

ESG Credit Indicator Report Card: Telecoms

August 23, 2023

(Editor's Note: S&P Global Ratings is no longer publishing or updating ESG credit indicators. See https://www.spglobal.com/_assets/documents/ratings/esg_credit_indicators_mr.pdf for more information.)

We are disclosing in this report our ESG credit indicators for the global telecoms sector. Our ESG credit indicators provide additional disclosure and transparency at the entity level and reflect our opinion of the influence that environmental, social, and governance factors have on our credit rating analysis. They are applied after the credit rating has been determined. They are not a sustainability rating or an S&P Global Ratings ESG evaluation.

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Sector Snapshot – Telecommunications

Most Influential ESG Factors



Governance structure

The most relevant ESG factor for the industry. This mainly affects companies controlled by private-equity firms without sufficient minorities to ensure oversight on behalf of broader stakeholders. To a lesser extent, this can also affect companies controlled by small groups or individuals, especially if they lack a record of considering other stakeholder interests. This is a moderately negative influence on our credit ratings because of a focus on maximizing shareholder returns, and in the case of financial sponsors, their often finite holding periods.



Risk management, culture, and oversight

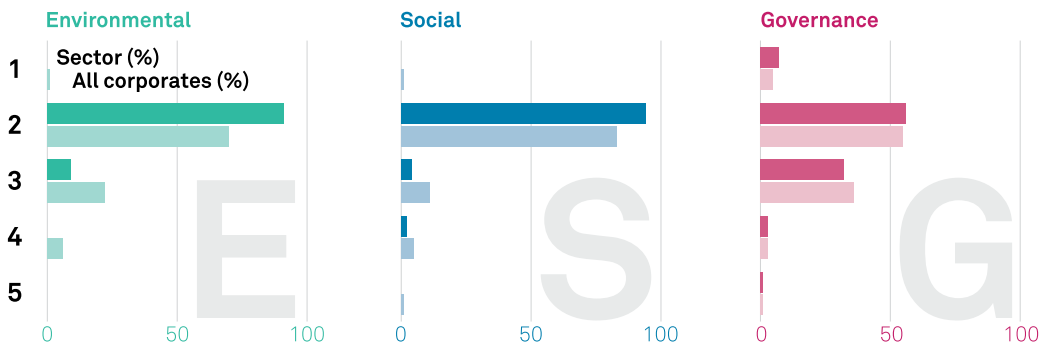
It can be difficult to execute business strategies in the highly competitive telecom sector. This can be because of insufficient planning, a lack of management oversight or decision-making, or a poor fit between strategy and company capabilities.



Other governance factors

This mainly stems from exposure to country risks when operating in jurisdictions with volatile regulatory environments and weaker institutional effectiveness.

Distribution Of ESG Credit Indicators



1 = positive | 2 = neutral | 3 = moderately negative | 4 = negative | 5 = very negative.
 Our opinion of the influence of ESG factors on our credit rating analysis is reflected on a 1-5 scale. Source: S&P Global Ratings.
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Key Takeaways

- The telecom sector has a below average exposure to environmental and social risk compared to the broader corporate universe. Governance exposure is in-line with corporate average.
- Governance is the most relevant ESG exposure for our ratings, with indicators other than neutral on just over half of the portfolio. Most notable is governance structure, a material ESG factor for about 28% of our rated telecom companies. Those affected are typically controlled by financial sponsors, small groups, or individuals. Such ownership structures affect our credit view because of the potential to place the interests of owners above those of other stakeholders due to a focus on maximizing shareholder returns, and the often finite holding periods.
- Below-average environmental exposure reflects the sector's low energy intensity. However, about 7% of telcom issuers are moderately exposed to climate transition risks. Such risks notably stem from data centers with their high power and water consumption, or for tower and telecom companies with mobile infrastructure in emerging markets, the diesel generators they require.
- Although we see telecoms as well positioned to enable technology solutions for the energy transition, we currently observe little positive revenue impact that affects ratings.
- Social risk in the sector is most commonly from data security exposure, but negative impact to our assessment of issuer credit profiles is rare. While infrequent at 4%, the most material credit impact comes from social capital, typically related to the risk of community engagement within customer bases.

Our ESG Credit Indicators

Table 1

Environmental Credit Indicators

Credit indicator	Definition
E-1	Environmental factors are, on a net basis*, a positive consideration in our credit rating analysis, affecting at least one analytical component§.
E-2	Environmental factors are, on a net basis*, a neutral consideration in our credit rating analysis.
E-3	Environmental factors are, on a net basis*, a moderately negative consideration in our credit rating analysis, affecting at least one analytical component§.
E-4	Environmental factors are, on a net basis*, a negative consideration in our credit rating analysis, affecting more than one analytical component§ or one severely.
E-5	Environmental factors are, on a net basis*, a very negative consideration in our credit rating analysis, affecting several analytical components§ or one very severely.

**On a net basis" means that we take a holistic view on exposure to environmental factors and related mitigants. §Analytical components include criteria scores and subscores (including the key analytical elements to assess them). "Affecting" means leading to a different outcome for an analytical component or lower/higher headroom for an analytical component.

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In our ESG credit ratings criteria "Environmental, Social, And Governance Principles In Credit Ratings," Oct. 10, 2021, we articulate the principles that S&P Global Ratings applies to incorporate environmental, social, and governance (ESG) credit factors into its credit ratings analysis. In that criteria we define ESG credit factors as those ESG factors that can materially influence the creditworthiness of a rated entity or issue and for which we have sufficient visibility and certainty to include in our credit rating analysis. We note that when sufficiently material to affect our view of creditworthiness, ESG credit factors can influence credit ratings.

In our commentary "ESG Credit Indicator Definitions And Application," Oct. 13, 2021, we discuss the introduction of ESG credit indicators as a complement to our existing credit rating analysis. Whereas our ESG criteria seek to enhance transparency in how and where we capture ESG factors in credit ratings, our ESG credit indicators provide additional disclosure by reflecting our opinion of how material the influence (on a 1-5 scale) of ESG factors is on our credit rating analysis. We assess these indicators on a net basis, meaning that we take a holistic view of exposure to environmental, social and governance factors and related mitigants on the credit rating analysis. They are applied after the rating has been determined. They are not a sustainability rating or an S&P Global Ratings ESG evaluation.[1]

Accordingly, the application--or change--of an ESG credit indicator cannot in itself trigger a credit rating or outlook change. However, the impact of ESG factors on creditworthiness could contribute to a rating action, which in turn could lead to a change in the ESG credit indicator. Through the release of ESG credit indicators, we aim to further delineate and summarize the relevance of ESG factors to our credit analysis by isolating our opinion of their credit influence and separating it from the non-ESG factors affecting the credit rating.

The scale for environmental credit indicators is identical for social and governance credit indicators. It has a negative skew, which reflects our view that environmental, social and governance considerations (including risks outside of a company's control) have a negative influence more often than a positive one. An ESG credit indicator of E-2, S-2, or G-2 means that it is currently a neutral consideration in our credit rating analysis. This does not necessarily mean that ESG factors are not relevant, rather that they are currently not sufficiently material to alter the credit rating analysis or that positive ESG considerations are offset by ESG-related risks.

Also, entities may have identical ESG credit indicators, even if they diverge on ESG characteristics and performance. This may be the case because we only incorporate in our credit rating analysis those ESG factors that materially influence creditworthiness and for which we have sufficient visibility and certainty or because the differentiation in ESG characteristics is not in our view sufficiently material to warrant a different ESG credit indicator outcome.

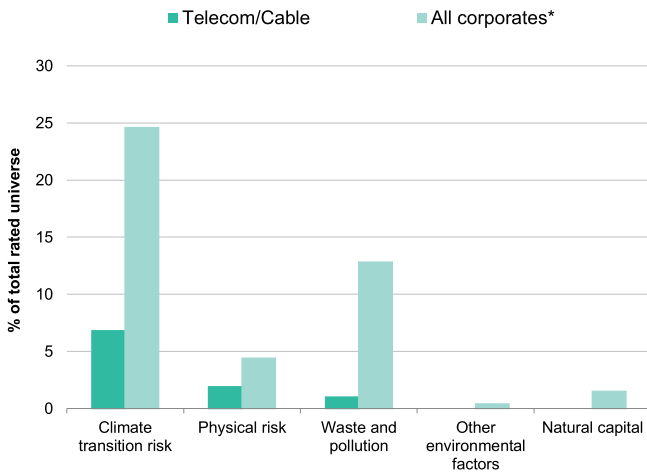
[1] ESG credit indicators are separate and distinct from S&P Global Ratings ESG evaluations. An S&P Global Ratings ESG evaluation is not a credit rating or component of our credit rating methodology. Rather, it indicates our view of an entity's relative exposure to observable ESG-related risks and opportunities, and our qualitative opinion of the entity's long-term sustainability and readiness for emerging trends and potential disruptions. Moreover, the ESG evaluation considers the impacts and dependencies on the environment and society across the value chain for a wide range of stakeholders, regardless of current credit materiality. (For more on ESG evaluations, see "Environmental, Social, And Governance Evaluation Analytical Approach," Dec. 15, 2020.)

Sector Overview

Environmental Credit Factors

Chart 1

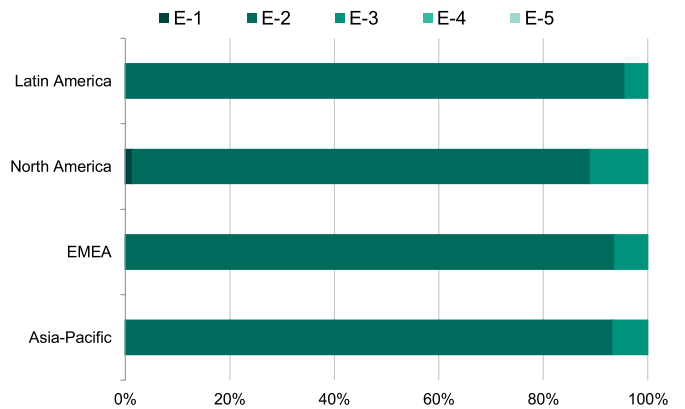
Key Environmental Factors Distribution



*Estimate as of publishing date. Source: S&P Global Ratings. Copyright © 2021 by Standard & Poor's Financial Services LLC. All rights reserved.

Chart 2

Environmental Credit Indicators--Breakdown By Region



Source: S&P Global Ratings. Copyright © 2021 by Standard & Poor's Financial Services LLC. All rights reserved.

Environmental risks are generally a neutral consideration in our credit analysis of telecom companies. We believe exposure to such risks to be below average when compared to other industry sectors.

Climate transition risk (7% of issuers affected)

Environmental risks we considered focus on greenhouse gas emissions (including carbon dioxide), water usage, and natural conditions (physical climate, including exposure to extreme and changing weather), though this tends to be more geographic/entity-specific than a sector feature.

Although the sector uses energy to power its communication networks, data centers, and operations, its scope 2 usage is less intensive than that of sectors such as utilities or natural resources. We estimate that the telecoms sector currently contributes about 2%-4% of global carbon dioxide emissions. However, rapid increases in data transmission bring additional power requirements, which could quickly push up the sector's energy consumption. This may accelerate with the transition to 5G technology. While energy per megabyte of mobile data transmission should decline, increased traffic, bands in use, higher frequencies and density of antennae, and the need for more edge computing will likely lead to a significant rise in energy requirements over time.

As a result, the sector has turned its attention to increasing its energy efficiency for the powering of its communication networks, data centers, truck rolls, call centers, points of distribution, and information technology systems. For example, fiber to the home (FTTH) is about 85% more energy-efficient than copper networks, because it reduces the need for cooling systems and the

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number of central offices. Deployment of FTTH is likely to be fueled by the need to improve speed to customers, but wider use of this technology will also help the industry achieve energy-reduction targets.

Data centers and mobile tower infrastructure in developing markets have the highest frequency of E-3 indicators for the sector. Tower assets requiring diesel generators where electricity is either unavailable or intermittent tend to exhibit greater exposure to climate transition risk. The same is true for data centers because of their large water and power requirements for cooling. With this can come higher operating costs. We believe that data center operators have robust water usage management programs and water recycling facilities to mitigate water concerns. Similarly, high power usage can be mitigated through design efficiencies, including environmentally friendly Leadership in Energy and Environmental Design (LEED)-certified buildings, and increased renewable energy sourcing. In unique cases, such as with Switch Ltd., a U.S. developer of data centers with lower cooling costs, companies can actually realize a competitive advantage by passing savings on to customers, benefitting their credit profiles.

We believe telecom products and services will play a critical role in enabling the transition to a low-carbon environment, resulting in potentially significant scope 3 reductions for the sector (indirect emissions). This is already occurring through increased virtualization of activities, which has reduced travel. Over time, we also expect efficiency improvements from greater connectivity, with smart cities as an example. However, telecom companies have struggled to translate these developments into tangible and sustained revenue growth, leading to neutral credit impact for now.

Physical risk (2% of issuers affected)

Exposure to physical climate change risks is a consideration for a limited number of issuers, largely based on the effects extreme weather--for example, hurricanes, tornadoes, ice storms, or flooding--would have on telecom companies operating infrastructure and on customers. We consider the credit risks here to be limited, except for at some smaller telecom operators that are narrowly focused on certain hurricane-prone markets.

Table 2

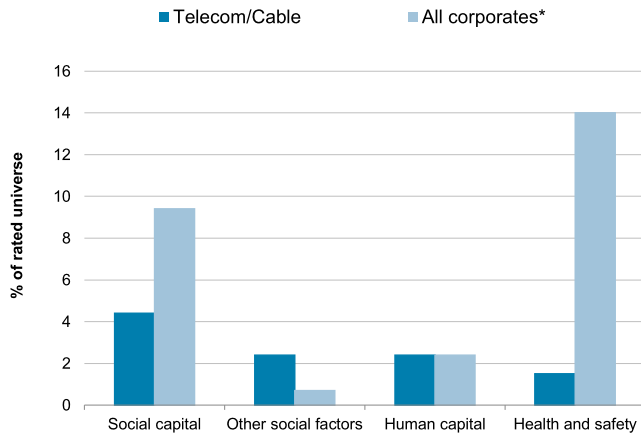
Factors Driving Environmental Credit Indicators For The Telecoms Sector

Positive drivers	Negative drivers
Low energy intensity	Rising energy usage linked to ever growing data demand
Strong emphasis on the reduction of greenhouse gas emissions with increasingly widespread and specific goals, enabled by more efficient networks and the sourcing of renewable energy supplies.	High power and water usage for cooling in data centers, and distributed diesel generation in some emerging market tower infrastructure
Products and services that save energy for customers and enable transition to a low-carbon economy	Exposure to extreme weather events for companies with narrow geographic exposures to hurricane-prone regions

Social Credit Factors

Chart 3

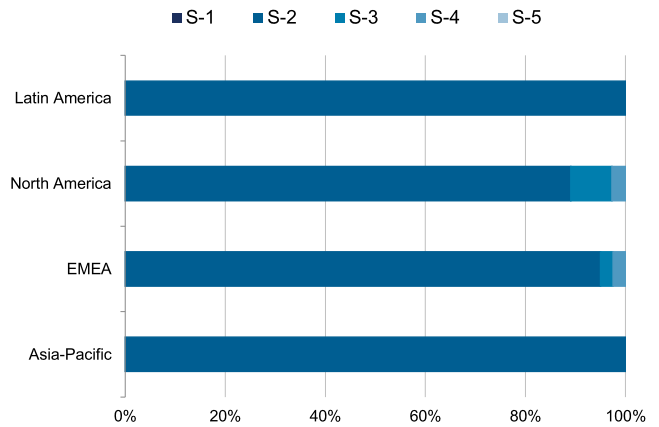
Key Social Factors Distribution



*Estimate as of publishing date. Source: S&P Global Ratings.
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Chart 4

Social Credit Indicators--Breakdown By Region



Source: S&P Global Ratings.
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Social factors are generally a neutral consideration for our credit analysis of telecom companies.

Social capital (4% of issuers affected)

The most broadly relevant social risks for telecom companies are privacy and data security. Any incidents related to privacy, data security, and systems stability could be highly visible given the sector's extensive reach. Incidents here can cause significant reputational damage among consumer and business customers. This may weaken a company's competitive position, hurting revenue and profitability. It could also be followed by increased regulatory scrutiny or legal challenges. This in turn could lead to a more restrictive business environment and additional operational costs to comply. However, we have not observed many incidents that have resulted in materially negative credit assessments to date.

In assessing social capital, we consider public confidence in operators' engagement with their customer communities, and in corporate citizenship. Given the sector's large and diverse customer base, sensitivity and careful stewardship of these relationships are low, but important social risks to brand value and customer satisfaction that are distinct from typical quality and service issues. This can be particularly acute if a telecom company is perceived to be imbalanced in their approach to profit versus the increasingly utility-like connectivity needs of underserved populations. Cases such as those of GlobalTel*Link and Aventiv, whose telecom services to penal populations have come under pressure from social-led reforms that have affected their customer base, are noteworthy.

A continuing topic of debate in recent years has been the social effect of excessive use of social media, particularly among younger users. As the effect of misinformation in the media becomes clearer, pressure to reduce or change usage patterns could increase. We see only a slim probability that this would depress demand for telecom services materially.

Human capital (2% of issuers affected)

Another important social risk factor is human capital management, given that telecom companies typically have large workforces that are significantly unionized. However, the credit impact of a work stoppage on individual telecom companies is not as material as in other sectors, such as heavy manufacturing. The industry's technicians face safety management risks, as do the personnel that build and maintain the telecom infrastructure, including towers and data centers.

Table 3

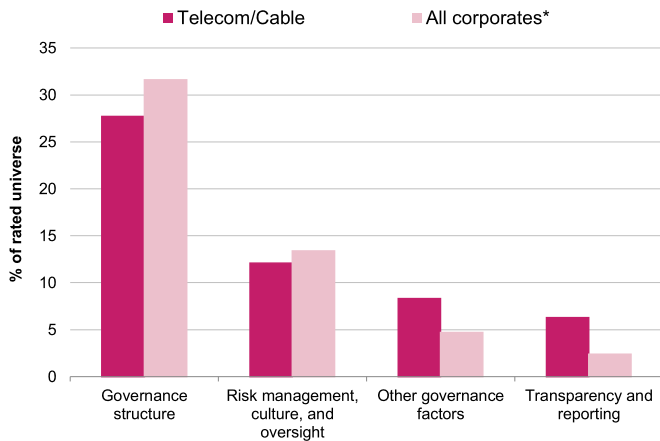
Factors Driving Social Credit Indicators For The Telecom Sector

Positive drivers	Negative drivers
Low exposure to social concerns overall	Privacy and data security exposure
Reputational benefits from provision of robust and universal connectivity	Risk in maintaining customer trust
	Management of large and often unionized workforces

Governance Credit Factors

Chart 5

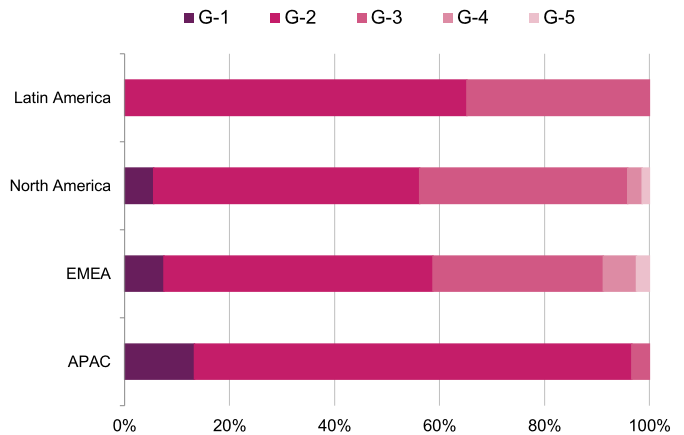
Key Governance Factors Distribution



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Chart 6

Governance Credit Indicators--Breakdown By Region



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Governance factors are generally a neutral consideration for our credit analysis of telecom companies, but have a greater negative influence for the industry than other factors. We assess governance factors and assign indicators for each company relative to our management and governance assessments of them.

Governance structure (28% of issuers affected)

This ESG factor is the one most relevant for the industry. This is mainly because of issuers owned

by private-equity firms and, to a lesser extent, majority owned by small groups or individuals. We believe this to generally be a moderately negative consideration in our credit analysis of these companies. This is because such companies often have highly leveraged or aggressive financial risk profiles, pointing to corporate decision-making that prioritizes the interests of the controlling owners, given the focus on maximizing shareholder returns, and in the case of private equity, their often finite holding periods.

While small group or individual-owned companies can similarly reduce a board's effectiveness, we consider these situations and any given company's track record of addressing broader stakeholder interests on a case-by-case basis. In some instances, such owners can pursue longer-term growth objectives by prioritizing corporate culture and long-term investments rather than short-term shareholder remuneration. In the same vein, we would look to understand if such companies have taken steps to manage their key-person and succession risk.

Risk management, culture, and oversight (12% of issuers affected)

Some telecom companies have strategic and business plans that prove aggressive relative to their capabilities. This is often because of weaker capacity to identify and mitigate the risks they face. In the highly contested telecom sector, this most frequently occurs when management misjudges a company's capability to roll out new growth strategies or transformation plans amid fierce competition. It can result in missed targets and forecast revisions.

On the other hand, we favorably view those companies with a record of success in executing business plans. Such companies typically have deep and experienced management teams that display effective strategic planning processes, decision-making, and the oversight to stay ahead of sector trends and competitors.

Other governance factors (8% of issuers affected)

Some governance-related factors are jurisdiction-specific and can lead to regulatory and litigation exposure in markets with higher country risk. One example of this is regulatory or operating frameworks such as those used to run spectrum auctions or regulate subscriber identity module card registration. These may be less developed and more unpredictable, resulting in unexpected outcomes or delayed decisions.

In some countries, governments view telecom operators as providing a service, and thus more like a public utility. Operators may be subject to service obligations that affect capital expenditure and return on capital. For example, they may be obliged to build networks in rural areas.

In a few instances, government regulation can directly affect operations. One example of this is restrictions on the use of voice over internet protocol (VoIP) services, which can have clear implications for data usage and, ultimately, revenue potential.

Table 4

Factors Driving Governance Credit Indicators For The Technology Sector

Positive drivers	Negative drivers
Effective management as seen in strong operating records that demonstrate the ability to stay ahead of sector trends and competitors	Ownership by financial sponsors, small groups, or individuals that could lead to equity-focused outcomes, at the expense of other stakeholders
Effective board oversight	Strategic goals not aligned with management ability
Ability to attract and retain talent	Exposure to jurisdictions with elevated regulatory and legal risk

ESG Credit Indicators By Issuer

Table 5

ESG Credit Indicators By Issuer For North America

Issuer	Credit indicator			ESG credit factors
	E	S	G	
Altice USA Inc.	E-2	S-2	G-3	Governance structure
American Tower Corp.	E-3	S-2	G-2	Climate transition risks
AP TeleGuam Holdings Inc.	E-3	S-2	G-2	Physical risks; climate transition risks
AT&T Inc.	E-2	S-2	G-2	N/A
Aventiv Technologies LLC	E-2	S-4	G-3	Social capital; other social factors; governance structure
BCE Inc.	E-2	S-2	G-1	Risk management, culture, and oversight
Block Communications Inc.	E-2	S-3	G-3	Human capital; social capital; governance structure
Cable One Inc.	E-2	S-2	G-2	N/A
Cablevision Lightpath LLC	E-2	S-2	G-2	N/A
CCI Buyer Inc.	E-2	S-2	G-3	Governance structure
Cequele Data Centers L.P.	E-3	S-2	G-3	Climate transition risks; governance structure
Charter Communications Inc.	E-2	S-2	G-2	N/A
Cincinnati Bell Inc.	E-2	S-2	G-2	N/A
Cogeco Communications (USA) Inc.	E-2	S-2	G-2	N/A
Cogeco Communications Inc.	E-2	S-2	G-2	N/A
Cogent Communications Group Inc.	E-2	S-2	G-2	N/A
Cologix Holdings Inc.	E-3	S-2	G-3	Climate transition risks; governance structure
Comcast Corp.	E-2	S-2	G-1	Risk management, culture, and oversight
Consolidated Communications Holdings Inc.	E-2	S-2	G-2	N/A
Conterra Ultra Broadband Holdings Inc.	E-2	S-2	G-2	N/A
Cox Enterprises Inc.	E-2	S-2	G-2	N/A
Crown Castle International Corp.	E-2	S-2	G-3	Transparency and reporting
Cyxtera DC Holdings Inc.	E-3	S-2	G-3	Climate transition risks; governance structure
Dawn Acquisitions LLC	E-3	S-2	G-2	Climate transition risks
Digi International Inc.	E-2	S-2	G-2	N/A
DirecTV Entertainment Holdings LLC	E-2	S-2	G-2	N/A
Dish DBS Corp.	E-2	S-2	G-4	Governance structure; risk management, culture, and oversight
Dish Network Corp.	E-2	S-2	G-3	Transparency and reporting; risk management, culture, and oversight
Equinix Inc.	E-2	S-2	G-2	N/A
Firstlight Holdco Inc.	E-2	S-2	G-2	N/A
Flexential Intermediate Corp.	E-3	S-2	G-3	Climate transition risks; governance structure
Frontier Communications Holdings LLC	E-2	S-3	G-2	Social capital
Fusion Connect Inc.	E-2	S-3	G-3	Social capital; human capital; risk management, culture and oversight

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Table 5

ESG Credit Indicators By Issuer For North America (cont.)

Issuer	Credit indicator			ESG credit factors
	E	S	G	
GCI LLC	E-2	S-2	G-2	N/A
GEE Acquisition Holdings Corp.	E-2	S-3	G-5	Risk management, culture, and oversight; transparency and reporting; health and safety
Global Tel*Link Corp.	E-2	S-4	G-3	Social capital; other social factors; governance structure
Gogo Inc.	E-2	S-2	G-3	Governance structure
Gridiron Fiber Corp.	E-2	S-2	G-2	N/A
Hughes Satellite Systems Corp.	E-2	S-2	G-3	Transparency and reporting; risk management, culture, and oversight
Iridium Communications Inc.	E-2	S-2	G-2	N/A
Liberty Communications of Puerto Rico LLC	E-3	S-2	G-2	Physical risks
Logix Intermediate Holding Corp.	E-2	S-2	G-3	Governance structure
Lumen Technologies Inc.	E-2	S-2	G-2	N/A
Mavenir Private Holdings II Ltd.	E-2	S-2	G-3	Governance structure
Mediacom Communications Corp.	E-2	S-2	G-2	N/A
Mega Broadband Investments Intermediate LLC	E-2	S-2	G-3	Governance structure
MetroNet Holdings LLC	E-2	S-2	G-3	Governance structure
Midcontinent Communications	E-2	S-2	G-2	N/A
Northwest Fiber LLC	E-2	S-2	G-3	Governance structure
Onvoy LLC	E-2	S-2	G-3	Governance structure
ORBCOMM Inc.	E-2	S-2	G-2	N/A
Quebecor Media Inc.	E-2	S-2	G-2	N/A
Radiate Holdco LLC	E-2	S-2	G-3	Governance structure
Rogers Communications Inc.	E-2	S-2	G-3	Governance structure
SBA Communications Corp.	E-2	S-2	G-2	N/A
Shaw Communications Inc.	E-2	S-2	G-2	N/A
Switch Ltd.	E-1	S-2	G-2	Climate transition risks; waste and pollution
Syniverse Holdings Inc.	E-2	S-3	G-3	Health and safety; governance structure
Telephone and Data Systems Inc.	E-2	S-2	G-2	N/A
Telesat Canada	E-2	S-2	G-3	Governance structure
Telus Corp.	E-2	S-2	G-1	Risk management, culture, and oversight
T-Mobile US Inc.	E-2	S-2	G-2	Risk management, culture, and oversight
U.S. TelePacific Holdings Corp.	E-2	S-2	G-3	Governance structure
Uniti Group Inc.	E-2	S-2	G-2	N/A
Verizon Communications Inc.	E-2	S-2	G-1	Risk management, culture, and oversight
Viasat Inc.	E-2	S-2	G-2	N/A
WideOpenWest Finance LLC	E-2	S-2	G-2	N/A
Windstream Holdings Inc.	E-2	S-2	G-3	Risk management, culture, and oversight

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Table 5

ESG Credit Indicators By Issuer For North America (cont.)

Issuer	Credit indicator			ESG credit factors
	E	S	G	
Xplornet Communications Inc.	E-2	S-2	G-3	Governance structure
Zayo Group Holdings Inc.	E-2	S-2	G-3	Governance structure

N/A--Not applicable.

Table 6

ESG Credit Indicators By Issuer For Latin America

Issuer	Credit indicator			ESG credit factors
	E	S	G	
Algar Telecom S.A.	E-2	S-2	G-2	N/A
America Movil S.A.B. de C.V.	E-2	S-2	G-2	N/A
America Net S.A.	E-2	S-2	G-3	Governance structure; other governance factors
ATP Tower Holdings LLC	E-2	S-2	G-2	N/A
Axtel S.A.B. de C.V.	E-2	S-2	G-2	N/A
Brisanet Participacoes Ltda.	E-2	S-2	G-3	Governance structure; risk management, culture, and oversight
Cable & Wireless Communications Ltd.	E-3	S-2	G-2	Physical risks
Colombia Telecomunicaciones S.A. E.S.P	E-2	S-2	G-2	N/A
Empresa Nacional de Telecomunicaciones S.A. (ENTEL)	E-2	S-2	G-2	N/A
Grupo Televisa S.A.B.	E-2	S-2	G-2	N/A
Oi S.A.	E-2	S-2	G-3	Risk management, culture, and oversight
Operadora de Sites Mexicanos S.A. de C.V.	E-2	S-2	G-2	N/A
Telecom Argentina S.A.	E-2	S-2	G-3	Other governance factors
Telecommunications Services of Trinidad and Tobago Ltd.	E-2	S-2	G-3	Governance structure
Telefonica Brasil S.A.	E-2	S-2	G-2	N/A
Telefonica Chile S.A.	E-2	S-2	G-2	N/A
Telefonica Moviles Chile S.A.	E-2	S-2	G-2	N/A
Trilogy International Partners LLC	E-2	S-2	G-3	Risk management, culture, and oversight; other governance factors
Triple Play Brasil Participacoes S.A.	E-2	S-2	G-3	Governance structure
VTR Finance B.V.	E-2	S-2	G-2	N/A
Wom S.A.	E-2	S-2	G-3	Governance structure

N/A--Not applicable.

Table 7

ESG Credit Indicators By Issuer For Europe, The Middle East, And Africa

Issuer	Credit indicator			ESG credit factors
	E	S	G	
Altice France S.A.	E-2	S-4	G-5	Human capital; other social factors; governance structure; transparency and reporting; other governance factors
Altice International S.a.r.l.	E-2	S-4	G-5	Human capital; other social factors; governance structure; transparency and reporting; other governance factors
Bahrain Telecommunications Co.	E-2	S-2	G-3	Other governance factors
Bouygues S.A.	E-2	S-2	G-2	N/A
BT Group PLC	E-2	S-2	G-2	N/A
Cellnex Telecom S.A.	E-2	S-2	G-2	N/A
Circet Holding SAS	E-2	S-2	G-2	Governance structure
Connect Bidco Ltd.	E-2	S-3	G-3	Health and safety; governance structure
Crystal Almond Intermediary Holdings Ltd.	E-2	S-2	G-3	Governance structure
Cyfrowy Polsat S.A.	E-2	S-2	G-2	N/A
Deutsche Telekom AG	E-2	S-2	G-1	Risk management, culture, and oversight
DIGI Communications N.V.	E-2	S-2	G-3	Governance structure
DKT Holdings ApS	E-2	S-2	G-2	N/A
eircom Holdings (Ireland) Ltd.	E-2	S-2	G-2	N/A
Elisa Oyj	E-2	S-2	G-2	N/A
Emirates Telecommunications Group Co. PJSC	E-2	S-2	G-2	N/A
ER-Telecom Holding JSC	E-2	S-2	G-4	Other governance factors; governance structure; transparency and reporting
Eutelsat Communications S.A.	E-2	S-2	G-1	Risk management, culture, and oversight
Helios Towers PLC	E-3	S-2	G-3	Climate transition risks; governance structure
Hellenic Telecommunications Organization S.A.	E-2	S-2	G-2	N/A
IHS Holding Ltd.	E-3	S-2	G-3	Climate transition risks; governance structure
Iliad Holding SAS	E-2	S-2	G-3	Governance structure
Infrastrutture Wireless Italiane S.p.A.	E-2	S-2	G-2	N/A
Kazakhtelecom JSC	E-2	S-2	G-3	Other governance factors
Koninklijke KPN N.V.	E-2	S-2	G-2	N/A
Liberty Global PLC	E-2	S-2	G-2	N/A
Lorca Telecom Bidco S.A.U.	E-2	S-2	G-3	Governance structure
Matterhorn Telecom Holding S.A.	E-2	S-2	G-2	Governance structure
MegaFon PJSC	E-2	S-2	G-3	Other governance factors
Melita BidCo Ltd	E-2	S-2	G-3	Governance structure
Mobile TeleSystems PJSC	E-2	S-2	G-3	Other governance factors
MTN Group Ltd.	E-3	S-2	G-4	Governance structure; climate transition risks
NOS, SGPS, S.A.	E-2	S-2	G-2	N/A

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Table 7

ESG Credit Indicators By Issuer For Europe, The Middle East, And Africa (cont.)

Issuer	Credit indicator			ESG credit factors
	E	S	G	
Ooredoo Q.P.S.C.	E-2	S-2	G-2	N/A
Orange S.A.	E-2	S-2	G-1	Risk management, culture, and oversight
PLT VII Finance S.a r.l.	E-2	S-2	G-3	Governance structure
PPF Telecom Group B.V.	E-2	S-2	G-2	N/A
PrJSC VF Ukraine	E-2	S-2	G-4	Other governance factors; governance structure; transparency and reporting
Proximus S.A.	E-2	S-2	G-1	Risk management, culture, and oversight
Rostelecom PJSC	E-2	S-2	G-3	Other governance factors
Saudi Telecom Co.	E-2	S-2	G-2	N/A
SES S.A.	E-2	S-2	G-1	Risk management, culture, and oversight
Swisscom AG	E-2	S-2	G-1	Risk management, culture, and oversight
TalkTalk Telecom Group PLC	E-2	S-2	G-2	N/A
Tele 2 AB	E-2	S-2	G-2	N/A
Tele Columbus AG	E-2	S-2	G-2	N/A
Telecom Italia SpA	E-2	S-3	G-2	Social capital; other social factors
Telefonica S.A.	E-2	S-2	G-2	N/A
Telekom Austria AG	E-2	S-2	G-2	N/A
Telenet Group Holding N.V.	E-2	S-2	G-2	N/A
Telenor ASA	E-2	S-2	G-2	N/A
Telia Co. AB	E-2	S-2	G-2	N/A
Telkom SA SOC Ltd.	E-2	S-2	G-2	N/A
TransTeleCom Co. JSC	E-2	S-2	G-4	Other governance factors; governance structure; transparency and reporting
Turk Telekom	E-2	S-2	G-3	Other governance factors
Turkcell Iletisim Hizmetleri A.S.	E-2	S-2	G-3	Other governance factors
United Group B.V.	E-2	S-2	G-3	Governance structure; risk management, culture, and oversight
UPC Holding B.V.	E-2	S-2	G-2	N/A
Vantage Towers AG	E-2	S-2	G-2	N/A
Venga Holdings S.a.r.l.	E-2	S-2	G-3	Governance structure
VEON Ltd.	E-2	S-2	G-3	Other governance factors
VM Ireland Ltd.	E-2	S-2	G-2	N/A
VMED O2 UK Ltd.	E-2	S-2	G-2	N/A
Vodafone Group PLC	E-2	S-2	G-2	N/A
VodafoneZiggo Group B.V.	E-2	S-2	G-2	N/A
WP/AP Telecom Holdings III B.V.	E-2	S-2	G-3	Governance structure
Zacapa S.a.r.l.	E-2	S-2	G-3	Governance structure
Zoncolan Bidco S.p.A.	E-2	S-2	G-3	Governance structure

N/A--Not applicable.

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Table 8

ESG Credit Indicators By Issuer For Asia-Pacific

Issuer	Credit indicator			ESG credit factors
	E	S	G	
21Vianet Group Inc.	E-3	S-2	G-2	Physical risk; Climate transition risks
Advanced Info Service Public Co. Ltd.	E-2	S-2	G-2	N/A
Axiata Group Bhd.	E-2	S-2	G-2	N/A
Bharti Airtel Ltd.	E-2	S-2	G-2	N/A
CAS Holding No.1 Ltd.	E-2	S-2	G-2	N/A
China Mobile Ltd.	E-2	S-2	G-1	Risk management, culture, and oversight
Chorus Ltd.	E-2	S-2	G-2	N/A
Chunghwa Telecom Co. Ltd.	E-2	S-2	G-1	Risk management, culture, and oversight
CK Hutchison Group Telecom Holdings Ltd.	E-2	S-2	G-2	N/A
CK Hutchison Holdings Ltd.	E-2	S-2	G-1	Risk management, culture, and oversight
Far EasTone Telecommunications Co. Ltd.	E-2	S-2	G-2	N/A
Hong Kong Telecommunications (HKT) Ltd.	E-2	S-2	G-2	N/A
KT Corp.	E-2	S-2	G-2	N/A
Nippon Telegraph & Telephone Corp.	E-2	S-2	G-1	Risk management, culture, and oversight
PLDT Inc.	E-2	S-2	G-2	Physical risks
PT Profesional Telekomunikasi Indonesia	E-2	S-2	G-2	N/A
Singapore Telecommunications Ltd. (Singtel)	E-2	S-2	G-2	N/A
Singtel Optus Pty Ltd.	E-2	S-2	G-2	N/A
SK Broadband Co. Ltd.	E-2	S-2	G-2	N/A
SK Telecom Co. Ltd.	E-2	S-2	G-2	N/A
Spark New Zealand Ltd.	E-2	S-2	G-2	N/A
Summit Digital Infrastructure Pvt Ltd.	E-2	S-2	G-3	Governance structure
Taiwan Optical Platform Co. Ltd.	E-2	S-2	G-2	N/A
Telekom Malaysia Bhd.	E-2	S-2	G-2	N/A
Telstra Corp. Ltd.	E-2	S-2	G-2	N/A
Voyage Australia Pty Ltd.	E-2	S-2	G-2	N/A

N/A--Not applicable

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