

Ein besseres Rating durch hochwertige ESG - Faktoren

Tobias Mock, CFA
Managing Director

16. Januar 2020



Agenda

Chancen und Risiken für Unternehmen aufgrund von ESG Faktoren

- 1 Das Umfeld und die Gesetzeslage im Bereich E (SG)**
- 2 Wie werden ESG Faktoren in Kreditratings berücksichtigt?**
- 3 S&P Ratings ESG Evaluation – Die Bedeutung von Sektoren und Ländern**

Das Umfeld und die Gesetzeslage im Bereich E (SG)

Kyoto, Paris (COP21) und deren Auswirkungen

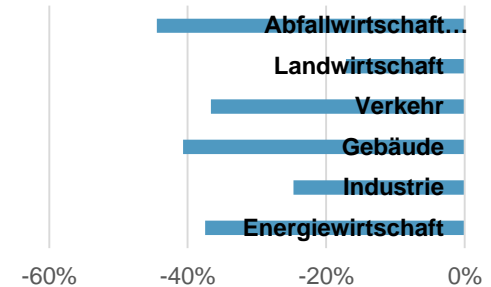
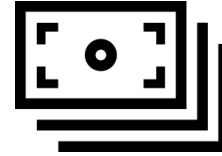


COP 25 in Madrid brachte keine wesentlichen Neuerungen

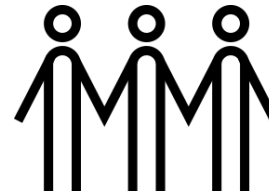
Was beinhaltet das deutsche Klimaschutzgesetz?



CO2 Bepreisung für Wärme und Verkehr: 25 EUR pro Tonne ab 2021 steigend auf 55 EUR in 2025



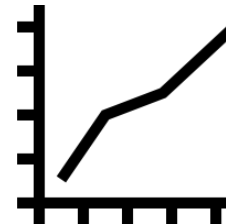
Senkung der Steuern auf Bahntickets, Herabsetzung der EEG Umlage führt zu geringeren Stromkosten



Bürgerinnen und Bürger zu klimafreundlichem Handeln ermuntern

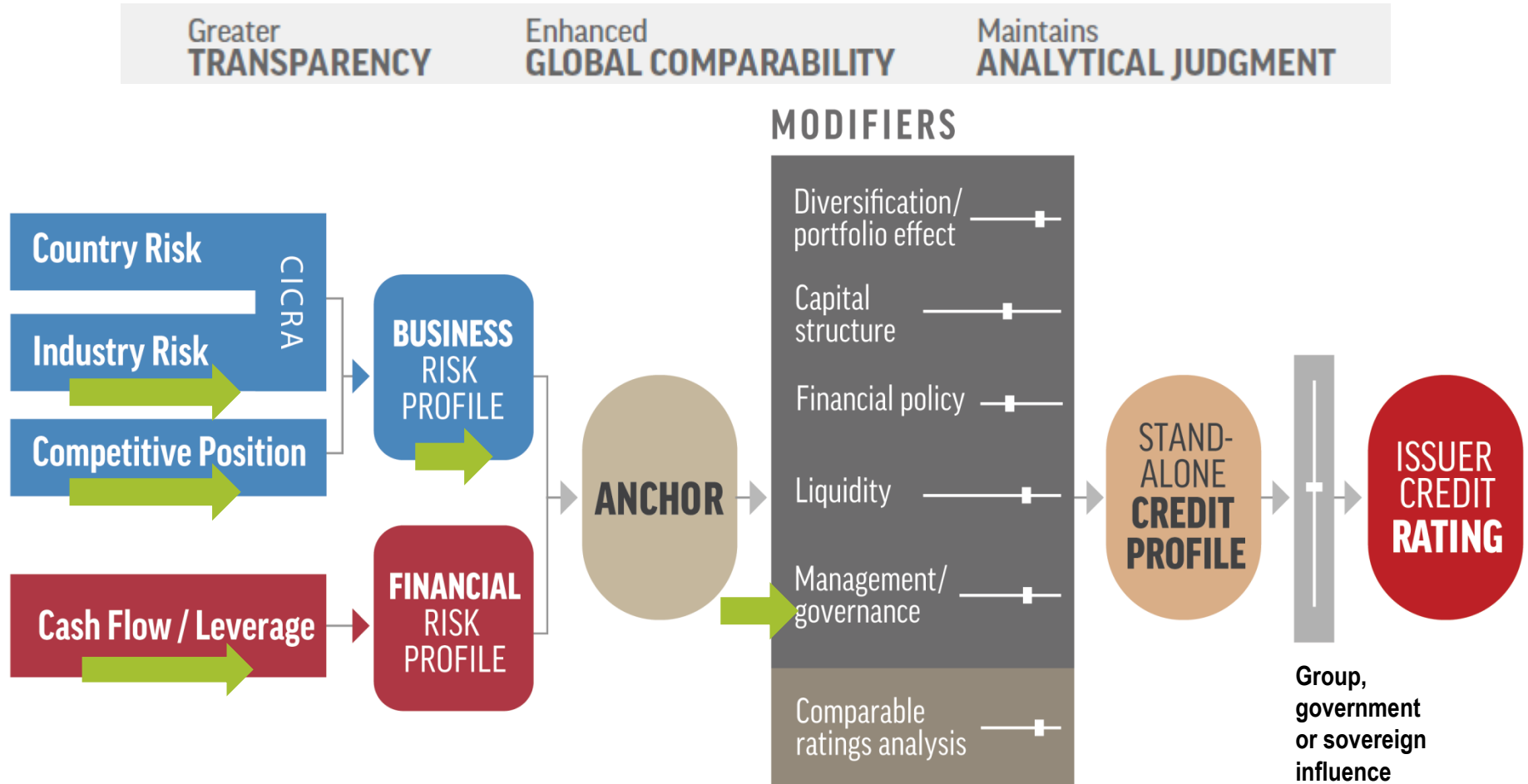


Bis 2030 jährliche Überwachung durch Ministerien und aktives Nachsteuern mit Gesetzen



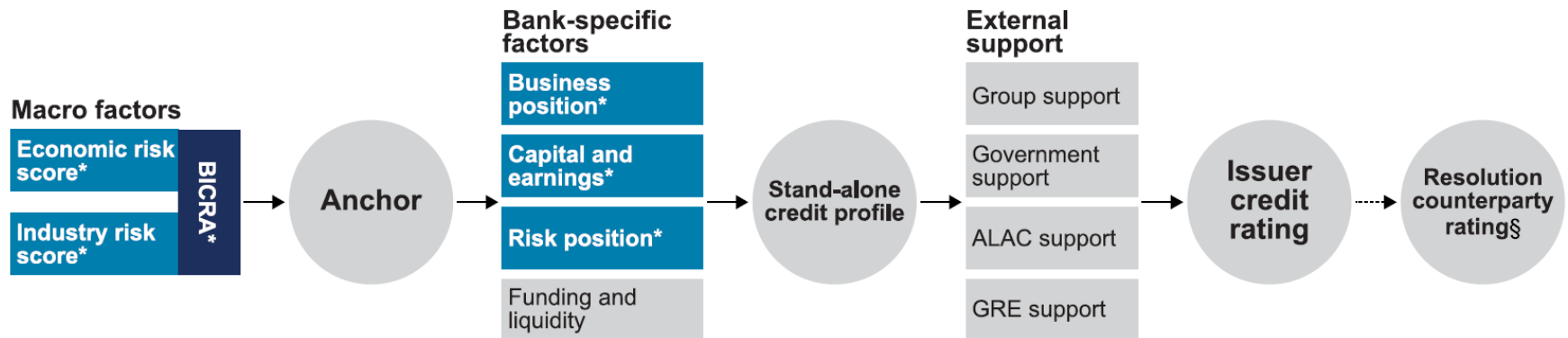
Der Anteil erneuerbarer Energien soll auf 65% bis 2030 von aktuell 38% steigen

Wie werden ESG Faktoren im Rating für Unternehmen berücksichtigt?



Die Berücksichtigung von ESG Risiken in unserer **Bankenratings**-Methodologie

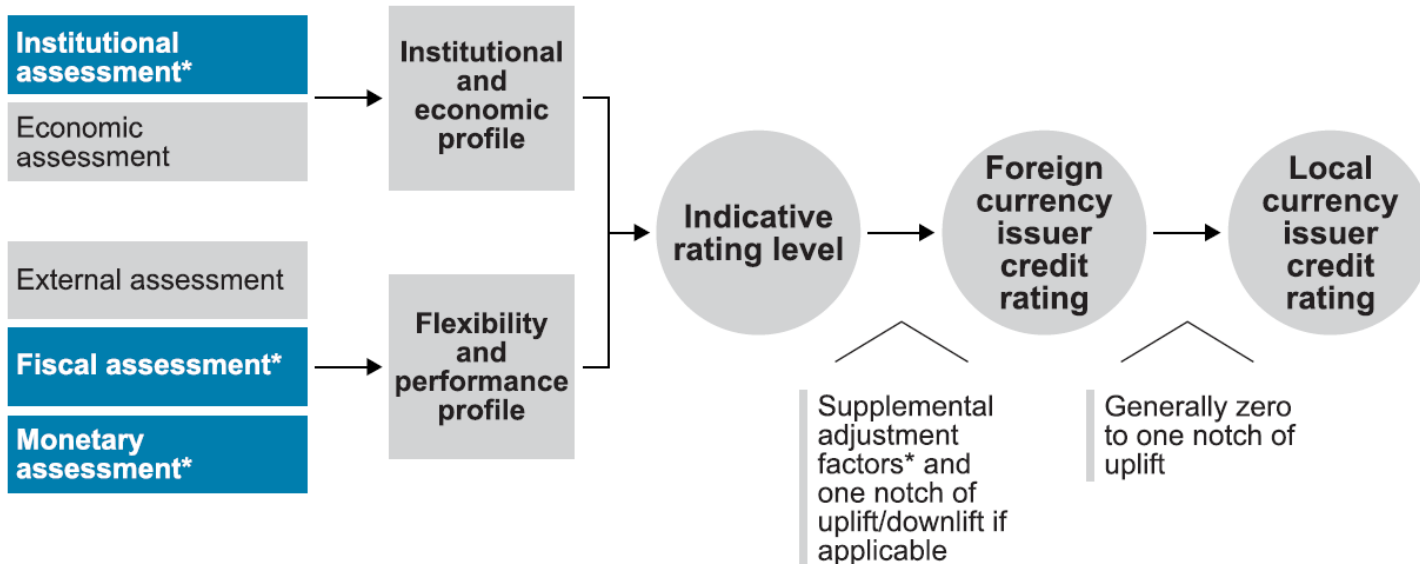
Bank Criteria Framework



*Categories most likely to include consideration of environmental, social and governance credit factors. §Subject to jurisdictional assessment and expected resolution strategy. BICRA--Banking industry and country risk assessment. ALAC--Additional loss-absorbing capacity. GRE--Government-related entity. Copyright © 2019 by Standard & Poor's Financial Services LLC. All rights reserved.

Die Berücksichtigung von ESG Risiken in unserer Länderratings-Methodologie

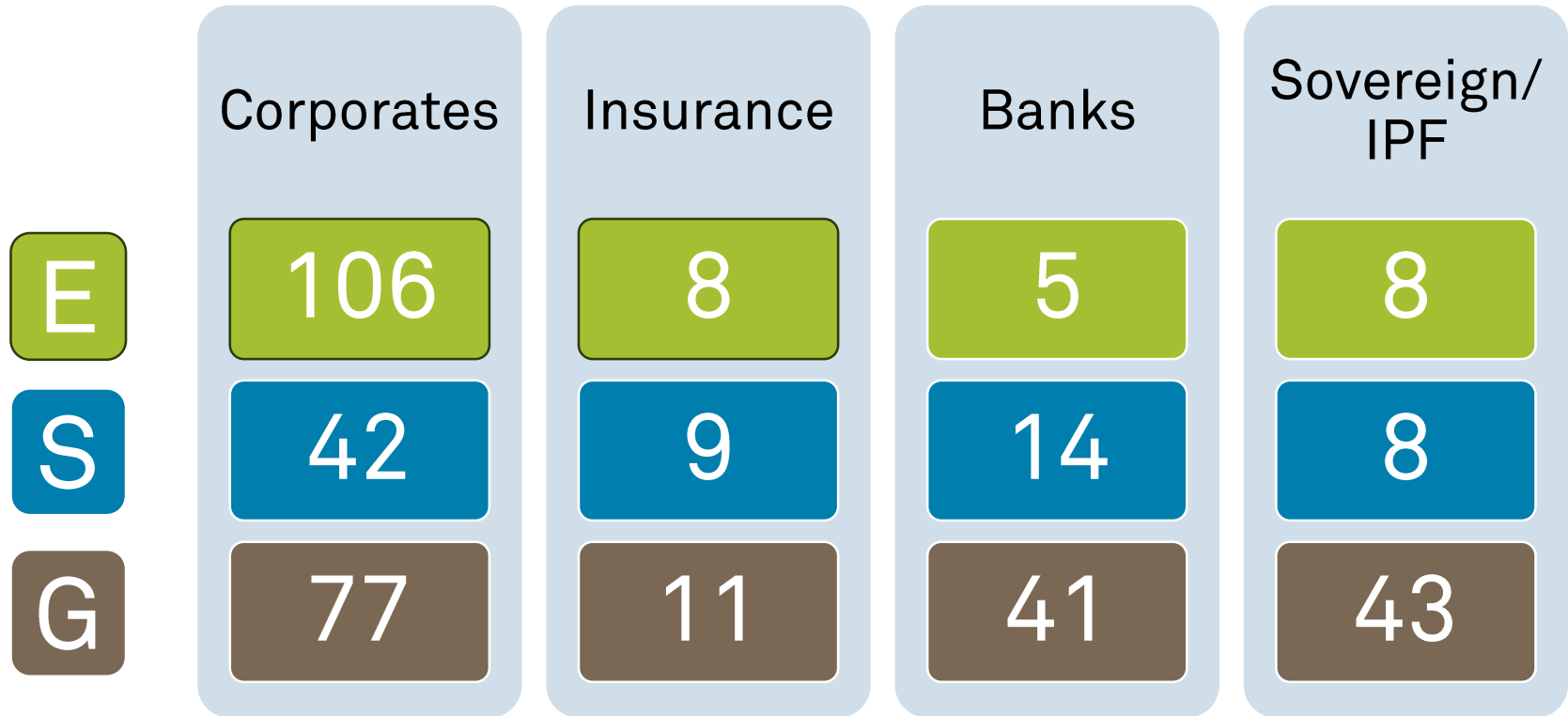
Sovereign Criteria Framework



*Categories most likely to include consideration of environmental, social and governance credit factors.
Copyright © 2019 by Standard & Poor's Financial Services LLC. All rights reserved.

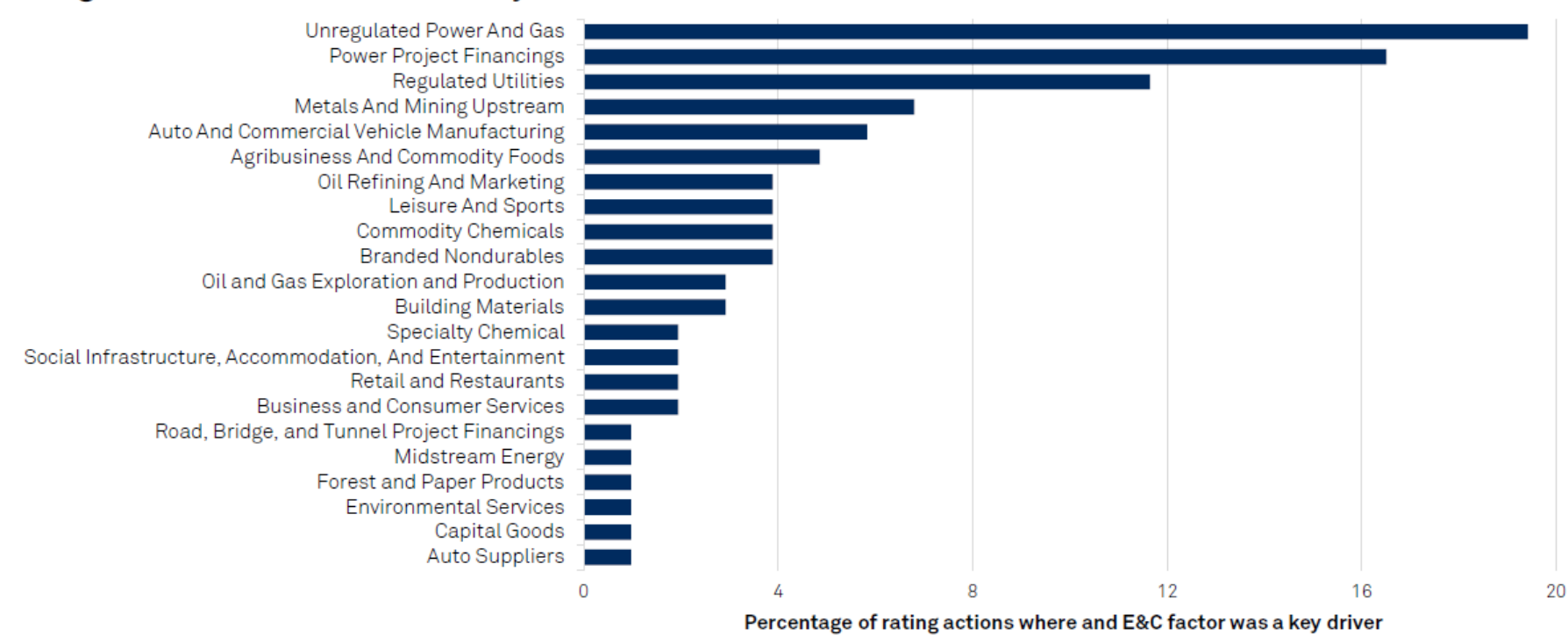
Der Einfluss von ESG Faktoren auf Kreditratings

Anzahl der Ausblick- und Ratingveränderungen



Sektoren mit den größten Veränderungen aufgrund von Umwelt- (E) und Klimarisiken (C)

Rating Actions Related To E&C Risk By Referenced KCF



Source: S&P Global Ratings.

Fallbeispiele: Volkswagen und Deutsche Bahn

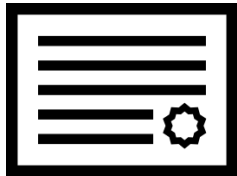
Wie ESG Faktoren die Ratings verändern

Volkswagen



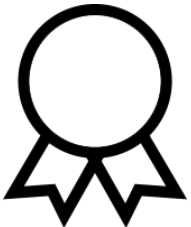
A to A- 


Die Schwächen in der Unternehmensführung resultierte in einer niedrigeren Bewertung des Managements und der Unternehmensleitung (G) und somit zu einer Herabstufung um ein Notch im Oktober 2015



A- to BBB+ 

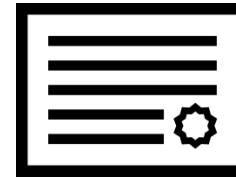
Die Manipulationen und Verfälschungen der Emissionswerte hat die Wettbewerbsposition des Unternehmens geschwächt. Deshalb haben wir unsere Bewertung des Geschäftsrisikoprofils von 'strong' auf 'satisfactory' herabgestuft.



BBB+ 

Die Finanzsituation hat sich verbessert und das Rating könnte sogar höher als BBB+ eingestuft werden, bleibt aber aufgrund der aktuell schwächeren Bewertung der Unternehmensführung unverändert.

Deutsche Bahn



AA- to AA 

Das deutsche Klimaschutzgesetz unterstützt das Geschäftsmodell der Deutschen Bahn finanziell - als eines der wichtigsten umweltfreundlichen Transportmittel - mit 11 Mrd. EUR frischem Eigenkapital und einer niedrigeren Besteuerung der Zugtickets

ESG Industry Report Cards – Beispiele

<https://www.spglobal.com/ratings/en/products-benefits/products/esg-in-credit-ratings>

S&P Global
Ratings

RatingsDirect®

S&P Global
Ratings

RatingsDirect®

ESG Industry Report Card: Regulated Utilities Networks

May 13, 2019

(Editor's Note: Our ESG Industry Report Cards include an analysis of ESG factors for a selection of companies. We intend to expand our ESG Industry Report cards to include more companies throughout the year.)

Key Takeaways

- Network environmental risks are generally limited, reflecting the sector's pure infrastructure status.
- Destructive climate change-induced events could raise credit risk for companies, especially in areas where the regulatory construct is insufficient.
- The sector's exposure to social risks is significant because of the importance of regulated networks to local communities and the scrutiny they face from regulators and governments.

PRIMARY CREDIT ANALYSTS

Pierre Georges

Paris
(33) 1-4420-5735
pierre.georges
@spglobal.com

Claire Mauduit-Le Clercq

Paris
+ 33 14 420 7201
claire.mauduit
@spglobal.com

Karl Nietvelt

Paris
(33) 1-4420-5751
karl.nietvelt
@spglobal.com

Gabe Grosberg

New York
(1) 212-438-6043
gabe.grosberg
@spglobal.com

Aneesh Prabhu, CFA, FRM

New York
(1) 212-438-1286
aneesh.prabhu
@spglobal.com

Julianna Yokota

Sao Paulo
+ 55 11 3039 9731
julianna.yokota
@spglobal.com

See complete contact list at end of article.

The ESG Risk Atlas

To calibrate the relative ranking of sectors, we use our environmental, social, and governance (ESG) Risk Atlas (see "The ESG Risk Atlas: Sector And Regional Rationales And Scores," published May 13, 2019). The Risk Atlas provides a relative ranking of industries in terms of exposure to environmental and social risks (and opportunities). The sector risk atlas charts (shown below) combine each sector's exposure to environmental and social risks, scoring it on a scale of 1 to 6. A score closer to 1 represents a relatively low exposure, while 6 indicates a high sectorwide exposure to environmental and social risk factors (for details see the Appendix). This report card expands further on the Risk Atlas sector analysis by focusing on the credit-specific impacts, which in turn forms the basis for analyzing the exposures and opportunities of individual companies in the sector.

Environmental Exposure (Risk Atlas: 2)

We view the environmental risks to electric utility networks as generally less important credit drivers because we assess the sector based on its infrastructure rather than emissions. However, recent and more frequent physical climate change events (e.g. wildfires, storms, hurricanes, and

ESG Industry Report Card: Autos And Auto Parts

May 13, 2019

(Editor's Note: Our ESG Industry Report Cards include an analysis of ESG factors for a selection of companies. We intend to expand our ESG Industry Report cards to include more companies throughout the year.)

Key Takeaways

- The automotive industry has relatively high exposure to environmental risk, while social risks could become more relevant over the longer term due to changing consumer habits.
- Environmental regulation is leading the global auto industry toward carbon dioxide (CO2) neutral vehicle production.
- Sizeable investments in technologies and new products are already putting operating margins and free cash flow under pressure.
- Consumer acceptance of electric vehicles will be key to manufacturers achieving CO2 targets and will be dependent on incentives by governments, improvement in vehicle performance (range in particular), and infrastructure availability.
- Sizeable litigation-linked fines related to unlawful cartel agreements or software manipulation (such as "dieselgate") could further burden companies' cash flow and reduce headroom under the ratings for many issuers.

PRIMARY CREDIT ANALYSTS

Vittoria Ferraris

Milan
(39) 02-72111-207
vittoria.ferraris
@spglobal.com

Nishit K Madani

New York
(1) 212-438-4070
nishit.madani
@spglobal.com

Eve Seiltgens

Frankfurt
(49) 69-33-999-124
eve.seiltgens
@spglobal.com

SECONDARY CONTACTS

Anna Stegert

Frankfurt
(49) 69-33-999-128
anna.stegert
@spglobal.com

Margaux Pery

Paris
(33) 1-4420-7335
margaux.pery
@spglobal.com

Machiko Amano

Tokyo
(81) 3-4550-8659
machiko.amano
@spglobal.com

See complete contact list at end of article.

The ESG Risk Atlas

To calibrate the relative ranking of sectors, we use our environmental, social, and governance (ESG) Risk Atlas (see "The ESG Risk Atlas: Sector And Regional Rationales And Scores," published May 13, 2019). The Risk Atlas provides a relative ranking of industries in terms of exposure to environmental and social risks (and opportunities). The sector risk atlas charts (shown below) combine each sector's exposure to environmental and social risks, scoring it on a scale of 1 to 6. A score closer to 1 represents a relatively low exposure, while 6 indicates a high sectorwide exposure to environmental and social risk factors (for details see the Appendix). This report card expands further on the Risk Atlas sector analysis by focusing on the credit-specific impacts, which in turn forms the basis for analyzing the exposures and opportunities of individual companies in the sector.

www.spglobal.com/ratingsdirect

May 13, 2019 1

www.spglobal.com/ratingsdirect

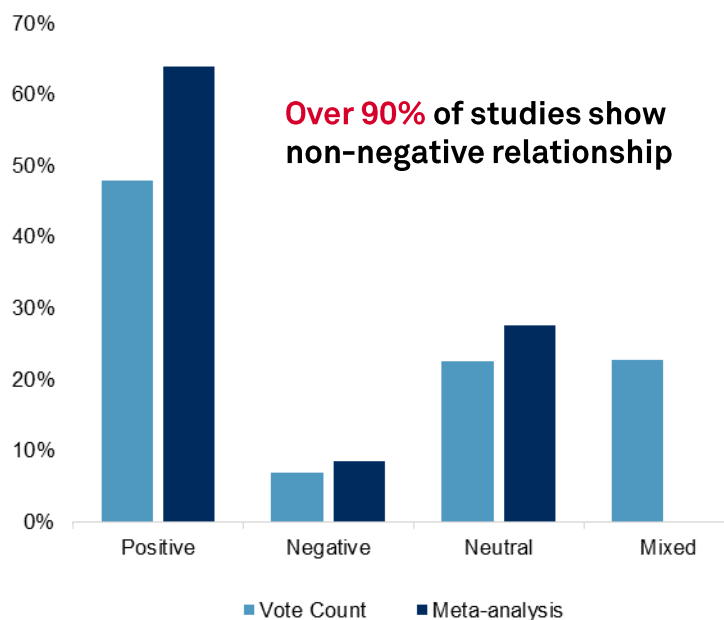
May 13, 2019 1

S&P Global
Ratings

Klare Vorteile eines guten ESG Profils

Link Between ESG & Corporate Financial Performance

Aggregated evidence from more than 2000 primary studies



Source: Friede, Busch, Bassen, ESG and financial performance: aggregated evidence from more than 2000 empirical studies, 15 Dec 2015; UN Principles for Responsible Investment ESG Regulation Database

S&P Global investiert aktiv in ESG Expertise

- Akquisition von Trucost im Oktober 2016: Daten zu Kohlendioxidemissionen in Zeitreihen von 10 Jahren erfassen 93% der Marktkapitalisierung weltweit.
- Alle Analysten werden weitergebildet und erhalten seit Jahren Schulungen, um ESG Faktoren in der Analyse möglichst vollständig zu berücksichtigen und die ESG Evaluierung zu erstellen.
- November 2019: S&P Global Ratings erwirbt ESG Ratings Business von Robeco SAM, das über 20 Jahre Erfahrung verfügt und Daten von ca. 5000 Unternehmen führt, die jährlich erhoben werden.
- ESG Indices: z.B. S&P 500 ESG

Trucost
ESG Analysis

S&P Global

S&P Global
Ratings



S&P Dow Jones
Indices

A Division of **S&P Global**

S&P Global
Ratings

ESG Evaluation

S&P's ESG Evaluation – Analytische Vorgehensweise

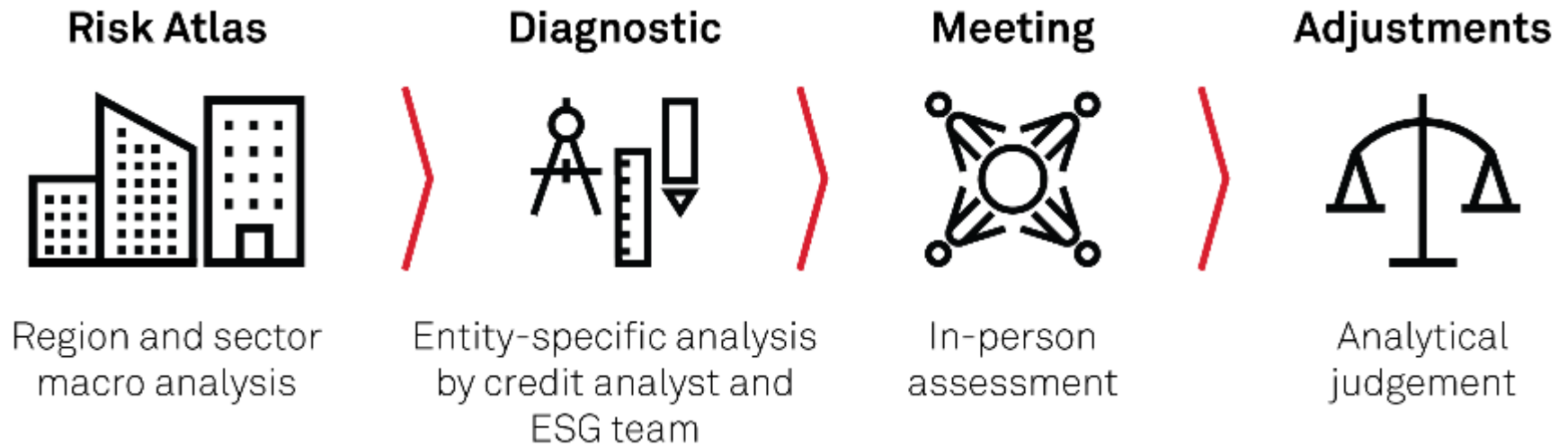
Der Fokus liegt auf den finanziellen Auswirkungen und dem Stakeholder Value



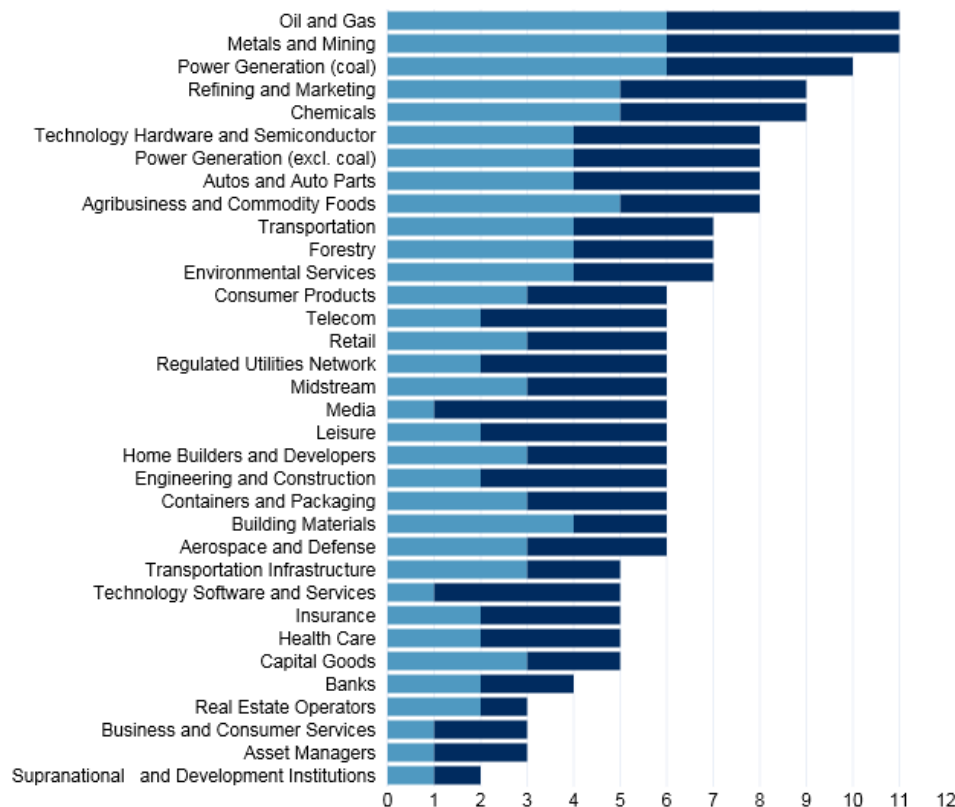
-
- Analysiert die Unternehmenssituation hinsichtlich der ESG Risiken und Chancen
 - Berücksichtigt die Führungsstruktur im Umgang mit den ESG Risiken, bzw. deren Minimierung und möglichen Nutzen

-
- Analysiert die Fähigkeit potentielle Risikofaktoren und Folgeszenarien erfolgreich zu steuern
 - Risikofaktoren gehen über den E und G Bereich hinaus

S&P's ESG Evaluation: Analytischer Prozess



Risk Atlas – Bedeutung von E+S für Sektoren



Umweltfaktoren
(E): Hellblau

Sozialfaktoren
(S): Dunkelblau



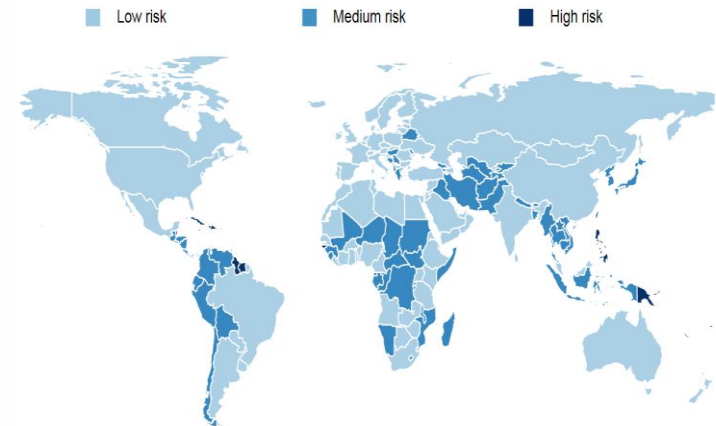
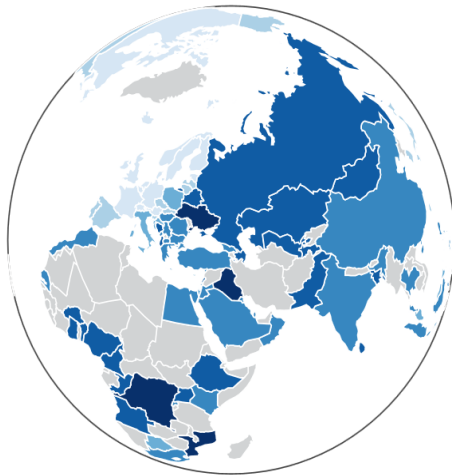
Risk Atlas – Geographischer Einfluss von ESG

Country Risk analysiert Corporate Governance Standards, Regulierung und mögliche Risiken für Naturkatastrophen in verschiedenen Ländern und Regionen

Invest

S&P Global

ESG Country Risk Atlas: Natural Disaster



<https://www.spglobal.com/en/research-insights/articles/navigating-the-esg-risk-atlas>

ESG Profile: Risk Atlas

ESG Profile: Entity-Specific
Analysis

Preparedness

Final Score

S&P Global
Ratings

Profile Score: 12 ESG Faktoren

Unternehmensspezifische Faktoren gegenüber Vergleichsunternehmen.
Analytische Anpassung von Faktoren, deren Gewichtung und Ergebnisse

30% Environmental



Greenhouse Gas Emissions



Waste & Pollution



Water Use



Land Use

30% Social



Workforce & Diversity



Safety Management



Customer Engagement



Communities

40% Governance



Structure & Oversight



Code & Values



Transparency & Reporting



Cyber-Risk & Systems

ESG Profile: Risk Atlas

ESG Profile: Entity-Specific
Analysis

Preparedness

Final Score

Vorausschauende Planung: Megatrends, Strategie und Umsetzung



Beispielanalyse TenneT: Überblick

S&P Global
Ratings

Environmental, Social, And Governance (ESG) Evaluation

TenneT Holding B.V.

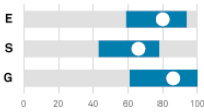
Executive Summary

TenneT Holding B.V. is a European electricity transmission system operator (TSO) serving 41 million end users in the Netherlands and Germany through about 22,900 kilometers (km) of high-voltage transmission lines. The Autoriteit Consument & Markt in the Netherlands and the Bundesnetzagentur (BNetzA) in Germany regulate the company's activities. TenneT generates annual turnover of about €4.0 billion and EBITDA of €1.5 billion, with limited nonregulated activities. Its asset book value totals €22 billion. Because of the energy transition in the Netherlands and Germany, TenneT is going through a significant regulated capital expenditure (capex) plan to connect renewable generation capacities to the high and ultra-high voltage grid and extend long-distance transport capabilities. As a result, ESG topics are embedded in the strategy and throughout the company.

The company's ESG evaluation score of 83 reflects the transmission sector's relatively low environmental exposure and the Netherlands' and Germany's high governance standards. The profile benefits from TenneT's proactive relationship with communities, strong safety management, and strong governance structure, reinforced by our view of its strong preparedness. The company focuses on providing long-term, strategically resilient critical infrastructure, with a focus on affordability while maintaining a healthy financial profile and making sustainable choices. It has chronic exposure to pushback from communities that do not want transmission construction in their locality. We see communities as the principal source of risk exposure in TenneT's social profile.

Profile Score

78/100



Entity-specific attainable and actual scores

S&P Global Ratings | Environmental, Social, and Governance (ESG) Evaluation

Preparedness Opinion

Strong

Awareness: Excellent
Assessment: Excellent
Action: Excellent
Culture: Good
Decision-making: Good

Entity
Location (HQ) Netherlands
Primary Operation Location(s) Netherlands and Germany
Publication Date Aug. 27, 2019
Primary Contact Björn Schurich
+ (49) 69 33 999 237
bjorn.schurich@snglobal.com

Secondary Contact Beatrice de Taisne
+ 44 (0)20 7176 3938
beatrice.de.taisne@snglobal.com
Beth Burks
+ 44 (0)20 7176 9829
beth.burks@snglobal.com

ESG Evaluation



A higher score indicates better sustainability

This product is not a credit rating

Aug. 27, 2019

1

Component Scores

Environmental Performance			Social Performance			Governance Standards		
Sector/Region Risk Level	44/50		Sector/Region Risk Level	28/50		Sector/Region Risk Level	35/35	
Greenhouse Gases	Strong		Workforce and Diversity	Good		Structure and Oversight	Strong	
Waste	Good		Safety Management	Strong		Code and Values	Strong	
Water	Good		Customer Engagement	Good		Transparency and Reporting	Strong	
Land Use	Good		Communities	Strong		Cyber Risks and Systems	Good	
General Factors (optional)	+3		General Factors (optional)	+3		General Factors (optional)	None	
E Profile (30%)	80		S Profile (30%)	66		G Profile (40%)	86	
			ESG Profile (incl. any adjustments)			78/100		

Preparedness Summary

We view TenneT's preparedness as strong. The company is a core enabler of the energy transition to a less carbon-intensive generation mix for the Netherlands and Germany. As a result, the energy transition shapes discussions the company has with regulators in both countries and fuels a long-term vision of what the company wants to achieve. We believe TenneT's strategy is resilient.

Preparedness Opinion

Score

ESG Evaluation

ESG Profile 78/100
Preparedness Opinion Strong (+5)
Further Adjustment (if any) None

83/100

S&P Global Ratings | Environmental, Social, and Governance (ESG) Evaluation

This product is not a credit rating

Aug. 27, 2019

2

ESG Profile: Risk Atlas

ESG Profile: Entity-Specific Analysis

Preparedness

Final Score

Beispielanalyse TenneT: Detailanalyse

ESG Profile

ESG Profile

Overview

TenneT's environmental profile score of 80 reflects the company's low exposure to environmental risks as a TSO, despite the utility sector's generally high exposure. Its greenhouse gas (GHG) emissions are low compared with those of other TSOs. We expect the company's GHG emissions to decline as it moves towards renewable integration. Water is immaterial to the company's direct operations, but could affect the security of the energy supply if droughts affect power generators. Water risks are currently well-managed. TenneT's construction activities, particularly from offshore wind farms, create land use and biodiversity risks, but the company works closely with governments and stakeholders to minimize these risks. TenneT has recently begun to track waste metrics, although it is already an established practice among peers.

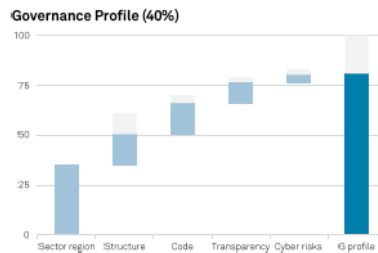
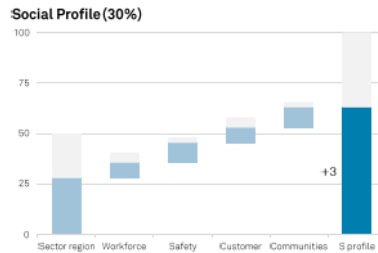
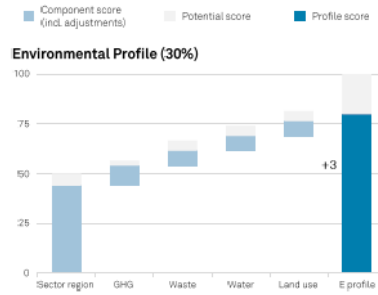
The company's social profile score of 66 reflects inherent risks in its activities, because any disruption to these services would trigger potential negative political pressures or put at risk its license to operate. TenneT mitigates this with its strong performance in safety management, proactive engagement with communities and high grid availability. The workforce is mainly male-dominated and the turnover is low, which is typical of the sector. Safety management is strong compared with that of global peers, and the company has detailed safety policies and established practices. As a regulated TSO, TenneT's main capex use is for renewable integration plans that come with the security of energy supply and increases affordability risks, which could affect customer engagement if grid availability is not careful managed. Furthermore, the company's new expansion plans might affect relations with local communities. TenneT scores high in its customer satisfaction metrics and participates in dialogues with stakeholders to agree on acceptable actions during its expansion plans.

TenneT's governance score of 86 reflects the regulated nature of its activities in markets with strong governance standards, with greater scrutiny than an unregulated company; and which forces it to justify how capex is decided, executed, and whether it's a cost-efficient use of resources. We view the regulatory framework as a strength.

We have adjusted the environmental and social profiles to incorporate the low materiality of water and high materiality of communities for TenneT.

TenneT Holding B.V.

78/100



S&P Global Ratings | Environmental, Social, and Governance (ESG) Evaluation

This product is not a credit rating

Aug. 27, 2019

3

ESG Profile

Environmental Factor Analysis

TenneT Holding B.V.



Greenhouse Gas Emissions

Strong

- TenneT's GHG emission profile is stronger than that of other networks because of the regulatory support for the energy transition. TenneT bases its large capex on the need to facilitate renewable integration following the Paris Agreement. We expect scope 2 emissions (90% of total emissions) to decrease as TenneT minimizes grid losses and optimizes the power purchased to compensate for the remaining grid losses.
- An incident in Germany at the Siemens substation caused the percentage of SF6 leaked to increase (0.30% compared to 0.28% in 2017). However, TenneT has a track record of meeting its targets before a deadline. For example, the company achieved its target to reduce SF6 leakages by 20% (to 0.28%) from 2015 by 2017, three years ahead of schedule. If there is sufficient space, newly built substations use air insulation to prevent leakages, so we expect further reductions beyond 2020.
- With the increasing amount of offshore projects, scope 3 emissions will rise slightly. For example, helicopters are used for offshore assets where there is no alternative low-carbon technology. However, compared to its overall emissions profile, these are negligible.



Waste

Good

- TenneT has only recently started tracking waste-related data, so it has not disclosed any yet. The company is identifying waste streams and setting a base year for the related data. It created a detailed policy on waste management and already identified new targets to reduce virgin copper use and nonrecyclable waste by 25% in 2025 compared to 2020. These waste streams stem from its construction activities, the largest source of waste.
- Construction waste is a priority waste stream in the EU because these materials can often be recycled or reused, and represents 25%-30% of waste by tonnage. Reporting on waste metrics, including generated waste, recycled waste, and hazardous and nonhazardous waste is a well-established practice among industry peers. TenneT could have further opportunities to improve its lifecycle management of materials by better monitoring its various waste streams.



Water

Good

- Water usage is mainly limited to office buildings because TSOs do not require water cooling. TenneT does not track its own water use metrics, and this is in line with the industry.
- The company is indirectly exposed to water risks from the power generation sector, as thermal generators rely on water for cooling and hydropower generators rely on sufficient flow. Inadequate water resources could pose risks in the energy supply. This has been well-managed, and good communication with power generators is inherent to TenneT's system operator role.
- In addition, the company's operations depend on adequate water levels in rivers because most of its construction materials are transported via boats. This affected TenneT's business in 2018, when a summer drought made the water level in parts of the Rhine River too low for transport. These delays can affect capex execution, but this is fairly marginal given the capex programs scope.



Land Use

Good

- One of the company's main development projects is "Energy Turnaround": building grid connections in offshore marine environments, with more planned until 2025. The company also participates in stakeholder discussions on biodiversity. On land, TenneT can build its cables underground to minimize the impact on habitats. However, local communities drive this decision, and it ultimately comes down to affordability.
- TenneT uses herbicides to control plant growth at its stations to combat the risk of fires. It will need to find alternatives if regulations continue on their current trajectory of restricting pesticide use, leaving the company with some unmitigated risks.
- The Netherlands and Germany have relatively fewer threatened species, although Germany's Environmental Ministry recently introduced the Insect Protection Action Plan to address the decline in insect populations. TenneT is managing this regulatory risk by cooperating with nongovernmental organizations' efforts and monitoring the impact of reintroducing wildflowers at its substations on local insect populations.



General Factors +3

- We have adjusted the environmental profile to reflect that water is less material for transmission networks than for other peer regulated utilities, such as water networks.

S&P Global Ratings | Environmental, Social, and Governance (ESG) Evaluation

This product is not a credit rating

Aug. 27, 2019

4

Anhang

“Grüne” Anleihen

S&P s' Green Evaluation Analyse



Zeitpunktbetrachtung eines Kapitalmarktinstruments



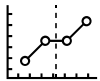
Kein Kreditrating und daher keine Aktualisierung



Analyse zeigt Endergebnis auf einer 4-Punkt-Skala (E1-E4);
Begründung zu Transparenz, Unternehmensführung und
Risikominimierung



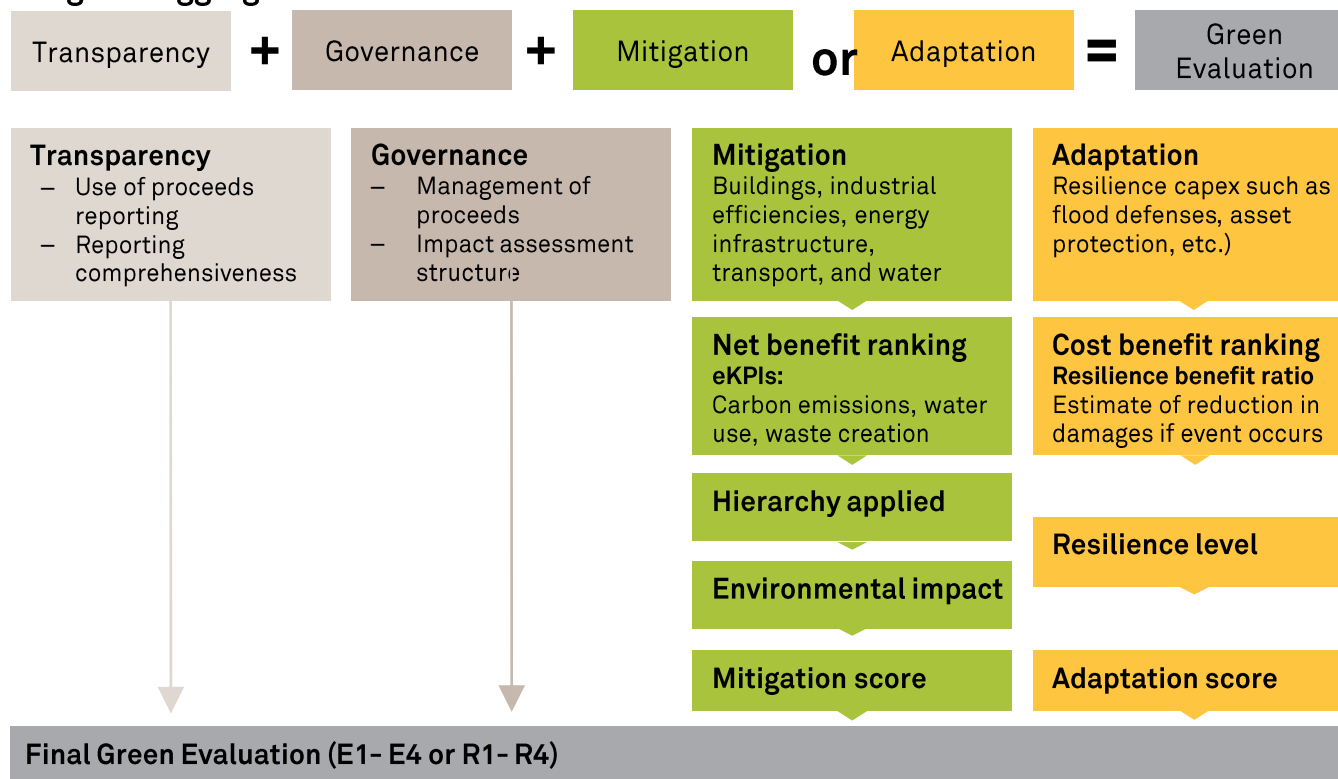
Verfügbar auf vertraulicher und öffentlicher Basis



Projektbeurteilung zu jedem Zeitpunkt möglich, d.h. vor und
nach Emission des Kapitalmarktinstruments

S&P's Green Evaluation Analyse

Weighted aggregate of three:



* eKPI – Environmental Key Performance Indicator

Green Evaluations: DZ Bank - €250 Mio.

44 veröffentlicht > USD 45 Milliarden: Ökostrom, umweltfreundliche Gebäude, Wasserschutzprojekte u.v.m.

S&P Global
Ratings

Green Evaluation

DZ BANK AG €250 Million Fixed-Rate Preferred Senior Notes

Transaction Overview

DZ BANK AG Deutsche Zentral-Gesamtschaftsbank, Frankfurt am Main (DZ BANK) has issued €250 million of fixed-rate preferred senior notes due October 2023 as part of its ongoing debt issuance program (ISIN Code: DE000DQAGN1). The issuance represents DZ BANK's first labelled green bond.

DZ BANK has allocated the issuance proceeds to a portfolio of loans originated for operational onshore wind power projects in Germany. The portfolio currently consists of 60 projects across 11 different federal states with a total installed capacity of about 739 megawatts (MW). DZ BANK's total credit exposure to the portfolio is currently about €423 million on by way of non-recourse project finance loans to these projects. In 2017 the portfolio avoided greenhouse gas emissions amounting to the equivalent of about 790,000 tons of CO₂, as estimated by DZ BANK based on emissions factors published by the German Environment Agency. In our opinion, this transaction is aligned with the Green Bond Principles 2018 (GBP).

Green Evaluation Overview

Transaction's Transparency			84
– Use of proceeds reporting			
– Reporting comprehensiveness			
Transaction's Governance			78
– Management of proceeds			
– Impact assessment structure			
Mitigation			
Sector	→ Net Benefit Ranking	→ Hierarchy Adjustments	87
Renewable Electricity	Onshore Wind Power	Carbon	

Adaptation NA

S&P Global Ratings | Green Evaluation

Carbon Green Evaluation Process



S&P G
Ratings

Project Description

DZ BANK has allocated the issuance proceeds to a portfolio of project-financed onshore wind power plants. The existing project finance loans will remain in place following the note issuance. The net cash proceeds from the notes will therefore support DZ BANK's general corporate cash and treasury operations. By allocating (tagging) the specific project finance loans (or portions thereof) to the issuance, those loan assets are no longer available for allocation towards other bonds that DZ BANK may issue in the future, thereby avoiding the potential for double-counting their associated environmental benefit. Consequently, DZ BANK would need to originate new qualifying loans or allocate other loans on its balance sheet before any further green bond issuance, thereby supporting the overall growth of sustainable finance in its portfolio.

DZ BANK is an experienced lender to German onshore wind projects, having been involved in the sector since the early 1990s. The bank's loan portfolio currently includes about 440 wind power plants. The plants in the portfolio for this transaction were commissioned between 2010 and 2017, giving them a weighted average age of about four years. Their installed capacity ranges from 3.0 MW to about 39.6 MW, with an average installed capacity of about 12.3 MW. The plants will primarily benefit from feed-in tariffs enabled by Germany's renewable energy law, first enacted in the early 1990s (and subsequently amended) to promote climate change mitigation. Feed-in tariffs generally provide for a comparatively high degree of revenue stability, all other things equal.

The turbine technology installed at the plants includes leading suppliers Enercon (49% of total installed capacity), Vestas (25%), Nordex (11%), General Electric (10%), and Servion (6%). In 2017 the portfolio generated about 1,600 gigawatt hours (GWh) of renewable electricity, which implies a load (capacity) factor of about 25%. The load factor is higher than in many other older German onshore wind portfolios, reflecting the state-of-the-art technology employed at these relatively young plants.

DZ BANK's project finance loans to the underlying plants will be repaid over time as set out in the amortization schedules of their respective financing documentation. Absent any prepayments, defaults, or other restructuring measures, we expect DZ BANK's loan exposure to the portfolio to reduce to about €260 million by the notes' final repayment date in October 2023. Consequently, we expect DZ BANK's credit exposure to the portfolio to exceed the outstanding amount of the notes until their final repayment, absent other developments.

If its credit exposure to the loan portfolio does drop below €250 million (which we currently do not expect will happen), DZ BANK will add additional German onshore wind project finance loans to the asset pool to which the notes are allocated. If there aren't enough of these loans to add to the portfolio, DZ BANK will add green bonds to the asset pool. This is to ensure that its tagged credit exposure to which the notes are allocated always exceeds the outstanding amount of the notes.

Scoring Summary

This transaction achieves an overall Green Evaluation score of E1 on our scale of E1 (highest) to E4 (lowest) and an overall score of 85. The overall score is a weighted average of Mitigation (60% weight), Governance (25%), and Transparency (15%).

The strong Mitigation score of 87 reflects the significant positive environmental impact of the underlying wind power plants. We assess Germany's grid carbon intensity as "medium-high," and we expect onshore wind to play a vital role in its systemic decarbonization.

The robust Governance score (78) and strong Transparency score (84) are supported by the green bond framework in place that governs use of proceeds and regular reporting.

Rationale

- We consider onshore wind power to be a long-term sustainable energy solution that is critical to climate change mitigation and therefore place it towards the top of our carbon hierarchy. The electricity the wind power plants generate displaces more polluting nonrenewable electricity. This is particularly true in Germany, which still relies heavily on coal-fired generation.
- DZ BANK's board of directors has established a governance process involving a green bond steering committee responsible for evaluating, selecting, and monitoring the portfolio of assets and reporting on its contribution towards sustainable development.
- The issuance documentation contains a use of proceeds clause with defined selection criteria and a process used to determine whether loans or bonds are eligible for inclusion in the asset pool against which the notes are allocated.
- DZ BANK has committed to report annually on how the note proceeds are being used and on the portfolio's environmental impact following a comprehensive predetermined reporting template. This will include quantification and disclosure of estimated avoided emissions. These estimates are based on emissions factors published by the German Environment Agency and therefore very transparent regarding the underlying methodology employed to determine those estimates.

Key Strengths And Weaknesses

We expect the renewable electricity generated by the portfolio of wind power plants to have significant positive environmental impacts by way of avoided greenhouse gas emissions, contributing to the systemic decarbonization of the economy. We view positively that the estimate of avoided emissions included in DZ BANK's reporting is based on publicly available emissions factors, which enhances transparency and comparability.

No content (including ratings, credit-related analyses and data, valuations, model, software or other application or output therefrom) or any part thereof (Content) may be modified, reverse engineered, reproduced or distributed in any form by any means, or stored in a database or retrieval system, without the prior written permission of Standard & Poor's Financial Services LLC or its affiliates (collectively, S&P). The Content shall not be used for any unlawful or unauthorized purposes. S&P and any third-party providers, as well as their directors, officers, shareholders, employees or agents (collectively S&P Parties) do not guarantee the accuracy, completeness, timeliness or availability of the Content. S&P Parties are not responsible for any errors or omissions (negligent or otherwise), regardless of the cause, for the results obtained from the use of the Content, or for the security or maintenance of any data input by the user. The Content is provided on an "as is" basis. S&P PARTIES DISCLAIM ANY AND ALL EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE, FREEDOM FROM BUGS, SOFTWARE ERRORS OR DEFECTS, THAT THE CONTENT'S FUNCTIONING WILL BE UNINTERRUPTED OR THAT THE CONTENT WILL OPERATE WITH ANY SOFTWARE OR HARDWARE CONFIGURATION. In no event shall S&P Parties be liable to any party for any direct, indirect, incidental, exemplary, compensatory, punitive, special or consequential damages, costs, expenses, legal fees, or losses (including, without limitation, lost income or lost profits and opportunity costs or losses caused by negligence) in connection with any use of the Content even if advised of the possibility of such damages.

Credit-related and other analyses, including ratings, and statements in the Content are statements of opinion as of the date they are expressed and not statements of fact. S&P's opinions, analyses and rating acknowledgment decisions (described below) are not recommendations to purchase, hold, or sell any securities or to make any investment decisions, and do not address the suitability of any security. S&P assumes no obligation to update the Content following publication in any form or format. The Content should not be relied on and is not a substitute for the skill, judgment and experience of the user, its management, employees, advisors and/or clients when making investment and other business decisions. S&P does not act as a fiduciary or an investment advisor except where registered as such. While S&P has obtained information from sources it believes to be reliable, S&P does not perform an audit and undertakes no duty of due diligence or independent verification of any information it receives.

To the extent that regulatory authorities allow a rating agency to acknowledge in one jurisdiction a rating issued in another jurisdiction for certain regulatory purposes, S&P reserves the right to assign, withdraw or suspend such acknowledgment at any time and in its sole discretion. S&P Parties disclaim any duty whatsoever arising out of the assignment, withdrawal or suspension of an acknowledgment as well as any liability for any damage alleged to have been suffered on account thereof.

S&P keeps certain activities of its business units separate from each other in order to preserve the independence and objectivity of their respective activities. As a result, certain business units of S&P may have information that is not available to other S&P business units. S&P has established policies and procedures to maintain the confidentiality of certain non-public information received in connection with each analytical process.

S&P may receive compensation for its ratings and certain analyses, normally from issuers or underwriters of securities or from obligors. S&P reserves the right to disseminate its opinions and analyses. S&P's public ratings and analyses are made available on its Web sites, www.standardandpoors.com (free of charge), and www.ratingsdirect.com and www.globalcreditportal.com (subscription), and may be distributed through other means, including via S&P publications and third-party redistributors. Additional information about our ratings fees is available at www.standardandpoors.com/usratingsfees.

Australia

Standard & Poor's (Australia) Pty. Ltd. holds Australian financial services license number 337565 under the Corporations Act 2001. Standard & Poor's credit ratings and related research are not intended for and must not be distributed to any person in Australia other than a wholesale client (as defined in Chapter 7 of the Corporations Act).

STANDARD & POOR'S, S&P and RATINGSDIRECT are registered trademarks of Standard & Poor's Financial Services LLC.