positioning; Profitability; Financial Structure

Social (S)

General Issues	S Score	Sector-Specific Issues	Reference
Human Rights, Community Relations, Access & Affordability		n.a.	n.a.
Customer Welfare - Fair Messaging, Privacy & Data Security		Data security; vehicle safety	Brand Positioning; Profitability
Labor Relations & Practices		Impact of labor negotiations and employee (dis) satisfaction	Cost Structure; Profitability
Employee Wellbeing		n.a.	n.a.
Exposure to Social Impacts		Cities' focus on promoting less vehicle ownership; shift in consumer preferences toward cleaner energy	Profitability

Governance (G)

General Issues	G Score	Sector-Specific Issues	Reference
Management Strategy		Strategy development and implementation	Management and Corporate Governance
Governance Structure		Board independence and effectiveness; ownership concentration	Management and Corporate Governance
Group Structure		Complexity, transparency and related-party transactions	Management and Corporate Governance
Financial Transparency		Quality and timing of financial disclosure	Management and Corporate Governance

Fitch highlights the areas in its ratings criteria where ESG issues are captured in the "Reference" box. It is common for a single ESG issue to correspond to multiple traditional credit factors, rather than mapping neatly to a single area of qualitative or quantitative analysis. The analysis that Fitch has undertaken shows that the way in which an ESG risk manifests itself in credit analysis, is highly entity specific and strongly influenced by the issuer's business and financial profile.

The primary source of information behind ratings remains public information disclosed by the issuer. This information includes, but is not limited to, audited financial statements, strategic objectives, and investor presentations. In addition, Fitch's analysts engage with management teams to understand the organizations' potential ESG credit risk exposures. Fitch notes that direct participation from the issuer adds valuable information to the process, but the level, quality and relevance varies between issuers and may vary for each an issuer over time.

Additional information includes peer group data, sector and regulatory analysis and Fitch's forward-looking assumptions. The rating analysts use all readily available relevant information and management access in addition to their expertise on the sector and credit to arrive at the ESG scores.

Across all asset classes on average 16% of issuers, programs and transactions are currently experiencing one or more elevated score of 4 or 5. There is however significant differences not only between asset classes (see coverage table below), but also differences between individual sub sectors within asset classes as well as between entities, transactions or programmes. With its' framework, Fitch is in a position to display the evolving impact of E, S and G risks on credit over time. Currently, as a generalization for all asset classes, the lowest level of credit impact comes from environmental factors which Fitch believes is mainly driven at present by a low level of cost crystallization in credit profiles from environmental legislation and regulation. Over time Fitch expects that regulation will increase and with changes in policies more environmental costs are likely to be factored into credit profiles, as policymakers explore new levers to expand the reach and impact of their policies.

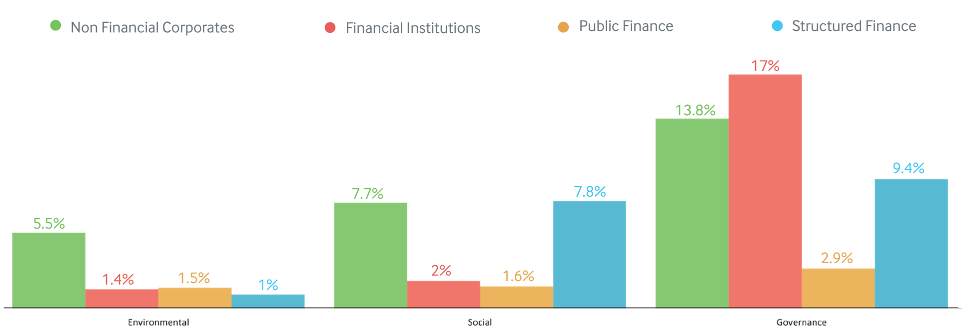
Fitch's ESG Score Coverage by Sector

Fitch Analytical Groups	ESG Templates	No. of Issuers/ Transactions	No. of Data Points	No. of E Scores	No. of S Scores	No. of G Scores	% Some Impact
Corporates	50	1,577	22,078	7,885	7,885	6,308	22
Financial Institutions	4	986	13,804	4,930	4,930	3,994	20
Sovereigns	1	118	590	590	590	590	100
Public Finance & Infrastructure	20	2,683	38,676	13,415	13,415	11,846	5
Structured	21	4821	67,494	24,105	24,105	19,284	18
Total	**96**	**10,185**	**143,822**	**50,925**	**50,925**	**41,972**	**16**

Source: Fitch Ratings, October 2019

Fitch's initial research across its global ratings portfolio, summarized in the charts above and below, clearly shows that governance overall is the most dynamic ESG factor from a credit perspective. Social factors also play a key role in non-financial corporates and structured finance ratings. Whilst environmental factors are more relevant to non-financial corporates than other asset classes, currently they impact relative few sectors due to a low level of credit impact from regulation in the majority of sectors. As policies evolve and the social pressure on economic activities grows, Fitch expects the relative impact from E and S issues to grow over time.

Relative Relevance of ESG factors to Ratings



Y axis indicates the proportion of Fitch rated entities, transactions or program with one or more elevated score of '4' or '5'.
Source: Fitch Ratings

Six Key Environmental, Social and Governance Trends for 2020

Fitch identified six key Environmental, Social and Governance trends for 2020 that are relevant to credit ratings, supported by Fitch's proprietary ESG Relevance Scores as well as research and insights from over 1400 credit analysts in 30 countries.

The six trends outlined below highlight how ESG considerations are starting to affect credit profiles through tightening of policies, societal pressures or changes to how financial markets allocate capital.

Refinancing Risk: ESG-driven risk allocation decisions by banks and investors are starting to affect the ability of corporates to refinance. Survey evidence indicates a significant number of banks have included ESG considerations in their risk management frameworks, and an increasing number of funds are explicitly adopting ESG mandates. This is starting to introduce additional liquidity for borrowers in certain sectors or with certain assets.

EU Taxonomy: Fitch does not expect the establishment of the EU's Taxonomy for Sustainable Activities to have credit implications in the short-term, but believes it could lay the foundation for a sustainable finance ecosystem. Such activities may also become the target of direct financial incentives should policymakers take a more aggressive approach to directing capital, such as the incorporation of sustainability into prudential requirements.

Climate Policies: The gap between government pledges to cut carbon emissions and policies now in place highlights the future risk of a sharp shift in the policy landscape. Climate regulations have only been relevant to credit ratings for a handful of sectors so far, such as European utilities and autos, with existing policies often lacking financial impact or immediacy. Fitch views carbon pricing schemes as the most convenient lever for policymakers to expand the reach and impact of climate policies.

Data Protection: The consequences of widespread changes to data protection regulation globally will become clearer as more fines and penalties for data breaches emerge. Fitch believes that regulatory changes recently implemented are likely to result in bigger fines than in the past. Until recently, few cases of data breaches have been relevant to credit ratings, as the overall impact on companies has generally been low and often mitigated by insurance.

Governance: Governance is and will likely remain the most dynamic ESG factor, driving most changes to ESG Relevance Scores. This is consistent with earlier findings that governance issues are most relevant to credit ratings in all analytical groups. The types of issues driving governance score changes vary widely, from conduct issues in banks to changes in board directors and management in non-financial corporates.

Economic Unfairness: Fitch expects perceptions regarding income inequality and broader economic unfairness to continue shaping the policy agenda in 2020. This can have broad credit implications across analytical groups, from higher risks of social unrest to political and societal pressure to contain prices of necessities such as drugs and fuel. This is already evident in some countries, such as the recent spate of political unrest in Latin America.

Evaluating ESG Risks In Non-Financial Corporates

Fitch developed 50 sector scoring templates that identify E and S risks specific to each industry for each general issue risk category, whilst the sector specific issues for the G risk category under general issues are common for all non-financial industrial sectors. The 50 individual sector templates created cover seven broad industry groupings:

- Healthcare, Consumer & Retail
- Food, Beverage & Tobacco
- Industrial & Transport
- Natural Resources
- Real Estate, Construction & Building Materials
- Services & Communications
- Utilities, Power & Gas

The following table (pages 21-22) discloses the sector-specific factors for a selection of important sub-sectors, showing the variety and customization provided to each factor. For some sectors, one or more general issues are not material to the credit quality of entities, in which case, "n.a." is input in lieu of a sector-specific issue, for example "Employee Wellbeing" for U.S. REITs.

Looking at the first environmental factor (Greenhouse Gas (GHG) Emission & Air Quality), Fitch considers emissions from production a relevant issue for Oil & Gas producers, while it may impact auto manufacturers in relation to the emission (and pollutants) coming from the vehicles sold. GHG emissions, by contrast, are not material to the credit analysis of pharmaceutical and REIT companies.

Taking the example of U.S. REITs, the table shows how sustainable building practices and portfolio exposure to climate change-related risk (eg. flooding) are material issues that can have an impact on credit ratings. The former factor falls under "Waste & Hazardous Material Management; Ecological Impacts" and the latter under "Exposure to Environmental Impacts".

Categories of Social risks are more relevant for credits in developed markets (DM), where consumer trends often emerge as credit drivers. Healthcare and Consumer & Retail is a good example of a sector with high exposure to social impacts particularly certain U.S. Healthcare Providers who have several scores of '4 or 5' for Exposure to Social Impacts. In general, health-related shifts in consumer preferences and regulation affect a wide range of issuers in the food, beverages & tobacco sector, as does scrutiny over healthcare costs and drug pricing for the pharmaceuticals industry.

Related Research

ESG. RS Compendium:
Corporates

ESG Sector Heat Maps:
Corporates

Templates Compendium:
ESG Sector Template Compendium

Fitch has developed 50 sector scoring templates which identify the risks specific to each industry within each E and S risk category, while governance risks are common across all the industrial sectors.

Categories of Social risks are often more relevant for credits in developed markets (DM), with ESG based consumer trends being common.

Apart from consumer trends, Social risks are particularly relevant for the natural resources sector through public opposition to projects.

Apart from consumer trends, Social risks are particularly relevant for the natural resources sector through public opposition to projects, and US utilities. While social risks are less relevant for emerging markets (EM), social and political pressure on consumer pricing is a common feature for some EM corporates. Social risks are relevant to credit ratings for issuers in 27 of the 50 industry sectors for corporate issuers.

The Governance factor category is universally relevant for corporate ratings, with a similar approach across sectors on the assessment of

- management strategy implementation,
- governance framework,
- group structure, and
- financial transparency.

Often, high ESG relevance scores in the 'E' or 'S' categories have a related score in the 'G' category, since inadequate governance controls can often lead to broader issues in the operational or ESG-specific risk profile of an issuer.

Sector-Specific Factors For Non-Financial Corporates

ENVIRONMENTAL	Oil and Gas Production	Mining	Pharmaceuticals	Auto Manufacturers	Non-Alcoholic Beverages	U.S. REITs	EMEA Regulated Utilities
GHG Emissions & Air Quality	Emissions from Oil and Gas production	Regulatory Risk - Emission Standards	n.a.	Emissions and pollutants from vehicles sold	Emissions from distribution oper-ations	n.a.	Emissions from operations
Energy Management	Energy use in Oil and Gas production operations	Energy use in operations	Energy use in manufacturing	Fuel economy requirements of the product	Energy use in manufacturing and distribution	n.a.	Energy and fuel use in operations; entities' financial targets for losses/ shrinkage
Water & Wastewater Management	Water management (e.g. usage levels, recycling capacity)	Water usage in operations (including exposure to regions with water scarcity)	Water usage in manufacturing process	Water usage in manufacturing	Water usage	n.a.	Water usage in operations; water utilities' financial targets for water quality, leakage and usage
Waste & Hazardous Materials Management; Ecological Impacts	Waste and material handling; operations' proximity to environmentally sensitive areas	Total amount of tailings and mineral processing waste produced; management of tailings dams	Management of product life cycle and potential impact on food/ water supply; supply chain management - product/APIs	Waste and recycling in manufacturing operations; use of environmentally-friendly materials	Impact of packag-ing; supply chain management - product	Sustainable building practices including Green building certificate credentials	Impact of waste including pollution incidents; discharge compliance; sludge disposal
Exposure to Environmental Impacts	Hydrocarbon reserves exposure to present/future regulation and environmental costs	Exposure to extreme weather events	Manufacturing facilities and inventory exposure to extreme weather events	n.a.	Crop yield affected by climate change	Portfolio's exposure to climate change-related risk including flooding	Exposure to extreme weather events; negative (e.g. risk of drought and flooding) or positive (e.g. additional return on capex for network weather-resilience).

Sector-Specific Factors for Non-Financial Corporates (cont.)

SOCIAL	Oil and Gas Production	Mining	Pharmaceuticals	Auto Manufacturers	Non-Alcoholic Beverages	U.S. REITs	EMEA Regulated Utilities
Human Rights, Community Relations, Access & Affordability	Operations' proximity to areas of conflict or indigenous lands	Relationships with local communities and/or land right holders	Well-being of clinical trial participants; patient access and affordability	n.a.	n.a.	n.a.	Product affordability and access
Customer Welfare - Fair Messaging, Privacy & Data Security	n.a.	n.a.	Drug safety & side effects; ethical marketing; data safety in clinical trials; counterfeit drug management	Data security; vehicle safety	Health & nutrition; product labeling & marketing	Data security	Quality and safety of products and services; data security
Labor Relations & Practices	Impact of labor negotiations and employee (dis) satisfaction	Impact of labor negotiations and employee (dis) satisfaction	Impact of labor negotiations and employee (dis) satisfaction; employee recruitment and retention	Impact of labor negotiations and employee (dis) satisfaction	Impact of labor negotiations and employee (dis) satisfaction	Impact of labor negotiations and employee (dis) satisfaction	Impact of labor negotiations and employee (dis) satisfaction
Employee Well-being	Worker safety and accident prevention	Worker safety and accident prevention	n.a.	n.a.	n.a.	n.a.	Worker safety and accident prevention
Exposure to Social Impacts	Social resistance to major projects or operations that leads to delays and cost increases	Social resistance to major projects or operations that leads to delays and cost increases	Pressure to contain healthcare spending growth; highly sensitive political environment	Cities' focus on promoting less vehicle ownership; shift in consumer preferences toward cleaner energy	n.a.	Shift in market preferences	Social resistance to major projects that leads to delays and cost increases

n.a.: not material to credit ratings in the sector

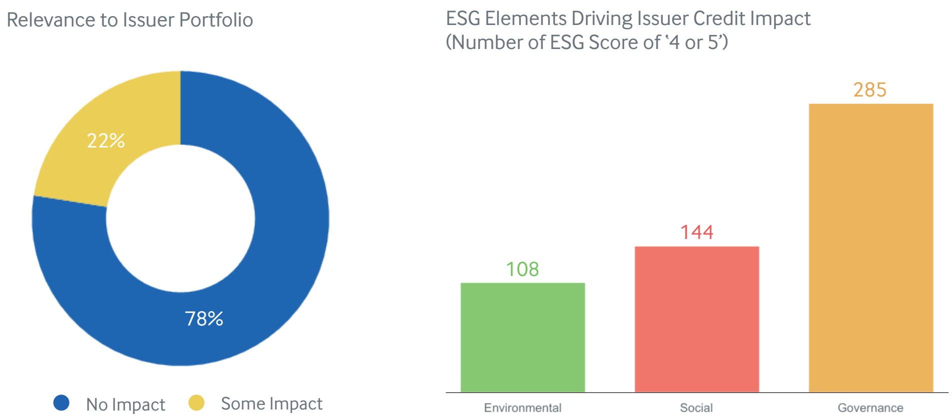
ESG Relevance Scores in Non-Financial Corporate Ratings: Key Facts and Findings

Initial analysis of Fitch's corporate portfolio generated over 22,000 individual E, S and G scores for publicly-rated entities. Results show that 22% of ratings are being influenced by E, S or G factors (one or more score of '4' or '5'), with just under 3% of rated entities currently having a single E, S or G sub-factor that by itself led to a change in the rating (score of '5'). There are significant variances by market classification (developed markets vs emerging markets) as well as by region and sector. The below table highlights sub-sectors with already more than 10% of issuers with '4 or 5' scores, helping identify emerging sector trends.

Non-Financial Corporate Sub-Sectors with more than 10% of Issuers Ratings Influenced by E or S Factors

	General Issue Category	Healthcare, Consumer & Retail	Food, Beverage & Tobacco	Industrial & Transport	Natural Resources	Real Estate, Construction & Building Materials	Services & Communications	Utilities, Power & Gas
ENVIRONMENTAL	GHG Emissions & Air Quality			Auto Suppliers Auto Manufacturers				Latam Utilities EMEA Utilities
ENVIRONMENTAL	Energy Management							EMEA Utilities
ENVIRONMENTAL	Water & Wastewater Management							EMEA Regulated Networks
ENVIRONMENTAL	Waste & Hazardous Materials Management; Ecological Impacts				Oil Refining & Marketing			
ENVIRONMENTAL	Exposure to Environmental Impacts				Oil Refining & Marketing	LATAM REITs		
SOCIAL	Customer Welfare - Fair Messaging, Privacy & Data Security	Hotels Medical Devices, Diagnostics and Products	Non-Alcoholic Beverages Tobacco			Engineering and Construction Building Products	Business Services DAP Business Services	EMEA Regulated Networks
SOCIAL	Exposure to Social Impacts	Pharmaceuticals Medical Devices, Diagnostics and Products US Healthcare Providers	Non-Alcoholic Beverages Tobacco		Pipeline & Energy Midstream			

ESG Relevance in Fitch's Non-Financial Corporate Portfolio



Source: Fitch Ratings, scores as of launch

Social Risk is often the most difficult factor to isolate within the three risk areas under ESG. Using a broad definition, Fitch identified a series of credit relevant social risks. These include:

- "community relations" (often credit relevant for extractive industries),
- social pressure on energy-essentials pricing" (across energy and utility sectors),
- "customer welfare and product safety" (for a wide range of industries), and
- "trends in product acceptance" (primarily in food, beverage and tobacco areas).

"Labor relations", are observed relatively infrequently as a credit relevant factor in Fitch's rating discussions, as duration and frequency of occurrence tends not to persist to a stage where there is a significant credit impact for the overall business.

Governance Risk dominates all the sectors within the scoring, accounting for more '4'/'5' scores than the other two categories combined. The wide range of governance issues raised most frequently includes "operational errors", "governance shortcomings", "complex structures" and "financial transparency".

Spotlight: Carbon Pricing and its Impact on Credit

Most countries lag substantially behind their existing Nationally Determined Contribution (NDC) pledges under the Paris Agreement, let alone the emissions trajectories required to limit warming to 1.5 to 2 degrees C above pre-industrial levels. This increases the risk of a rapid increase in the scope of climate regulation given the timings (2020 and 2023) of the stock-take of NDC performance and 'ratchet' mechanisms of the agreement.

The impetus to turn pledges into action is far from uniform across the world. The effectiveness of carbon pricing schemes in reducing emissions is restrained by limited regulatory coverage and price impacts – although this is beginning to change in EMEA, Latin America and Asia Pacific. As carbon pricing is a technology-agnostic policy measure, prices, coverage and exemptions may tighten to align with NDCs.

The manufacture of carbon-intensive commodities (steel, cement, ammonia fertilizers, and ethylene) will be affected by any tightening of regulation and prices because of the technical challenges of decarbonizing existing technologies, overall energy intensity, and the lack of substitutes. Regional differences in industrial processes and practices will also affect compliance costs.

Asset lifespan, availability of substitutes, mitigation possibilities and competitive position are key determinants of exposure to climate policy risk. Impacts of carbon pricing will not be felt uniformly even within affected regions and will be determined by a range of sector and company/facility-specific characteristics.

Governments so far have been helping to mitigate direct and indirect costs of carbon following lobbying across industries, but older and inefficient plants will inevitably see that support reduce over the coming years. In the meantime, pressure for carbon reduction is also likely to erode financial support for inefficient plant in sectors with high emissions. Canada, Japan, South Korea, Mexico, South Africa and the EU are expected to significantly reduce free carbon allowances by 2023.

The effectiveness of carbon pricing schemes in reducing emissions is limited by low coverage and prices – although this is beginning to change in EMEA, Latin America and Asia Pacific.

The effects on companies' financial profile will ultimately depend not just on carbon pricing but on net allowances, which will be influenced by plant-level factors, some of the company-level characteristics outlined above, and policy maker decisions and directives.

Auto Emissions and Capital Expenditure

Though not directly affected by carbon pricing, the car industry is a good example of the disruptive effects of climate regulation. The EU will phase in new vehicle emission targets next year, requiring manufacturers to cut their average fleet emissions to less than 95g of CO2 per kilometer by 2021 or face a EUR95 fine per vehicle for every gram of CO2 that exceeds this target. Average emissions in 2018 were 121g of CO2/km.

Fitch estimates compliance costs at EUR15.5 billion, with producers facing an average 14% reduction in earnings by 2021. Many automakers are rapidly expanding their production of electric vehicles to take advantage of EU 'super credits' for zero emission vehicles to offset some of these costs. Given the higher costs and lower margins of EVs relative to internal combustion engines, this is expected to affect the profitability of car manufacturers in the short to medium term, and Fitch has already seen profit margins squeezed in recent years.

Impact on Global Coal Use

The role of carbon pricing in facilitating a shift away from coal is a major area of focus for investors and regulators within the rating horizon. Fitch believes that carbon pricing will erode the competitive position of coal in some regions, but that coal will remain an important element of the generation mix in large parts of the Asia Pacific region for the foreseeable future. Coal phase-out has been visibly accelerated by carbon pricing in a handful of markets, notably the UK. In Germany, many coal assets face early closure and the degree of compensation to producers and generators remains uncertain.

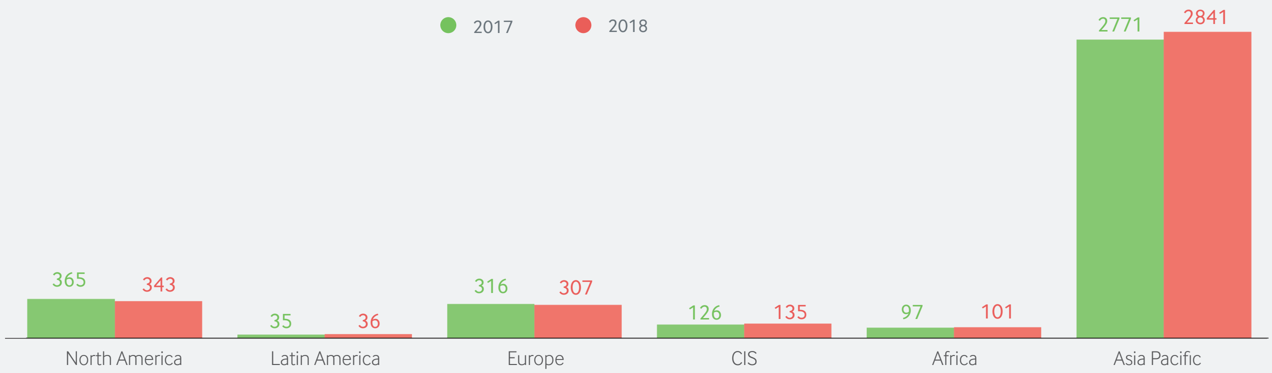
Carbon Pricing and its Impact on Credit (cont.)

In regions applying a carbon price to power generation, rising prices have yet to translate into an immediate effect on earnings. In most cases, carbon costs are being passed through to higher wholesale electricity costs, which then feed through to retail electricity prices. This is particularly the case in Poland and South Africa, where coal constitutes the bulk of the fuel generation mix. In markets such as Germany, where utilities' assets are typically more diversified across energy sources, companies may be better placed to diversify away from these costs, although the early closure of nuclear capacity has significantly and adversely affected CO2 reduction targets.

Nonetheless, carbon-pricing regulation to date has proven to be much less influential on a global scale than the shifting economics of energy sources in promoting a move away from coal. In APAC, the falling costs of solar PV has been the main driver in switching away from coal generation locally, along with a desire to reduce high dependence on coal imports and currency risk exposures from import prices. As a result, many thermal coal plants in APAC (particularly in India) are operating at low capacity rates and are unprofitable due to the low utilization rates.

Demand for thermal coal has nonetheless been resilient in Asia in the past five years and coal is expected to continue to constitute most of the generation mix in markets such as China, India and Indonesia. This is partly due to the need for large baseload capacity for regional grids and the major role of state-owned enterprises (and increasingly private equity) in financing expansion. While many western banks and institutional investors, who have integrated ESG considerations into their investment decision making, are increasingly reluctant to finance new coal projects, this is not yet having a significant impact on investment in Asia.

Coal Consumption by Region (m Tonnes of Oil Equivalent)



Source: Fitch Ratings, BP Statistical Review of Energy 2019 Coal

In China, the government is seeking to reduce overcapacity and replace plants with poor emission controls. Fitch research indicates that over 200 gigawatts (GW) of coal projects and/or existing capacity will have to be suspended or canceled if China is not to surpass its stated cap of 1,100GW coal capacity by 2020. Mergers of a number of state-owned enterprises with coal interests in 2018 and 2019 underline the efforts to consolidate and rationalize higher emissions plants. Fitch expects a modest slowing in domestic coal generation over time. While the proportion of coal in the generation capacity mix is likely to fall from 66% to 48% by the late 2020s, there will not be a corresponding drop in the proportion of electricity being generated by thermal power plants. This is because theoretical capacity for renewables is often much higher than utilization rates due to availability of sun, wind etc. For example, a good wind utilization factor is circa 30% of installed capacity over a year and therefore, there is not a 1:1 correlation between adding renewable capacity and reductions in electricity generated by thermal sources (most of which are capable of 100% utilization capability). In the aforementioned example, more than three times the wind capacity would need to be built to replace one equivalent unit of coal capacity. Asia-Pacific coal use dominates global consumption, underlining the importance of regional climate policies to the global economics of coal production.

Impact on Other Sectors

The inherent technical challenges of decarbonizing existing technologies for the manufacture of carbon-intensive primary commodities (steel, cement, ammonia and ethylene) makes these products very exposed to the higher fuel and energy costs,

Carbon Pricing and its Impact on Credit (cont.)

likely as a result of carbon pricing . These industries have been largely shielded from these effects to date, although the China emission trading scheme rollout from 2020 will eventually expand to address these.

Though initially limited to the power generation sector (on the basis that data is most readily available), the China ETS will ultimately cover eight sectors: power, steel and iron, non-ferrous metals, building materials, chemical production, paper, and aviation. Fitch anticipates this expansion will begin in 2023 at the earliest and initially include free allowances. Crucially, the ETS is based on benchmark carbon efficiency in each sector rather than an absolute cap and seen as less likely to promote fuel-switching as a result.

Fitch's analysis of the effects of the ETS on EMEA steel producers points to falling free allowances in recent years. Increases in both average and marginal costs of production will be increasingly felt by capacity-sensitive and energy-intensive industries as prices rise.

High Mitigation Costs for EMEA Metals Producers

Producers may opt to diversify away from markets or activities likely to be highly exposed to carbon price costs – while others with a strong regional presence may be forced to adopt costly mitigation activities to safeguard localized production. In the steel sector, despite the wide use of free allocations, many producers have opted to lower production in the EU or to alter production processes.

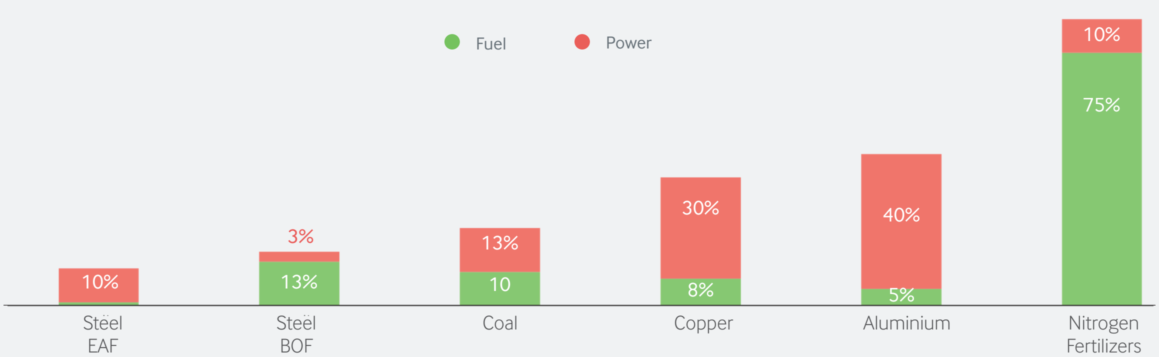
In 2019, ArcelorMittal cited high carbon prices (alongside weak demand and rising imports) behind the intention to cut 9% of its European output, idling inefficient or loss-making plants and thus potentially benefiting profitability in the short term. ThyssenKrupp, meanwhile, has outlined a plan to move toward carbon neutrality by 2050 through hydrogen-based production process at a cost of at least EUR 10 billion. Such facilities would shift to the top of the CO2 performance benchmark in Europe for steel production.

Regional patterns in technology use will also influence exposure. For example, steel production by basic oxygen blast furnace will be significantly more exposed to carbon price increases than electric arc furnace technologies. Some emerging market steel manufacturers use less carbon-intensive electric arc furnaces, and could see their competitive position strengthened through the imposition of carbon border taxes – as proposed by the European Commission.

Fuel and Electricity Costs Weigh on Industry

As rising electricity prices are passed through to energy-intensive businesses, those that operate in internationally competitive markets with limited ability to pass these costs through to consumers will face increasing competitive pressures, and the degree to which they will be compensated for these costs remains uncertain. The chart below shows the relative contribution of fuel and power to the total costs of commodity production. Critical considerations will be the degree to which carbon prices contribute to the fixed costs of companies and the degree to which these costs can be passed on to consumers,

Fuel and Power as a % of Total Production Costs for Major Commodities



Source: Fitch Ratings, CRU

Spotlight: ESG Bites into Banks' Lending to Corporates

The application of ESG policies has affected lending at about half of the banks (mostly mid-size and large) surveyed by Fitch in 3Q19. Company policy and regulation are most frequently cited as the main reasons behind incorporating ESG into underwriting processes. However, reputation and litigation risks also appear to drive ESG decisions.

The main "no-go" area flagged by banks – in terms of outright financing prohibitions – are transactions carrying a high risk of human rights violations, although such transactions are fairly uncommon. Banks mainly in developed markets (mostly Western European) also prohibit new project financing for thermal coal mining and coal-fired power stations. Many EU banks also avoid lending to weapon manufacturers.

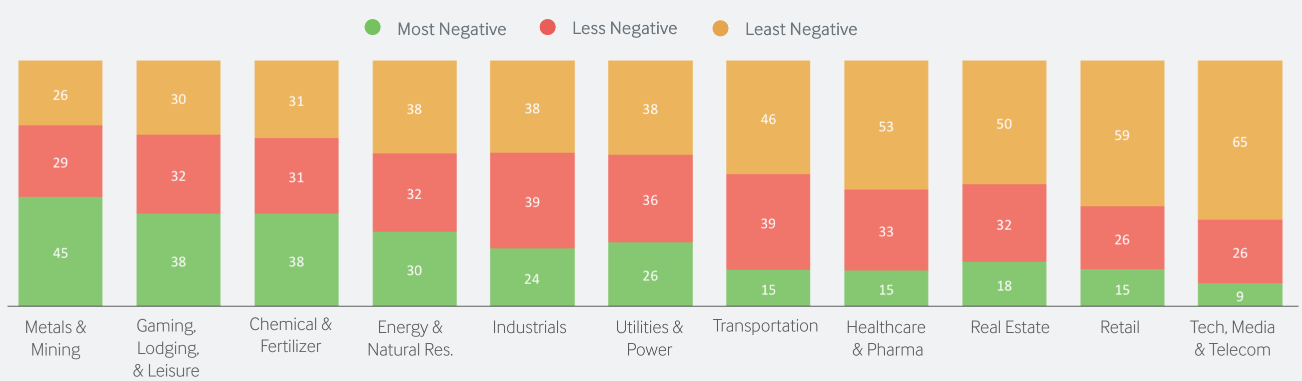
ESG screening leads to greater deal due-diligence rather than outright deal rejection. The sectors most likely to be scrutinized for environmental risks (including transition risks) are (extractive) Metals & Mining and Chemical & Fertilizers. The Gaming & Leisure sector is singled out for social issues (addiction, crime, money laundering), which can also lead to reputational risks for banks seen to be supporting the activity.

Corporate Sectors Ranked by Negative Screening by Banks (Global)

Customer Sector	Overall Ranking	Most Often Cited Reason
Metals & Mining	1	Environmental
Gaming, Lodging, & Leisure	2	Social
Chemicals & Fertilizer	3	Environmental
Energy & Natural Resources	4	Environmental
Industrials	5	Environmental
Utilities & Power	6	Environmental
Transportation	7	Environmental
Real Estate & Homebuilding	8	Governance
Healthcare & Pharma	9	Governance
Retail Consumer Products	10	Governance
Tech, Media, & Telecom	11	Governance

Ranking from 1(most prohibited) to 11 (least prohibited)
Source: Fitch Ratings

Negative Screening of Corporate Sectors



Source: Fitch Ratings

ESG Bites into Banks' Lending to Corporates (cont.)

Although banks' exclusions tend to be narrowly defined, thus providing flexibility to fund some borrowers with a higher ESG risk, ESG-driven decisions are starting to affect the ability of some companies to refinance. In a few exceptional circumstances, ESG lending considerations have also driven credit rating downgrades.

The influence of ESG on banks' financing decisions, particularly for new borrowers or projects, is likely to grow, as social, shareholder and regulatory pressures push more banks to take ESG considerations into account. In the longer term, sectors facing greater challenges in obtaining bank financing will be those most exposed to ESG-related risks, such as emissions regulations and the rising cost of carbon. In the short to medium term, however, direct corporate rating impacts due to ESG- related bank funding decisions are likely to remain rare, especially for the refinancing of existing borrowings or projects.

Fitch expects higher ESG-risk borrowers will continue to be supported by local and state-controlled banks, particularly for high-profile national projects, or will find substitute financing from banks with fewer ESG constraints. Fitch believes 'transition financing' will become a vital route for the worst-affected entities to obtain bank financing (and for banks to continue providing credit to high ESG-risk entities), to manage the potentially costly transition to a low-carbon economy

ESG-Linked Decisions Already Affect Credit

While a widespread credit impact has yet to be seen, growing ESG considerations in banks' lending and investment decisions have affected some corporate borrowers' ability to obtain capital and financing. In more extreme and exceptional cases, such decisions are even driving credit rating actions.

- Fitch downgraded the ratings of CoreCivic, Inc. to 'BB' from 'BB+' and revised the Outlook to Negative from Stable in July 2019, as a result of U.S. and international banks severing commercial ties with private prison operators following social risk concerns.

- Australian coal export terminals and U.S. exploration & production (E&P) are among other sectors where negative investor sentiment due to ESG considerations has added to refinancing risks.

The reduction in access to capital exacerbated existing financing vulnerabilities in each of the above examples. Prison real estate generally lacks secured property mortgage access, a key contingent liquidity source for equity REITs, while Australian coal export terminals have bullet maturities that require periodic financing.

Significant increases in debt maturities for U.S. E&P from 2020 to 2023 pose refinancing challenges for some issuers as a rise in defaults, depressed gas prices and a subdued outlook for oil prices have all contributed to negative investor sentiment. This highlights the need to consider ESG risks in the context of an entity's broader credit profile to understand the relevance to credit ratings.

Related Research

ESG. RS Compendium:
Global Banks
Insurance
Non Bank Financial Institutions

ESG Sector Heat Maps:
Financial Institutions

Templates Compendium:
ESG Sector Template Compendium

The Governance factor category is universally relevant for financial institutions rating.

Evaluating ESG Risks in Financial Institutions

Fitch has developed sector scoring that identifies the risks specific to 30 subsectors within banks, non-bank financial institutions (NBFIs) and insurance.

The Governance risk category is universally relevant for financial institutions ratings, with a similar approach across subsectors on the assessment of management strategy implementation, governance framework, group structure and financial transparency.

The Social risk category sees a larger degree of divergence between subsectors. While the exposure to labor relations and practices affects all issuers equally (though employee wellbeing is not a rating influencer from an ESG credit viewpoint), human rights and community relations risks are only relevant to banks within our financial institutions group. Within the customer welfare and social impacts risk category, the subsectors see various degrees of compliance risk and exposures to changes in consumer preferences.

Lastly, the Environmental risk category is today the one area with a very limited credit impact on financial institutions. Emissions & Air Quality, together with energy management affect only leasing non-bank financial institution issuers while not impacting any entities in the other sub-factors. Exposure to environmental impacts can influence all subsectors, even outside the natural vulnerability of P&C insurers to environmental catastrophes.

Sector-Specific Factors For Financial Institutions

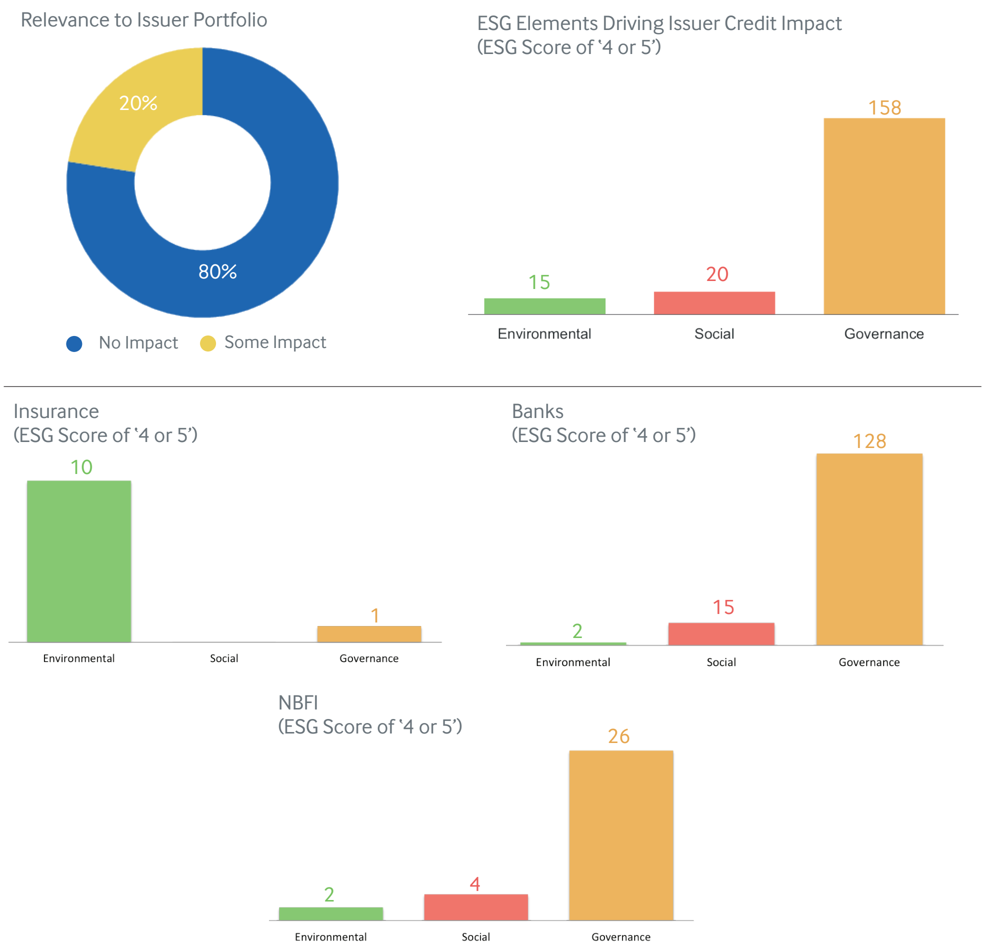
ENVIRONMENTAL	BANKS	NBFIs	INSURANCE- Non Life	INSURANCE- Life
GHG Emissions & Air Quality	n.a.	Regulatory risks, emissions fines or compliance costs related to owned equipment, which could impact asset demand, profitability, etc.	n.a.	
Energy Management	n.a.	Investments in or ownership of assets with below-average energy/fuel efficiency which could impact future valuation of these assets.	n.a.	
Water & Wastewater Management	n.a.			
Waste & Hazardous Materials Management; Ecological Impacts	n.a.		Underwriting/reserving exposed to asbestos/hazardous materials risks	n.a.
Exposure to Environmental Impacts	Impact of extreme weather events on assets and/or operations and corresponding risk appetite & management; catastrophe risk; credit concentrations	Impact of extreme weather events on assets and/or operations and corresponding risk appetite & management; catastrophe risk; credit concentrations	Underwriting/reserving exposed to environmental and natural catastrophe risks; impact of catastrophes on own operations or asset quality; credit concentrations	Impact of extreme weather events/natural catastrophes on operations or asset quality; credit concentrations
SOCIAL				
Human Rights, Community Relations, Access & Affordability	Services for under banked and underserved communities- SME and community development programs; financial literacy programs	n.a.		
Customer Welfare: Fair Messaging, Privacy & Data Security	Compliance risks including fair lending practices, mis-selling, repossession/foreclosure practices, consumer data protection (data security)	Fair lending practices; pricing transparency; repossession/foreclosure/collection practices; consumer data protection; legal/regulatory fines stemming from any of the above.	Compliance risk; treating customers fairly; pricing transparency; privacy/data security; legal/regulatory fines; exposure to insured and own cyber risk	
Labor Relations & Practices	Impact of labor negotiations, including board/employee compensation and composition			
Employee Well-being	n.a.			
Exposure to Social Impacts	Shift in social or consumer preferences as a result of an institution's social positions, or social and/or political disapproval of core banking practices or activities		Social responsibility and its effect on brand strength; increased vulnerability due to credit concentrations	
GOVERNANCE				
Management Strategy	Operational implementation of strategy			
Governance Structure	Board independence and effectiveness; ownership concentration; protection of creditor/stakeholder rights; legal /compliance risks; business continuity; key person risk; related-party transactions			
Group Structure	Organizational structure; appropriateness relative to business model; opacity; intra-group dynamics; ownership			
Financial Transparency	Quality and frequency of financial reporting and auditing processes			

n.a.: not material to credit ratings in the sector

ESG Relevance Scores in Financial Institutions Ratings: Key Facts and Findings

At a global level, 34% of NBFI, 22% of bank and 6% of insurance entities have at least one relevance score of '4' or '5'. Particular differences exist across sectors and geographies, revealing notable differences in high-impact ESG issues.

ESG Relevance in Fitch's Overall Financial Institution Portfolio



Source: Fitch Ratings, scores at launch time

NBFI issuer credit ratings are more impacted by ESG factors (i.e. scoring '4' or '5') than banks and especially insurance companies.

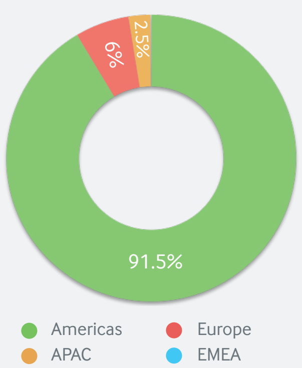
Sector Differences Observed: On a sectoral basis, NBFI issuer credit ratings are more impacted by ESG risks (i.e. scoring '4' or '5') than banks and especially insurance companies. Governance-related risk elements, particularly 'Governance Structure', account for the majority of the higher relevance scores ('4'or'5'on the 1-5 scale) for both banks and NBFIs. Environmental considerations, specifically catastrophe risk, are most relevant to property and casualty (P&C) (re)insurers. 'Social' ESG risks represent only 9% of '4' or '5' ESG relevance scores for FIs globally. Most of these higher scores usually relate to NBFIs and typically stem from the conduct risks of lending at higher interest rates or to weaker borrowers. Of note, no insurance entities have yet been assigned an ESG relevance score of '5' in any category.

Regional Differences Also Noted: 56% of bank issuers within APAC emerging markets were assigned at least one higher ESG Relevance Score. This was followed by Americas EM at 38% and Middle East and Africa at 31%. ESG relevance for NBFIs was highest in APAC EM at 67%, followed by Americas EM at 45% and European EM at 38% (although based on a relatively small sample size). The scores were driven by governance and, secondarily, social considerations. Although fewer reinsurer's credit ratings are affected by ESG relevant risks, the largest concentration of such entities is within APAC in both developed and emerging markets.

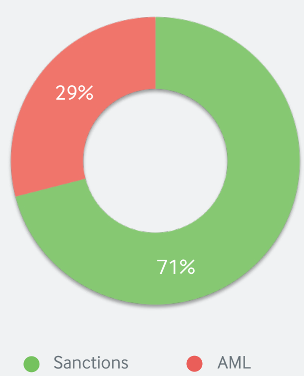
Spotlight: Anti-Money Laundering

Global enforcement of Anti-Money Laundering (AML) rules continues to increase. To date, U.S. authorities have levied the largest bank fines, mostly for sanctions violations. AML regulation reform is a high priority for Congress, which has adopted a more muscular approach to critical areas of reform such as disclosure of beneficial ownership, as illustrated by legislative proposals to amend the Bank Secrecy Act (BSA) and create a broader AML regime. The steady occurrence of EU bank- related AML cases has given rise to concerns about weakness and gaps in the implementation and supervision of AML/ATF within the bloc. EU authorities' fines tend to be smaller for AML violations, but Fitch expects them to follow the U.S. in taking a stronger approach, including on sanctions. In Asia, a similar pattern of evolving supervisory activity and enforcement has emerged, led by Australia, Hong Kong, India and Singapore.

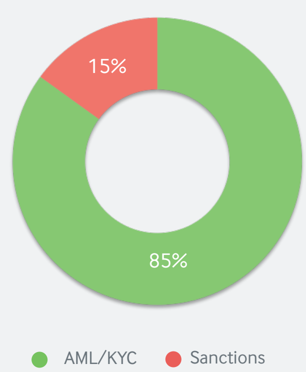
Sanctions/AML Fines
- By region of authority, 2009-2018



Sanctions Dominate US Fines
2009-2018



AML Dominate EU Fines



Source: Authorities, Fitch Ratings

The European Parliament's push for swift implementation of outstanding EU AML directives by member states, along with its call for a more centralized approach, should ultimately be credit positive for banks. But implementation will add to the regulatory burden on banks in the short term, and banks that fail to meet the new requirements in time may be at risk of regulatory penalties, reputational damage, and in extreme cases for smaller banks, the loss of authorization. Even with full implementation of the directives, the strength of AML measures will likely vary significantly among national jurisdictions. The transposition of directives at a national level, as opposed to directly applicable EU regulation, will remain the key vulnerability of AML regulation in the short term.

Spotlight: ESG is Making its Way into Banks' Risk Management Processes

Global banks are increasingly embedding ESG factors into their risk-management frameworks. More than half the 182 banks that took part in Fitch's ESG Bank survey said they incorporated ESG considerations "always" or "most of the time" into most of their risk-management processes. The exception was asset pricing, where only 39% of banks considered ESG "always" or "most of the time".

This proportion is likely to increase if governments introduce financial or regulatory incentives to channel funds into more environmentally sound investments. Climate change is featured in risk frameworks at most of the largest banks (those with total assets of more than USD500 billion), although they are still struggling to quantify this factor's potential financial impacts. In contrast, Fitch found that assessment of the effect of demographic changes on portfolios is more common at small and mid-size banks. This probably reflects their proportionately greater exposure to demographic changes given their narrower product range and geographical coverage than large international banks.

Evaluating ESG Risks in Structured Finance

Defining ESG credit relevance for structured finance (SF) transactions and covered bonds (CVB) programs implies analyzing several moving parts – issuer, collateral, structural features. Fitch has categorized, templated and classified ESG credit risks at a sector level (ABS, CMBS, RMBS, CVB) and then scored them for individual SF transactions and CVB programs. The Environmental and Social risk categories focus on the pool of assets serving as collateral, while the Governance category generally covers transaction or program level considerations.

In the first stage, in October 2019, Fitch assigned ESG Relevance Scores to all global international scale ratings of:

- ABS (including SME CDOs); 1,094 transactions
- CMBS (including CRE CLOs and CRE CDOs); 724 transactions
- RMBS transactions; 2,886 transactions
- CVB programs (including Multi-Issuer Cedulas Hipotecarias "MICH"); 117 CVB and MICH in total

The ESG relevance scores were assigned at the transaction and program level and apply to all rated notes/issuances.

The following asset classes were not part of the initial launch:

- CLOs, (including Broadly Syndicated Loans and Middle Market Loans);
- CDOs (such as SF CDOs, Real Estate SF CDOs, TRUPS CDOs);
- Credit-linked and insurance-linked notes'
- ABCPs; and
- Transactions where the note ratings are a result of a direct credit link to another rated entity (not CVBs)

Fitch has created unique ESG templates for CMBS and RMBS as well as 15 separate sub-sector templates for ABS and three for CVB, depending on the collateral type. These templates consider five Environmental; five Social and four Governance issues, shown in the table below.

Clearly there are some general issues which do not apply to all SF and CVB asset classes e.g. GHG Emissions and Air Quality are irrelevant for RMBS and CMBS. An illustration of which general issues Fitch considers relevant for each asset class can be seen in the table below. SF and CVB governance general issues differ strongly from other sector templates, highlighting the importance of asset isolation and timely payment for SF or payment continuity for CVB. Due to their unique structures, the general and sector-specific issues have therefore been tailored to fit their structural considerations and are uniform for all the SF and CVB templates.

Related Research

ESG. RS Compendium:
Structured Finance & Covered Bonds

ESG Sector Heat Maps:
Structured Finance & Covered Bonds

Templates Compendium:
ESG Sector Template Compendium

The Environmental and Social risk analysis applies to the pool of assets serving as collateral, while the Governance risk analysis applies to transaction or program level considerations.

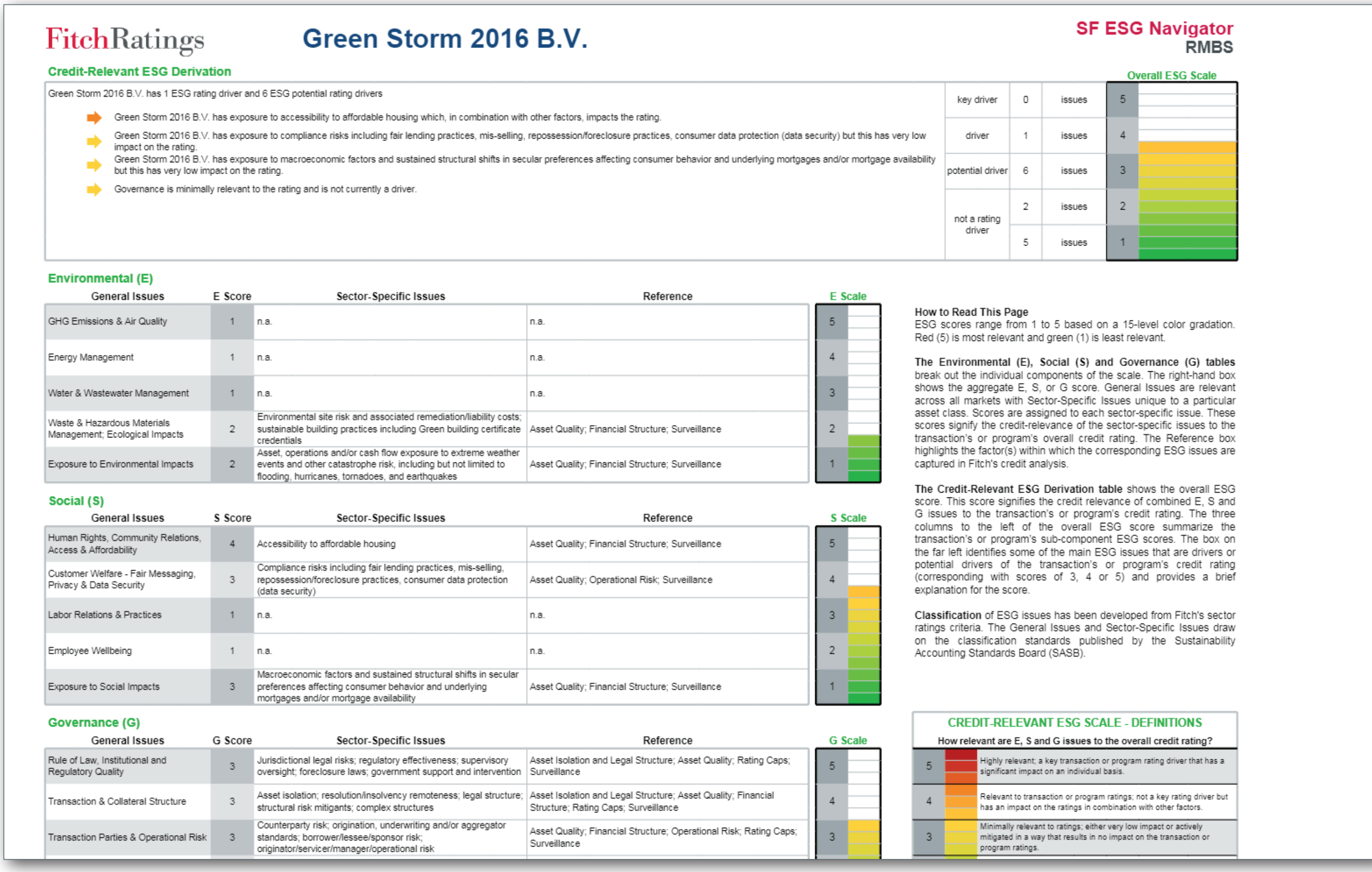
Structured Finance and covered bonds governance general issues are different from other sector templates, highlighting the importance of asset isolation and timely payment for SF or payment continuity for CVB.

Sector-Specific ESG Factors for Major Structured Finance Asset Classes

ENVIRONMENTAL	**CMBS**	**RMBS**	**Resi Covered Bonds**	**ABS Secured**	**ABS Unsecured**
GHG Emissions & Air Quality	Regulatory risks, fines, or compliance costs from building emissions standards (including energy consumption) and related reporting standards	n.a.		Regulatory risks, fines, or compliance costs related to emissions, energy consumption and/or related reporting standards	n.a.
Energy Management	n.a. - included in sustainable building practices	n.a.		Assets' energy/fuel efficiency and impact on valuation	n.a.
Water & Wastewater Management	n.a. - included in sustainable building practices	n.a.			
Waste & Hazardous Materials Management; Ecological Impacts	Environmental site risk and associated remediation/liability costs; sustainable building practices, including Green building certificate credentials			n.a.	
Exposure to Environmental Impacts	Asset, operations and/or cash flow exposure to extreme weather events and other catastrophe risk, including but not limited to flooding, hurricanes, tornadoes, and earthquakes				
SOCIAL					
Human Rights, Community Relations, Access & Affordability	Low income housing; GSE/agency issued or provision for social good	Accessibility to affordable housing	Accessibility to affordable housing; GSE/agency issued or provision for social good; services for underbanked and underserved communities	n.a.	Risk-based pricing/repricing, social programs, services geared to underbanked/underserved communities and impact on accessibility and affordability
Customer Welfare: Fair Messaging, Privacy & Data Security	n.a.	Compliance risks including fair lending practices, mis-selling, repossession/foreclosure/recovery practices, borrower/consumer data protection (data security)		Compliance with consumer protection related regulatory requirements, such as fair/transparent lending, data security, and safety standards	
Labor Relations & Practices	Labor practices and employee (dis)satisfaction, especially for hotels and healthcare properties; tenant safety and Well-being	n.a		Labor practices and employee (dis)satisfaction, especially for hotels and healthcare properties; tenant safety and Well-being	n.a
Employee Well-being	n.a				
Exposure to Social Impacts	Sustained structural shift in secular preferences affecting consumer trends, occupancy trends, etc.	Macroeconomic factors and sustained structural shifts in secular preferences affecting consumer behavior and underlying mortgages and/or mortgage availability		Macroeconomic factors and sustained structural shifts in secular preferences affecting consumer behavior	
GOVERNANCE					
Rule of Law, Institutional & Regulatory Quality	Jurisdictional legal risks; regulatory effectiveness; supervisory oversight; foreclosure laws; government support and intervention				
Transaction & Collateral Structure	Asset isolation; resolution/insolvency remoteness; legal structure; structural risk mitigants; complex structures				
Transaction Properties & Operational Risk	Counterparty risk; origination, underwriting and/or aggregator standards; borrower/lessee/sponsor risk; originator/servicer/manager/operational risk				
Data Transparency & Privacy	Transaction data and periodic reporting				

n.a.: not material to credit ratings in the sector

Example of Structured Finance ESG Relevance Scores Navigator



FitchRatings

Green Storm 2016 B.V.

SF ESG Navigator
RMBS

Credit-Relevant ESG Derivation

Green Storm 2016 B.V. has 1 ESG rating driver and 6 ESG potential rating drivers

- Green Storm 2016 B.V. has exposure to accessibility to affordable housing which, in combination with other factors, impacts the rating.
- Green Storm 2016 B.V. has exposure to compliance risks including fair lending practices, mis-selling, repossession/foreclosure practices, consumer data protection (data security) but this has very low impact on the rating.
- Green Storm 2016 B.V. has exposure to macroeconomic factors and sustained structural shifts in secular preferences affecting consumer behavior and underlying mortgages and/or mortgage availability but this has very low impact on the rating.
- Governance is minimally relevant to the rating and is not currently a driver.

Overall ESG Scale

			Overall ESG Scale
key driver	0	issues	5
driver	1	issues	4
potential driver	6	issues	3
not a rating driver	2	issues	2
	5	issues	1

Environmental (E)

General Issues	E Score	Sector-Specific Issues	Reference	E Scale
GHG Emissions & Air Quality	1	n.a.	n.a.	5
Energy Management	1	n.a.	n.a.	4
Water & Wastewater Management	1	n.a.	n.a.	3
Waste & Hazardous Materials Management; Ecological Impacts	2	Environmental site risk and associated remediation/liability costs; sustainable building practices including Green building certificate credentials	Asset Quality; Financial Structure; Surveillance	2
Exposure to Environmental Impacts	2	Asset, operations and/or cash flow exposure to extreme weather events and other catastrophe risk, including but not limited to flooding, hurricanes, tornadoes, and earthquakes	Asset Quality; Financial Structure; Surveillance	1

Social (S)

General Issues	S Score	Sector-Specific Issues	Reference	S Scale
Human Rights, Community Relations, Access & Affordability	4	Accessibility to affordable housing	Asset Quality; Financial Structure; Surveillance	5
Customer Welfare - Fair Messaging, Privacy & Data Security	3	Compliance risks including fair lending practices, mis-selling, repossession/foreclosure practices, consumer data protection (data security)	Asset Quality; Operational Risk; Surveillance	4
Labor Relations & Practices	1	n.a.	n.a.	3
Employee Wellbeing	1	n.a.	n.a.	2
Exposure to Social Impacts	3	Macroeconomic factors and sustained structural shifts in secular preferences affecting consumer behavior and underlying mortgages and/or mortgage availability	Asset Quality; Financial Structure; Surveillance	1

Governance (G)

General Issues	G Score	Sector-Specific Issues	Reference	G Scale
Rule of Law, Institutional and Regulatory Quality	3	Jurisdictional legal risks; regulatory effectiveness; supervisory oversight; foreclosure laws; government support and intervention	Asset Isolation and Legal Structure; Asset Quality; Rating Caps; Surveillance	5
Transaction & Collateral Structure	3	Asset isolation; resolution/insolvency remoteness; legal structure; structural risk mitigants; complex structures	Asset Isolation and Legal Structure; Asset Quality; Financial Structure; Rating Caps; Surveillance	4
Transaction Parties & Operational Risk	3	Counterparty risk; origination, underwriting and/or aggregator standards; borrower/lessee/sponsor risk; originator/servicer/manager/operational risk	Asset Quality; Financial Structure; Operational Risk; Rating Caps; Surveillance	3

How to Read This Page
ESG scores range from 1 to 5 based on a 15-level color gradation. Red (5) is most relevant and green (1) is least relevant.

The Environmental (E), Social (S) and Governance (G) tables break out the individual components of the scale. The right-hand box shows the aggregate E, S, or G score. General Issues are relevant across all markets with Sector-Specific Issues unique to a particular asset class. Scores are assigned to each sector-specific issue. These scores signify the credit-relevance of the sector-specific issues to the transaction's or program's overall credit rating. The Reference box highlights the factor(s) within which the corresponding ESG issues are captured in Fitch's credit analysis.

The Credit-Relevant ESG Derivation table shows the overall ESG score. This score signifies the credit relevance of combined E, S and G issues to the transaction's or program's credit rating. The three columns to the left of the overall ESG score summarize the transaction's or program's sub-component ESG scores. The box on the far left identifies some of the main ESG issues that are drivers or potential drivers of the transaction's or program's credit rating (corresponding with scores of 3, 4 or 5) and provides a brief explanation for the score.

Classification of ESG issues has been developed from Fitch's sector ratings criteria. The General Issues and Sector-Specific Issues draw on the classification standards published by the Sustainability Accounting Standards Board (SASB).

CREDIT-RELEVANT ESG SCALE - DEFINITIONS

How relevant are E, S and G issues to the overall credit rating?	
5	Highly relevant; a key transaction or program rating driver that has a significant impact on an individual basis.
4	Relevant to transaction or program ratings; not a key rating driver but has an impact on the ratings in combination with other factors.
3	Minimally relevant to ratings; either very low impact or actively mitigated in a way that results in no impact on the transaction or program ratings.

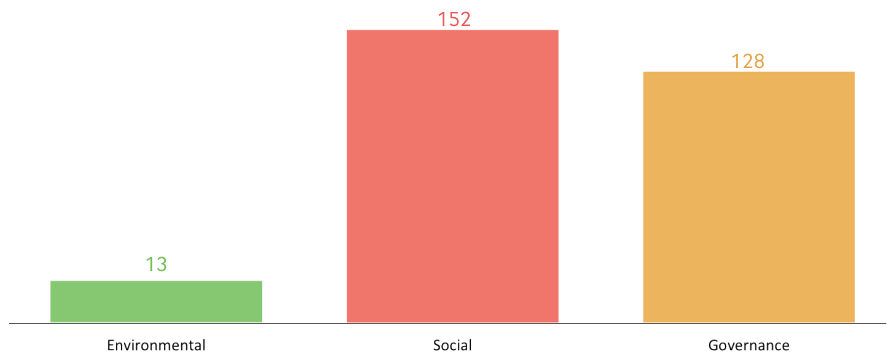
As illustrated above, all transaction presale reports contain an ESG relevance score navigator which outlines any ESG risks that are influencing the ratings. ESG considerations are also outlined in the accompanying press release to the presale.

ESG Relevance Scores in Structured Finance Ratings: Key Facts and Findings

The initial analysis of Fitch's SF and CVB portfolio in October 2019 generated over 67,000 individual E, S and G scores for publicly-rated SF transactions and CVB programs. Results showed that 18% of Fitch's current SF and 19% of its CVB ratings are influenced by E, S or G factors (one or more score of '4' or '5'), with just under 2% of SF ratings having a single E, S or G sub-factor that by itself led to a change in the rating (score of '5'). This number is significantly higher in CVBs, standing at 18% for the current ratings. There are significant variances by asset class and by region due to different collateral types and sector-specific rating criteria. Of the 18% of transactions receiving elevated scores 16% were negative impact scores and 2% received positive ESG relevance scores (a much higher percentage than other asset classes). In structured finance, a '+' is added to the relevance scores to indicate a positive impact on the creditworthiness of the transaction or program.

Interestingly, SF and CVBs have the most varied mix of both positive and negative elevated scores among the sectors rated by Fitch. The case studies hereafter provide some illustrations of how the scoring works.

ESG Elements Driving Transaction Credit: Structured Finance

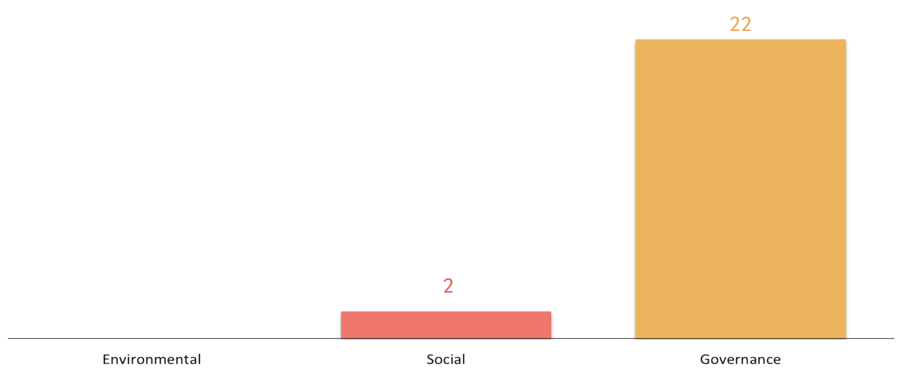


Source: Fitch Ratings, scores at launch time

Given the predominantly consumer-based assets involved, Social factors have a significant credit impact across structured finance.

Social Relevance Biggest Surprise: The credit impact of Social factors can be difficult to isolate within ESG; however, given the predominantly consumer-based assets involved, the impact across SF is significant, accounting for just over 50% of all elevated Relevance Scores. Within ABS, elevated scores are the result of pending litigation related to U.S. student loan transactions; in CMBS, the effect of structural shifts in consumer preferences impacting retail properties; and in RMBS, the positive impact of government-backed collateral. The impact on CVB programs is less pronounced, with Social factors accounting for approximately 8% of elevated Relevance Scores.

ESG Elements Driving Transaction Credit: Covered Bonds



Source: Fitch Ratings, scores at launch time

Governance Relevance as Expected: Given the importance of Governance overall, each of the four Governance General Issue sub-factors are deemed at least minimally relevant to each SF transaction and CVB program and assigned a baseline score of '3'. While the majority of Governance scores are assigned at this baseline, approximately 9% of SF transactions and 18% of CVB programs receive at least one elevated Governance score.

Approximately 9% of SF transactions and 18% of CVB programs receive at least one elevated Governance score.

Distinct Regions, Asset Classes, Factors and Drivers: Globally for SF, ESG factors are most impactful in EMEA, where 32% of scored EMEA transactions receive at least one elevated score, followed by LatAm with 23% of transactions and North America with 16%. APAC transactions are least impacted by ESG factors, with only 5% elevated. Among the transactions with elevated scores within EMEA, '4' is the most commonly assigned score, RMBS the most common sector, and Social the most common factor. The most impactful factors within this subset relate to affordability and material concentration of interest-only loans, both of which have a negative credit impact, and government-backed collateral, which has a positive credit impact.

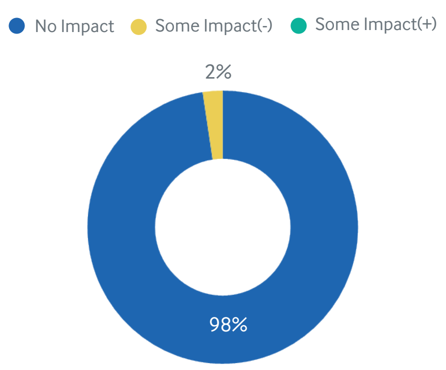
What Are the Main Takeaways for Each Asset Class?

ABS

Fitch's analysis showed that the scored ABS portfolio, comprising 14 sub-sectors, was least impacted by ESG factors, with only 2.5% of transactions assigned an elevated score. This is largely attributable to the relatively short tenures of ABS transactions, including those for auto, equipment, and credit cards, coupled with a benign economic environment. In general, Fitch more frequently observed higher scores in seasoned SF transactions; this was the case for ABS, where the bulk of elevated scores were the result of Consumer Financial Protection Bureau (CFPB) litigation related to U.S. student loans. The remaining elevated scores were generally driven by regulatory risk-related factors identified in EMEA and LatAm rated transactions. No ABS transactions rated in our APAC region were found to be impacted by an elevated ESG factor at the time of our analysis.

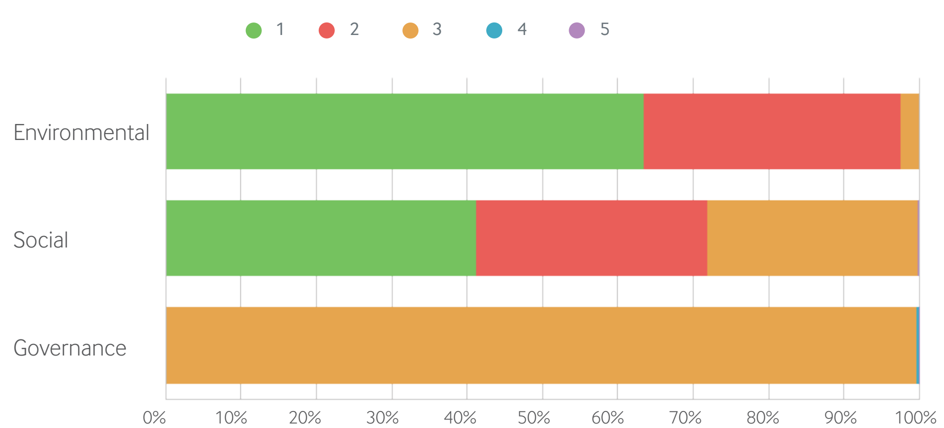
ABS transactions are least impacted by ESG factors, given the relatively short tenures of ABS transactions, including those for auto, equipment, and credit cards.

Relevance to Transaction Portfolio
(% of transactions or programs)



Source: Fitch Ratings. scores at launch time

Transaction Scoring By E, S and G Factors: ABS (% of transactions per score level)

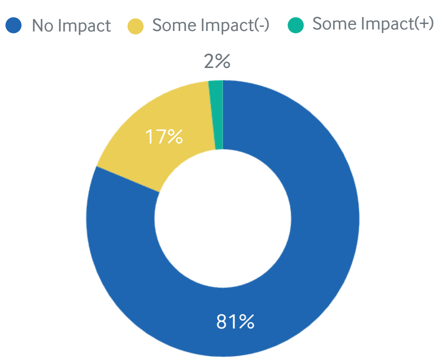


Of 117 Covered Bonds (including MICH transactions) programs rated by Fitch, 19% receive at least one elevated score, driven primarily by Governance factors observed in southern European programs.

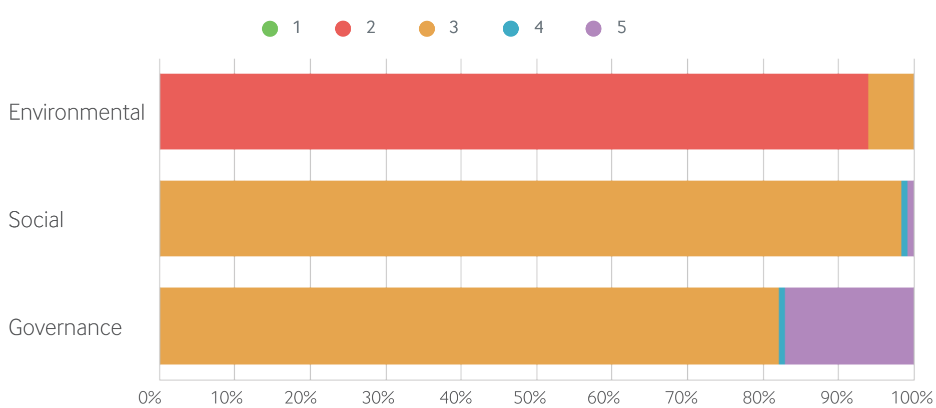
Covered Bonds

Of 117 CVB (including MICH transactions) programs rated by Fitch, 19% received at least one elevated score, driven primarily by Governance factors observed in southern European programs. Spanish and some Portuguese programs rated by Fitch lack liquidity protection mechanisms, limiting the maximum achievable uplift Fitch can assign above the bank's Issuer Default Rating by three to six notches. This had a direct impact on the rating despite available overcollateralization and resulted in the programs being assigned a Relevance Score of '5' for Transaction & Collateral Structure within the Governance catagory. These scores are likely to lower once the EU Covered Bond Directive is enacted and transposed into national law as it includes mandatory 180-day liquidity coverage. Elevated scores also related to programs that Fitch rates on a limited uplift approach due to a lack of internal or external data. Positive elevated scores were assigned to residential mortgage programs whose assets have a track record of lower loss rates.

Relevance to Transaction Portfolio
(% of transactions or programs)



Program Scoring By E, S and G Factors: Covered Bonds (% of programs per score level)

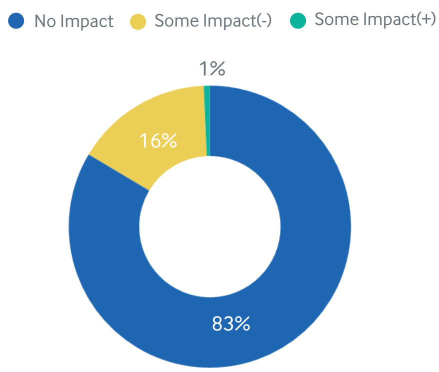


Source: Fitch Ratings, scores at launch time

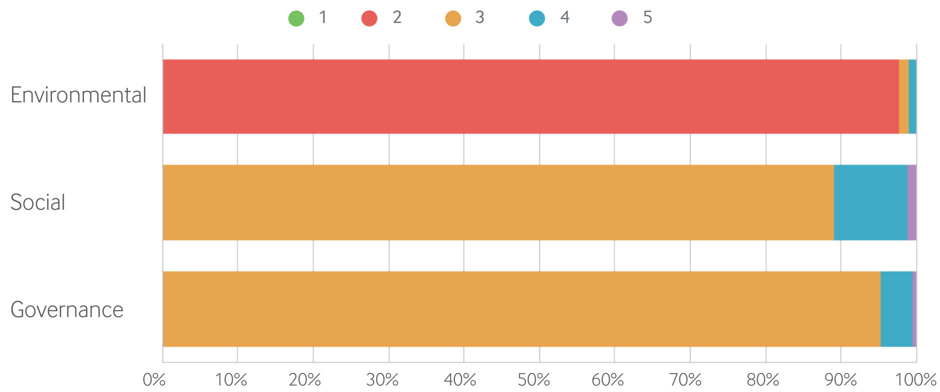
CMBS

Across CMBS, elevated scores impacted approximately 17% of all CMBS transactions, 1% positively, and differed by region. In North America, 16% of transactions were assigned elevated scores primarily driven by social factors due to the structural shift in consumer preference for shopping, which has had a negative and direct impact on the performance of secondary malls. In Europe, 32% of transactions received an elevated score, largely due to governance factors related to uncertainties surrounding mortgage enforcement in Italy. Finally, APAC was the least impacted by ESG factors with only one transaction assigned an elevated score associated with a governance related ESG factor.

Relevance to Transaction Portfolio
(% of transactions or programs)



Transaction Scoring By E, S and G Factors: CMBS (% of transactions per score level)



Source: Fitch Ratings, scores at launch time

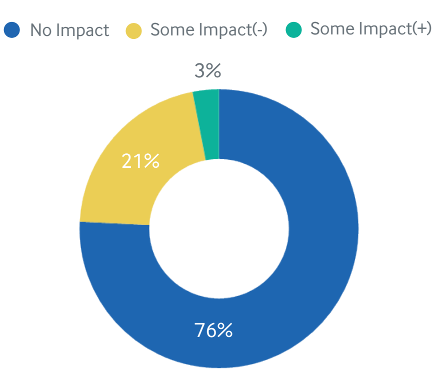
RMBS

24% of RMBS transactions scored globally have an elevated score assigned to at least one factor. Elevated scoring was driven by a diverse set of factors across the broad ESG categories but was observed to be most heavily influenced both negatively and positively by social factors, which accounted for 50% of all elevated scores, and secondarily by governance factors, which negatively influenced 45% of the elevated scores. The impact was most closely tied to ESG risks identified in legacy transactions in the U.S. and EMEA, most of which closed between 2003 and 2007. APAC had few elevated scores and fewer legacy considerations, with the majority of APAC's elevated scores occurring in RMBS transactions. While only 11 LatAm RMBS transactions were scored, their overall ESG distribution was most similar to that of EMEA.

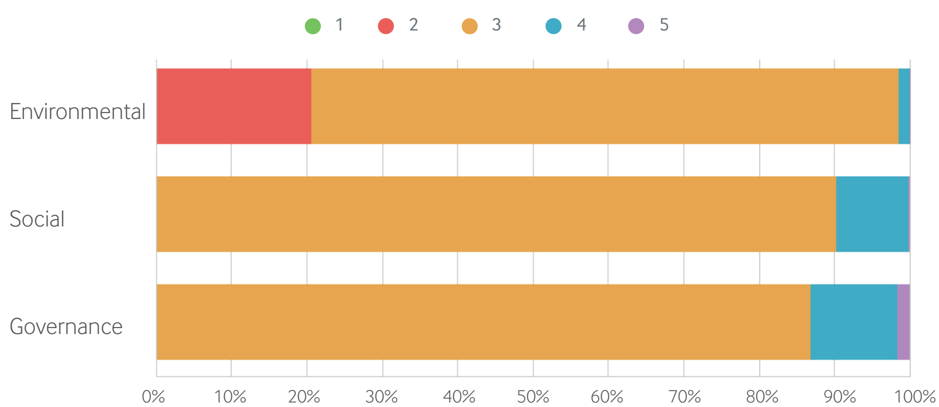
24% of RMBS transactions scored globally have an elevated score assigned to at least one factor.

Elevated environmental drivers were not common and accounted for approximately only 5% of elevated scores, mostly driven by catastrophe risk adjustments in the U.S. Of note, global RMBS also accounts for the largest number of elevated scores with a positive credit impact, totaling 88 individual securitizations primarily in the U.S. and EMEA, driven by several successful and strong performing government-supported residential mortgage programs.

Relevance to Transaction Portfolio
(% of transactions or programs)



Transaction Scoring By E, S and G Factors: RMBS (% of transactions per score level)



Source: Fitch Ratings, scores at launch time

Case Studies in Structured Finance and Covered Bonds

RMBS: Catastrophe Risk

When assigning ratings to U.S. RMBS transactions and as captured in criteria, Fitch incorporates adjustments to its loan loss expectations to reflect catastrophe risk.

Fitch has licensed AIR Worldwide Corporation's CATRADER natural catastrophe model to estimate residential property damage under 10,000 different disaster scenarios for each county in the U.S. Fitch uses CATRADER output to estimate the probability of different levels of property loss due to natural disasters. Fitch uses the estimated property losses to reduce each loan's current property value when projecting credit losses. While most U.S. RMBS transactions do not have high catastrophe risk and are scored at a the baseline of '3' for Exposure to Environmental Impacts, transactions receiving property value haircuts between 1.5-2.0% are scored a '4' and those above 2.0% are scored a '5'.

In the case of SoFi Mortgage Trust 2016-1, the pool is heavily concentrated in California (77.5%) with 44.3% in the in the San Francisco Bay area. The application of Fitch's US RMBS catastrophe risk analysis as described above resulted in a catastrophe risk loss adjustment of approximately 1.9% for this transaction. Fitch has therefore assigned a transaction-level ESG score of '4' for Exposure to Environmental Impacts.

RMBS and CVB: NHG Mortgages (Netherlands)

Green Storm 2016 B.V. is a true sale securitization of prime Dutch residential mortgage loans originated and sold by Obvion N.V., wholly owned by Cooperatieve Rabobank U.A. Fifty percent of the mortgages in the pool consist of NHG (Nationale Hypotheek Garantie) mortgages and the eligibility criteria of the transaction includes provisions so that the assets meet the criteria to fulfil requirements of the Green Bond Principles. Assets relate to the top 15% of the Dutch residential mortgage market in terms of energy efficiency, or that have shown at least a 30% improvement in energy efficiency.

A high percentage of the securitized assets has the benefit of an NHG guarantee (public mortgage loan insurance scheme in the Netherlands), which has a positive impact on the credit profile of the pool. A high positive ESG.RS score of '+4' was assigned due to accessibility to housing and affordability given a high proportion of NHG loans which, in combination with other factors, has affected the rating.

The portfolio's credit characteristics are comparable to previous STORM transactions rated by Fitch. In our credit analysis, we do not differentiate between energy and non-energy efficient borrowers as there are no historical data available evidencing a better performance for these loans. As such, the environmentally-friendly mortgage pool did not warrant a high Environmental ESG score.

ABS: U.S. Student Loans

National Collegiate Student Loan Trust 2003-1 has been assigned an ESG.RS of '5' for "Customer Welfare - Fair Messaging, Privacy & Data Security" due to an action filed by the Consumer Financial Protection Bureau (CFPB) against the National Collegiate Student Loan Trust (NCSLT).

This transaction is one of 12 from the Trust that have all scored a '5' for the same factor . In September 2017, the CFPB filed an action against the NCSLTs for illegal student loan debt collection. If the proposed judgment settle all matters is confirmed, it may result in the NCSLTs making an aggregate payment of at least USD 19.1 million within 10 days of the effective date of the judgment. Should this result in a lump sum one-time cost being charged to the trust as a senior cost, it may impair the ability of some of the trusts, depending on the number of trusts affected, to pay senior interest in a timely fashion, resulting in an event of default for the notes.

Case Studies (cont.)

As a result the rating has been capped at a BBBsf for the transactions. As this constraint is a key driver of the rating it warrants an ESG relevance score of '5'.

In September 2017, CFPB took action against NCSLT and their debt collector, Transworld Systems, Inc., for illegal student loan debt collection lawsuits. According to the CFPB, consumers were sued for private student loan debt that the companies couldn't prove was owed or was too old to sue over. These lawsuits relied on the filing of false or misleading legal documents. As a consequence of the CFPB proposed judgement on the case, Fitch capped the ratings on these transactions at 'BBBsf' and placed all notes with ratings of 'Bsf' or above on Rating Watch Negative on these transactions.

U.S. Single Borrower CMBS: LEED Certificate Buildings

Hudson Yards 2019-30HY Mortgage Trust, Commercial Mortgage Pass-Through Certificates have an ESG Relevance Score of '+4' for Waste & Hazardous Materials Management; Ecological Impacts. The transaction is secured by 30 Hudson Yards, a Class A property that was constructed in 2019. The property, located in the Hudson Yards area of Manhattan, NY, was designed to achieve a LEED Core & Shell Gold certification, which has a positive impact on the credit profile and is relevant to the ratings in conjunction with other factors.

The LEED certificate demonstrates that the building was designed and built using strategies aimed at achieving energy savings, water efficiency, CO2 emissions reduction, improved indoor environmental quality, and stewardship of resources and sensitivity to their impact. These factors have a positive effect on the property quality and are attractive to tenants and buyers.

Fitch's CMBS Large Loan Rating Criteria takes property quality into account in lower operating cost and deferred maintenance assumptions as well as in the ability to capture relatively higher rents. Additionally, the criteria foresee downward adjustments to the DSCR hurdles and upward adjustments to the LTV hurdles through stronger recoveries in down markets due to the flight-to-quality associated with high-quality assets. These adjustments may be made at each rating category or to the 'AAAsf' rating only.

Related Research

ESG. RS Compendium:
US Public Finance
International Public Finance

ESG Sector Heat Maps:
Public Finance & Infrastructure

Templates Compendium:
ESG Sector Template Compendium

Governance is the most influential ESG risk factor across the overall public finance ratings portfolio.

Evaluating ESG Risks in Public Finance

Given the nature of public finance entities, Environmental, Social and Governance (ESG) risks generally have a lower level of direct impact on credit than other asset classes analyzed by Fitch.

Fitch assesses 14 ESG factors for public finance entities that are not tax-supported (such as U.S. revenue-supported and not-for-profit entities and government-related entities outside of the U.S.), the same factors assessed for Corporates and Financial Institutions. Fitch assesses a modified set of 15 ESG factors for tax-supported entities such as regional and local governments (including U.S. States). These reflect fundamental differences in the types of ESG factors that affect the credit profile of tax-supported entities, such as Human Rights and Political Freedoms, Public Safety and Security, and International Relations and Trade.

Governance is the most influential ESG risk factor across the overall public finance ratings portfolio. Some of the most visible credit rating actions over the past few years have focused on Governance issues, including on the Commonwealth of Puerto Rico, PREPA and the State of Rio de Janeiro.

Social and Environmental risks are of similar importance in terms of credit impact for public finance issuers. Planning to anticipate or resolve Social and Environmental impacts is usually within the control of public finance entities' management, provided the financial wherewithal exists to support this effort. Consequently, most credits have been able to manage these risks effectively. The most impactful elements within Social and Environmental categories are:

- Biodiversity and natural resource management and demographics for tax-supported entities.
- Exposure to environmental impacts and labor relations and practices for revenue-supported U.S. public finance issuers.

Sector-Specific ESG Factors for Major U.S. Public Finance Sectors (Non-Tax Supported)

ENVIRONMENTAL	U.S. Public Finance Health Care	Public Power	Higher Education
GHG Emissions & Air Quality		Emissions from operations	
Energy Management	Energy use in operations	Fuel used to generate energy and serve load	Energy management and use in operations
Water & Wastewater Management	Water use in operations	Water used by hydro plants or other generating plants; effluent management	Water use, consumption; availability of resources
Waste & Hazardous Materials Management; Ecological Impacts	Management of medical waste	Impact of waste from operations	Land planning and development; project development and construction
Exposure to Environmental Impacts	Business disruption from climate change; environmental impacts changing human health requirements	Plants' and networks' exposure to extreme weather events	Exposure to extreme weather events that disrupt operations (e.g. damage to physical assets)
SOCIAL			
Human Rights, Community Relations, Access & Affordability	Low-income patient access	Product affordability and access	Relationships with local communities; access and affordability
Customer Welfare - Fair Messaging, Privacy & Data Security	Data privacy; care quality and safety outcomes; controlled substance management; pricing transparency	Quality and safety of products and services; data security	Data security and privacy; fair marketing of cost and educational outcomes
Labor Relations & Practices	Impact of labor negotiations and employee (dis)satisfaction; recruitment and retention of skilled healthcare workers	Impact of labor negotiations and employee (dis)satisfaction	Impact of labor negotiations and employee (dis)satisfaction; employee recruitment and retention; workforce diversity
Employee Well-being	Worker safety and accident prevention	Worker safety and accident prevention	Worker safety and accident prevention
Exposure to Social Impacts	Social pressure to contain healthcare spending growth; sensitive political environment with impactful legislative changes	Social resistance to major projects that leads to delays and cost increases	Social- or consumer-driven changes impacting demand and/or public support
GOVERNANCE			
Management Strategy	Strategy development and implementation		Management's effectiveness in executing strategy and mission components; ability to manage through a cycle
Governance Structure	Board independence and effectiveness; ownership concentration	Governing body independence and effectiveness; degree of political or external influence	Board independence and effectiveness in fiduciary and strategic efforts; ownership concentration; span of control
Group Structure		Complexity, transparency and related-party transactions	
Financial Transparency	Quality and timing of financial disclosure		Quality, timeliness, frequency, reliability level of detail, and scope of financial disclosure

Sector-Specific ESG Factors for Local Governments and U.S. States (Tax Supported)

ENVIRONMENTAL

GHG Emissions & Air Quality	Emissions and air pollution as constraints on economy and revenue growth; enforcement/compliance with governmental/regulatory standards
Energy Management	Impact of energy resources management on economy and governmental operations, including enforcement/compliance with governmental/regulatory standards
Water & Wastewater Management	Water resource availability impacts on economy and governmental operations, including enforcement of governmental/regulatory standards
Biodiversity and Natural Resource Management	Impact of natural resources management on economy and governmental operations
Exposure to Environmental Impacts	Impact of extreme weather events and climate change on economy, governmental operations and policy related to natural disasters treatment

SOCIAL

Human Rights and Political Freedoms	Policy framework on social stability and human rights protection
Human Development, Health and Education	Impact of health and education on economic resources and governmental operations
Labor Relations & Practices	Impact of labor negotiations and employee (dis)satisfaction
Public Safety and Security	Impact of public safety and security (including cyber security) on business environment and/or economic performance
Population Demographics	Impact on economic strength and stability (labor force supply, household income, population and aging, etc.)

GOVERNANCE

Political Stability and Rights	Impact of political pressure or instability on operations; tendency toward unpredictable policy shifts
Rule of Law, Institutional & Regulatory Quality, Control of Corruption	Government effectiveness; control of corruption; regulatory quality; management practices and their effectiveness; respect for property rights
International Relations and Trade	Trade agreements and impact on economy and revenue growth
Creditor Rights	Willingness to service and repay debt; exposure to outstanding or pending litigation
Data Quality and Transparency	Limitations on the quality and timeliness of financial data, including transparency of public debt and contingent liabilities

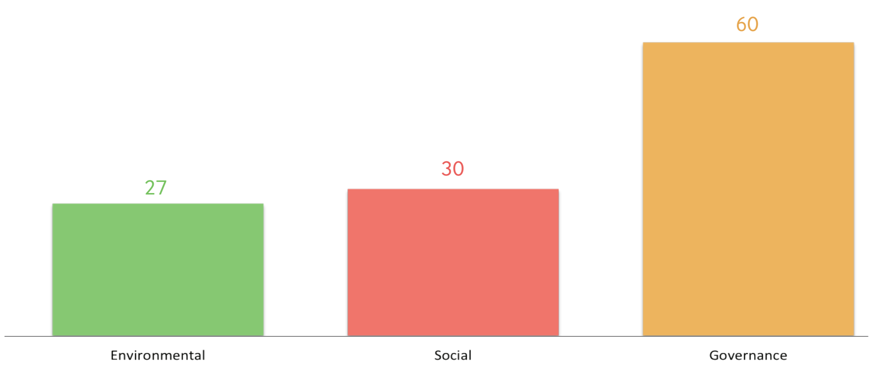
ESG Relevance Scores In Public Finance Ratings: Key Facts And Findings

Fitch's initial round of ESG Relevance Scoring for more than 2,000 USPF issuers shows that 5% of ratings featured at least one elevated ESG Relevance Score ('4' or '5'). The percentage of USPF issuers with an elevated ESG Relevance Score ranges from 3% for local governments to 14% for states. Environmental factors have a relatively low influence in USPF ratings, mainly due to the U.S. federal government's financial support to areas affected by hurricanes, floods, wildfires and other high-cost weather events.

The percentage of USPF issuers with an elevated Relevance Score generally ranges from 3% to 4% across most sectors.

For state and local governments, elevated ESG scores were largely concentrated within the Social and Governance risk elements and mostly related to below-standard features that work asymmetrically and negatively affect ratings. Higher ESG Relevance Scores were observed in some revenue sectors, such as Life Plan Communities and Water and Sewer entities, where ratings exhibit higher sensitivity to shifts in consumer demand, political influence, affordability/access considerations, and cost drivers associated with regulatory requirements or consent orders.

USPF - ESG Elements Driving Issuer Credit Impact



Source: Fitch Ratings, scores at launch time

The analysis of ESG Relevance Scores for the 366 public finance issuers outside of the U.S. shows that ESG risks have more influence on the Local and Regional Governments' (LRG) rating decisions, with about 10% of LRGs having ESG Relevance Scores of '4' or '5'. These cases mostly relate to Governance and, in particular, to political instability and rights and creditor rights. This is often a risk cited for emerging-market countries.

Environmental risk is also a key factor, relating primarily to biodiversity and natural resource management, which affects LRGs with tax bases concentrated in natural resource exploration. This could often lead to revenue concentration and volatility, which are important rating drivers and negatively influence the stability of revenue flow.

As for Government Related Entities (GREs) outside the U.S., Fitch generally did not identify ESG issues that impact the current ratings and the majority of ESG scores for GREs were assessed at '3'. This is likely due to the government support of GREs, which mitigates ESG issues.

Spotlight: Labor Relations and Environmental Risk in Public Finance

Labor Relations

Local governments, hospitals, colleges and universities are highly labor-intensive, so undue pressure derived from the relationship between management and the workforce can create overall financial stress that could affect ratings. For most rated U.S. Public Finance entities, this relationship is cooperative and flexible enough that it does not affect the rating, resulting in a Relevance Score of '3'. However, Fitch has identified labor relations and practices as strained enough to yield a Relevance Score of '4' in a limited number of cases within U.S. Public Finance, indicating that the entity's ability to adjust spending could become constrained enough to lead to a rating change.

In a handful of cases, labor pressure has been severe enough to result in strikes or work stoppages. Many states prohibit public sector strikes for some or all classes of employees, so these are unusual. Labor contracts that are subject to binding arbitration can create a similar level of expenditure pressure on rated entities, since the ultimate control over labor settlements is out of the hands of management. However, the bargaining framework and status of actual contractual agreements are only inputs into Fitch's analysis of the impact of labor on ratings; they do not fully determine the assessment. Rather, Fitch believes the level of cooperation among the parties and their demonstrated commitment to sound financial operations are the most important indicators of a government's ability to make adjustments necessary to maintain rating stability.

Environmental Risk

Fitch's ratings on U.S. public finance issuers do not reflect the assumption that the federal government would broadly guarantee or step in on an ad hoc basis to cure an individual issuer's financial distress following a natural disaster. However, Fitch considers the longstanding role of the federal government, acting through FEMA, in providing financial assistance to public entities impacted by natural disasters as critically important to rating stability in the presence of these events.

Evaluating ESG Risks in Project Finance

ESG Relevance Scores assigned for Project Finance ratings at a level of '4' or '5' occur most frequently in the Social Risk category. Social factors are assessed under the following five broad categories: human rights, community relations, access and affordability; customer welfare – fair messaging, privacy and data security. The most significant factors within this category for project finance transactions are labor relations and practices.

There is a slightly lower number of elevated scores in the Governance Risk Category. However some of the most visible recent credit rating actions for infrastructure issuers have focused on governance including, for example, actions on coal export terminals, Domodedovo Airport or the Italian toll-road operator Atlantia S.p.A. Governance Risks within a transaction are assessed under the following four broad categories, which are also common to all corporate sectors: management strategy; governance structure; group structure; and financial transparency. Management strategy considers analysts' view on the operational implementation of the strategy based on the sponsor's strength, experience and ability to manage risks. Governance structure considers such issues as board independence and effectiveness alongside any ownership concentration.

The Environmental Risk category has the lowest impact on credit ratings in the project finance portfolio. The environmental factors assessed by the analytical team for project finance transactions fall under the following five broad categories: GHG emissions and air quality; energy management; water and wastewater management; waste and hazardous materials management, ecological impacts; and exposure to environmental impacts. Environmental risk exposure is more prevalent for projects that are scored under the energy criteria and is the main driver for high Environmental scores overall within the Project Finance portfolio.

In certain subsectors, several Environmental factors are irrelevant to the credit rating. For example, under the project finance power transmission criteria, categories that are currently irrelevant include GHG Emissions & Air Quality, Water and Wastewater Management, Waste and Hazardous Materials Management, and Ecological Impacts.

Related Research

ESG. RS Compendium:
[Infrastructure](#)

ESG Sector Heat Maps:
[Public Finance & Infrastructure](#)

Templates Compendium:
[ESG Sector Template Compendium](#)

Some of the most visible credit rating actions over the past couple of years for infrastructure issuers have focused on governance

Sector Specific ESG Factors for Major Project Finance Sectors

ENVIRONMENTAL	Gas Pipelines & Midstream	Power Transmission	Thermal Power	Hydro	Solar Wind	Transportation
GHG Emissions & Air Quality	Emissions from operations	n.a.	Emissions from operations		n.a.	Emissions of assets or users
Energy Management	Energy use in operations		Fuel used to generate and serve load	n.a.		Energy consumption by assets or users
Water & Wastewater Management	n.a.		Water use in operations; effluent management	Water used to generate electricity	Water use in operations	
Waste & Hazardous Materials Management; Ecological Impacts	Operations proximity to environmentally sensitive areas; ecological impact of operating incidents and spills.	n.a.	Waste disposal; ash management; pollution incidents	Ecological impacts on wildlife, agriculture and people from hydro power construction, operations, and water resource management	Management of ecological impacts, including hazardous waste	Waste disposal; pollution incidents
Exposure to Environmental Impacts	Exposure to extreme weather events, resulting in loss of revenues, increased costs, and project construction delays					
SOCIAL						
Human Rights, Community Relations, Access & Affordability	Pipelines traversing indigenous lands or other politically sensitive regions	Transmission lines traversing indigenous lands or other politically sensitive regions	Product affordability and access; operating proximity to areas of conflict or indigenous lands	Product affordability and access; operating proximity to areas of conflict or indigenous lands		Product affordability and access
Customer Welfare - Fair Messaging, Privacy & Data Security	n.a.					User safety; data security
Labor Relations & Practices	Impact of labor negotiations and employee (dis)satisfaction; quality of contractors					
Employee Well-being	Worker safety and accident prevention					
Exposure to Social Impacts	Social resistance to major projects or operations that leads to delays and cost increases and/or unfavorable regulatory regimes					
GOVERNANCE						
Management Strategy	Operational implementation of strategy informed by sponsor strength/experience and ability to effectively manage risks; involvement of local parties					
Governance Structure	Board independence and effectiveness; ownership concentration; ring-fencing					
Group Structure	Complexity, transparency and related-party transactions					
Financial Transparency	Quality and timeliness of financial disclosure; reliability, level of detail and scope of information (informed by data sources, use of expert reports)					

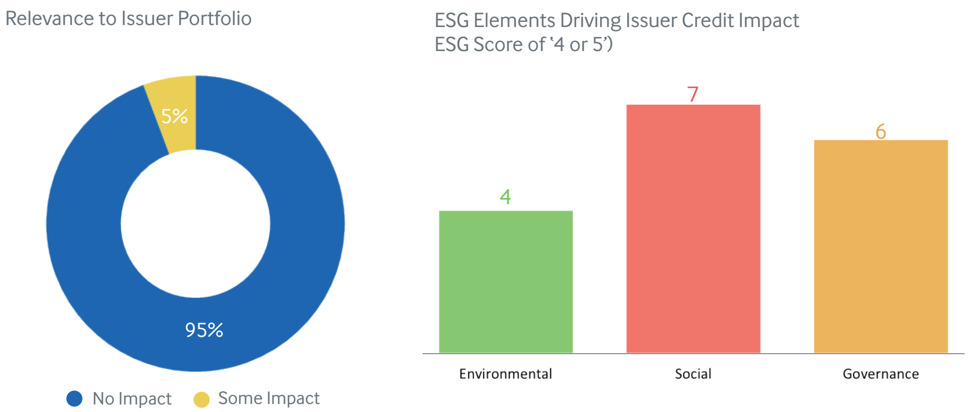
n.a.: not material to credit ratings in the sector

ESG Relevance Scores in Project Finance Ratings: Key Facts and Findings

ESG factors impact 5% of project finance ratings. There are issuers with 17 issuer scores of '4' or '5' on a portfolio of 317 issuers rated on the international scale. Social and Governance issues represent the majority of these scores of '4' or '5', particularly in the transportation sector.

ESG factors impact 5% of project finance ratings, mostly in transport.

ESG Relevance in Fitch's Project Finance Portfolio



Source: Fitch Ratings, scores at launch time

Case Study in Infrastructure: Australian Coal Terminals

Fitch rates the debt of three coal export terminals in Australia: Newcastle Coal Infrastructure Group Pty Limited (NCIG; 'BBB-'/Stable, affirmed on 31 March 2020); DBCT Finance Pty Limited (DBCT; 'BBB-'/Stable, affirmed on 31 March 2020); and Adani Abbot Point Terminal Pty Limited (AAPT; 'BBB-/Stable, affirmed on 31 March 2020). Fitch assigned a score of '4' to each of these issuers for Governance – Management Strategy, indicating that the factor is "Relevant to the rating; not a key rating driver but has an impact on the rating in combination with other factors."

Each of the Fitch-rated terminals has the need, to varying degrees, to refinance their debt issues as they mature. Over the past several years, many financial institutions have announced policies to reduce or eliminate investment in certain aspects of the coal sector. The restrictions vary, with some applying to only thermal coal, coal mines, and/or coal-fired power plants. Some restrictions are broader, covering all coal sectors (such as metallurgical coal used for making steel), with a few also including coal transportation infrastructure such as rail and ports. These policies have the potential to increase the refinancing risk for the coal terminals by limiting their sources of finance. This imposes a requirement on the terminal owners and management to have strategies in place to mitigate that risk.

There are some differences among the three Fitch-rated terminals. NCIG's throughput is predominantly thermal coal, which Fitch views as having somewhat higher risk, while DBCT ships mostly metallurgical coal. However NCIG has a number of partially amortizing debt issues, meaning that their refinancing task is reducing over time, while DBCT and AAPT have all bullet debt maturities with no amortization. Fitch monitors ongoing refinancing requirements for each of the issuers, focusing in particular on managements' strategy for upcoming maturities and any potential reduction in their lender bases.

Evaluating ESG Risks in Sovereign Ratings

Consistent with its rating criteria, Fitch assessed the relevance of ESG factors to sovereign creditworthiness in a two-step process:

- First, Fitch looked at the intersection with its Sovereign Rating Model (SRM), which is the agency's proprietary multiple regression rating model. This model employs 18 quantitative variables, several of which are based on three-year centered averages and accordingly include one year of forecasts, to produce a score equivalent to a Long-Term Foreign-Currency Issuer Default Rating.
- Second, Fitch assessed the relevance of any judgments made at the most recent rating review in its Qualitative Overlay (QO). This is Fitch's forward-looking qualitative framework designed to allow for adjustment to the SRM output to assign the final rating, reflecting factors within the rating criteria that are not fully quantifiable and/or not fully reflected in the SRM.

ESG is more relevant and material for the ratings of sovereigns than for all other Fitch asset classes. All sovereigns are assigned the highest overall ESG score of '5' on the Fitch-wide Credit Relevant ESG scale, driven by the Governance category. Governance has long been an integral part of Fitch's sovereign credit analysis, underscored by the composite of the World Bank's Governance Indicators (WBGI) having the largest weight (20%) of any variable in Fitch's Sovereign Rating Model (SRM). Accordingly, political risk and other Governance factors have been frequent drivers of sovereign rating actions since Fitch initiated coverage of sovereign ratings in the mid-1990s.

The ESG Relevance Scores do not make value judgments on whether a sovereign engages in good or bad ESG practices. They do not assess a sovereign's "greenness", "social responsibility" or rank the quality of its standards of "governance". Instead, they draw out which E, S and G risk elements influence the credit rating decision.

Related Research

ESG. RS Compendium:
Sovereign

Templates Compendium:
ESG Sector Template Compendium

Governance has long been an integral part of Fitch's sovereign credit analysis, underscored by the composite of the World Bank's Governance Indicators (WBGI) having the largest weight (20%) of any variable in Fitch's Sovereign Rating Model.

Sovereign ESG Relevance Scoring

ENVIRONMENTAL	
GHG Emissions & Air Quality	Emissions and air pollution as a constraint on GDP growth
Energy Management	Management of energy resource endowments affecting exports, government revenues and GDP
Water & Wastewater Management	Water resource availability and management as a constraint on GDP growth
Biodiversity and Natural Resource Management	Management of natural resource endowments affecting exports, government revenues and GDP
Exposure to Environmental Impacts	Likelihood of and resilience to shocks
SOCIAL	
Human Rights and Political Freedoms	Social stability, voice and accountability, regime legitimacy
Human Development, Health and Education	Impact of human development, health and education on GDP per capita and GDP growth
Employment and Income Equality	Impact of unemployment and income equality on GDP per capita, GDP growth and political and social stability
Public Safety and Security	Impact of public safety and security on business environment and/or economic performance
Population Demographics	Population decline or aging, rapidly rising youth population; pensions sustainability
GOVERNANCE	
Political Stability and Rights	Political divisions and vested interests; geo-political risks including conflict, security threats and violence; policy capacity: unpredictable policy shifts or stasis
Rule of Law, Institutional & Regulatory Quality, Control of Corruption	Government effectiveness, control of corruption, rule of law, regulatory quality
International Relations and Trade	Trade agreements, membership of international organizations, bilateral relations; sanctions or other costly international actions
Creditor Rights	Willingness to service and repay debt
Data Quality and Transparency	Availability, limitations and reliability of economic and financial data, including transparency of public debt and contingent liabilities

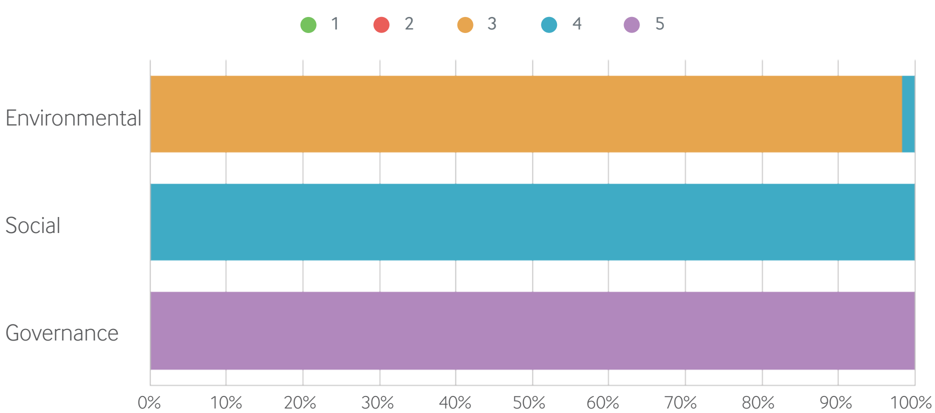
A challenge Fitch faced in creating a Sovereign ESG Relevance Score template was defining the breadth of the ESG elements and how to apply them in practice. Factors such as 'governance' are not precisely defined for sovereigns and are potentially elastic concepts for these entities.

Fitch decided to include all political risks within its definition of Governance as they are included in the World Bank's Governance Indicators. However, Fitch's analysts do not stretch their view of Governance to include the quality of design or coherent application of economic policies, as this can reflect legitimate policy choices as well as the economic pre-conditions that countries face.

ESG Relevance Scores in Sovereign Ratings: Key Facts and Findings

The analysis of Fitch's portfolio of 118 Fitch-rated sovereigns shows that E, S or G factors are affecting the ratings of every single sovereign. The highest score of '5' ("highly relevant to the rating, a key rating driver with a high weight") has been assigned to at least two ESG issues across all sovereigns with Governance factors the most important category, as indicated below.

Issuer Scoring By E, S and G Factors (% of issuers per score level)



Source: Fitch Ratings, scores at launch time

> **Governance risks are the most important category, with all sovereigns receiving a ‘5’ for the aggregate Governance G Score. Social factors also have an important. influence**

Governance is King but Social Factors are Also a Rating Driver

Governance risks are the most important category, with 100% of sovereigns receiving a ‘5’ for the aggregate Governance G Score. Social factors also have an important influence on sovereign ratings. Although no sovereigns currently have any social factors scored as a ‘5’, all have one or more social factors scored as a ‘4’.

This reflects the “Human Rights and Political Freedoms” General Issue, which maps out of the “Voice and Accountability” indicator, which is one of six components of the composite World Bank’s Governance Indicator in Fitch’s sovereign rating model. Across the portfolio there are three other social element scores of ‘4’, two for “Employment and Income Inequality” and one for “Demographic Trends”. There are also several scores of ‘3’ on these issues as well as for “Public Safety and Security”.

Environmental Factors of Lesser Rating Relevance

In general, environmental factors are a lesser influence on current ratings, with only two sovereigns having one Environmental element scored as a ‘4’ and none at ‘5’, but all of them have at least three Environmental factors scored at a ‘3’. Both ‘4’ scores relate to “Energy Management” owing to contingent liabilities facing the sovereign from state-owned enterprises.

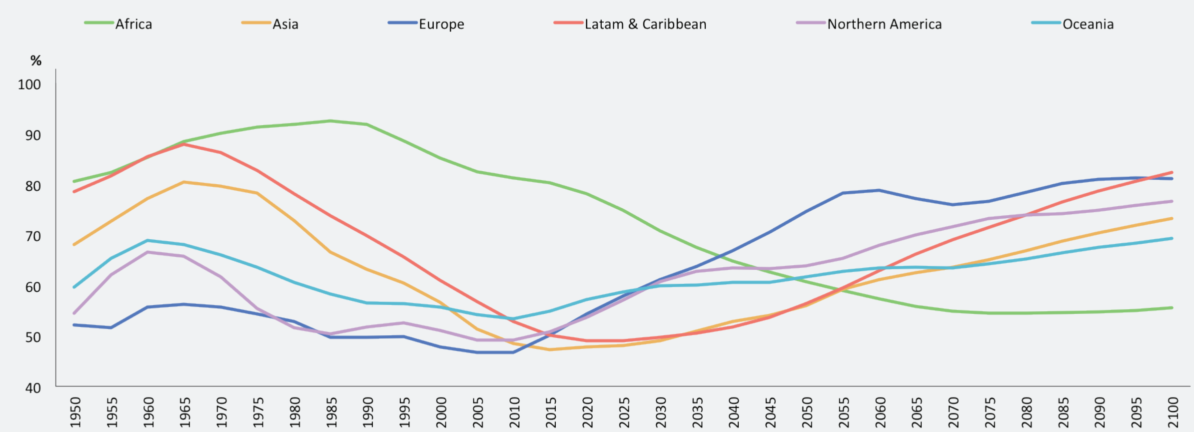
Spotlight: Demographic Risks on the Rise for Sovereign Ratings

Demographic trends such as declining or rapidly expanding populations, a bulging youth cohort or pronounced aging can create risks to sovereign creditworthiness. Key channels of impact include stagnant potential GDP growth, unsustainable pension systems and public debt, and risks to social and political stability. Demographic forces already affect some sovereign ratings and Fitch believes they are likely to become more important over the medium term.

Ratings look forward, but slow-moving long-term trends and uncertain projections have less weight than current developments. Fitch reflects demographic pressures in ratings as a product of their proximity and severity, taking into account the likelihood of reforms to mitigate effects. Countries with strong governance are best placed to weather the impact of demographic trends on growth, public finances and political stability.

'Demographic Trends' is one of the 15 factors that Fitch assesses in its ESG Relevance Scores. They indicate the relevance of ESG factors to the rating decision for each Fitch-rated sovereign on a scale of '1' (lowest) to '5' (highest). Japan and Jordan are assigned a score of '4' on Demographic Trends, meaning this factor is affecting the rating. All other countries have a score of '3', as it is relevant to the rating and has an impact in combination with other factors.

Demographic Windows Dependency ratios (<15 & 65+)/(15-64)



Source: UN

Shrinking or weak population growth will tend to lower GDP growth by constraining the supply of labor. This occurs particularly when the population is aging and the working-age proportion is falling. Conversely, countries may enjoy a "demographic dividend" when the working-age population rises relative to the young and old, provided a flexible labor market and business climate allow the workers to find productive employment.

Demographic Risks on the Rise for Sovereign Ratings (cont.)

The 10 countries with the fastest pace of decline in working-age population are all in Eastern Europe. This followed a drop in the birth rate in the 1990s related to the trauma of economic transition and high rates of emigration. Countries with the fastest growth in 2018 and projected for 2050 are in the Middle East and Africa.

A rapidly aging population increases pressure on health, social care and pension spending, while the tax burden is spread over fewer workers. The combination of adverse demographics and generous pension systems can render public finances unsustainable. Pension reforms are economically and politically harder to implement the longer they are delayed. Europe and East Asia face the most acute aging profiles. In several countries in the Middle East, rapid growth in the natural population or an inflow of refugees is adding to spending pressures on education, infrastructure and social safety nets.

Unstable demographic profiles such as rapid youth population growth can foment unstable social and political environments, with adverse implications for sovereign ratings. If large numbers of youths are unable to find jobs and see little prospect of having a family or status in society, then anger, frustration and social unrest are likely to follow, especially if accompanied by high unemployment and poor governance. Other risks are pressures on environmental resources or shifts in ethnic, sectarian or gender balances. The countries most exposed to such risks are predominantly in Africa and the Middle East. Many are experiencing social conflict or political violence of one form or another.

ESG Factors in Developed vs. Emerging Markets: The Example of Corporates

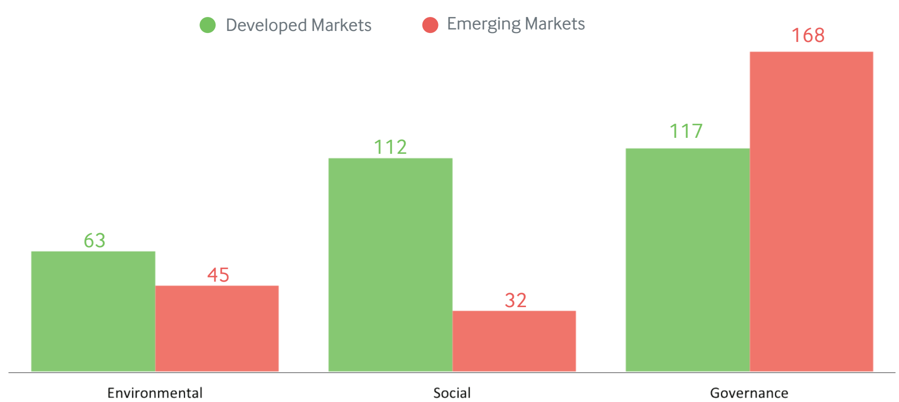
The credit impact from ESG risks in emerging markets is overwhelmingly driven by governance, specifically a lack of effective, independent boards and high ownership concentration, as well as issues around financial transparency.

Governance risks the Prevalent Factor in Emerging Markets while Social as well as Governance is a Key Developed Market Story

While emerging and developed markets show similar levels of overall ESG impact, major differences are revealed in the main drivers of that impact. Regions also vary, with companies in Latin American much more affected than those in other Emerging Markets.

The impact in emerging markets is overwhelmingly driven by governance, particularly due to a lack of effective, independent boards and high ownership concentration, as well as issues with financial transparency.

Number of ESG Factor Scoring 4 or 5 – Non Financial Corporate Issuers



Source: Fitch Ratings, scores at launch time

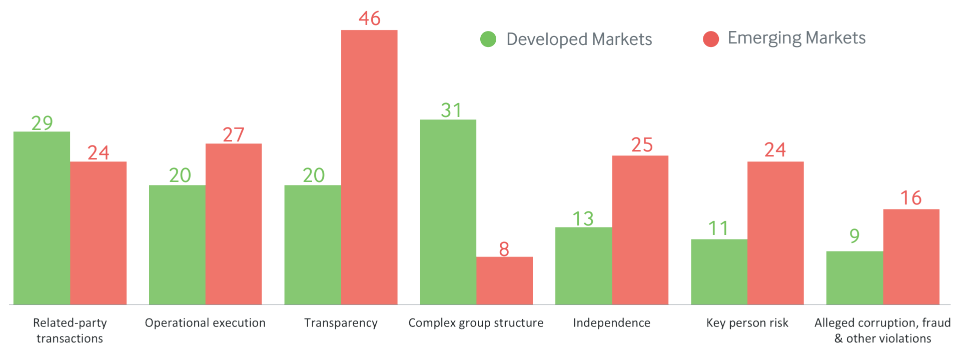
Governance issues are most prevalent in Latin America, where the high number of family-owned businesses and frequent key-person risks result in 40% of companies having at least one ESG Relevance Score of '4' or higher. The proportion of Latin American companies with an ESG factor that impacts the rating is also more than double the rate for corporates as a whole.

In developed markets, ESG factors are more balanced overall, but there are some big variations by country. The UK and Germany have the greatest proportion of companies where ESG factors have some influence on the rating decision (30% and 28%, respectively). In both countries, environmental and social factors each outweigh governance, in large part due to the exposure to social impacts in the sectors of healthcare, and food, beverage and tobacco. In the U.S., governance is the dominant driver slightly ahead of social risk factors, primarily driven by a high number of complex structures in midstream energy companies.

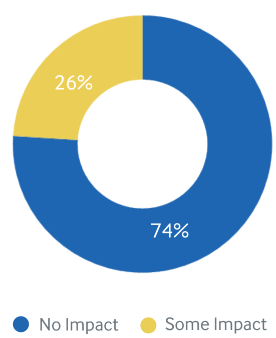
Transparency, Independence and Ownership Dominate the Governance Debate in Emerging Markets

Governance issues in emerging markets tend to cluster more around "concentrated ownership", "weaker board independence" and "transparency". In developed markets they tend to concentrate around "observed operational failures" or "complex group structures".

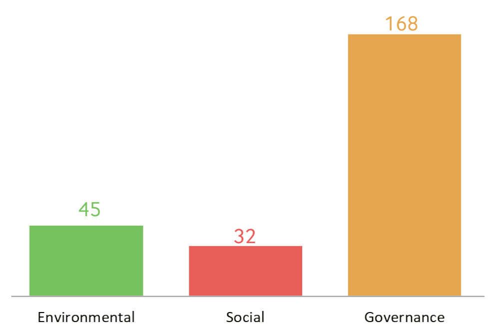
Most Common Governance Risk Issues – Non Financial Corporate Issuers



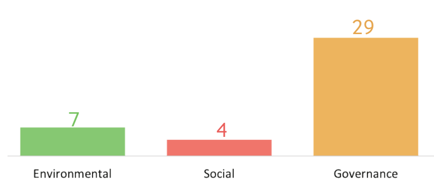
ESG Relevance in Emerging Market Non Financial Corporates



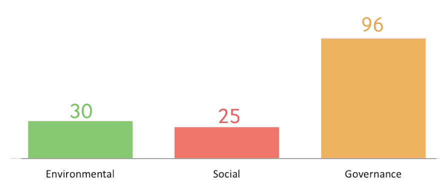
ESG Elements Driving Issuer Credit Impact (ESG Score of 4 or 5)



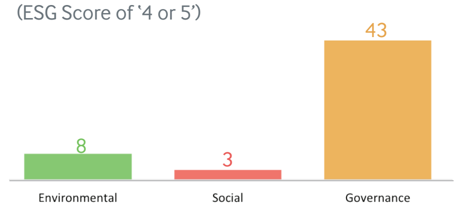
EM CEMEA (ESG Score of '4 or 5')



EM LatAm (ESG Score of '4 or 5')



EM Asia (ESG Score of '4 or 5')



Source: Fitch Ratings, scores at launch time

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