

**CREDIT OPINION**

1 November 2024

Update

Send Your Feedback

**RATINGS**

**CETIN Group N.V.**

Domicile	Netherlands
Long Term Rating	Baa2
Type	LT Issuer Rating - Fgn Curr
Outlook	Stable

Please see the [ratings section](#) at the end of this report for more information. The ratings and outlook shown reflect information as of the publication date.

**Contacts**

Carlos Winzer +34.91.768.8238  
Senior Vice President  
carlos.winzer@moodys.com

Manuel Merino +34.91.7688.244  
Alejandro  
Sr Ratings Associate  
manuel.merinoalejandre@moodys.com

Ivan Palacios +34.91.768.8229  
Associate Managing Director  
ivan.palacios@moodys.com

**CETIN Group N.V.**

Update following completion of group reorganisation

**Summary**

[CETIN Group N.V.](#) (CETIN, Baa2 stable) is a leading telecom infrastructure operator in the Czech Republic, including fixed and mobile infrastructure.

On October 28, 2024, we affirmed the company's Baa2 issuer rating and changed the outlook to stable from negative. The rating action follows PPF Group N.V.'s (PPF Group) completion on 24 October 2024 of the separation of the Czech and non-Czech businesses of the former PPF Telecom Group B.V. (renamed to [e& PPF Telecom Group B.V.](#), Ba1 stable), including the carve out of CETIN and the rest of operations in Czechia (mainly O2) into a new vehicle called PPF TMT Holdco 2 B.V. (TMT Holdco 2).

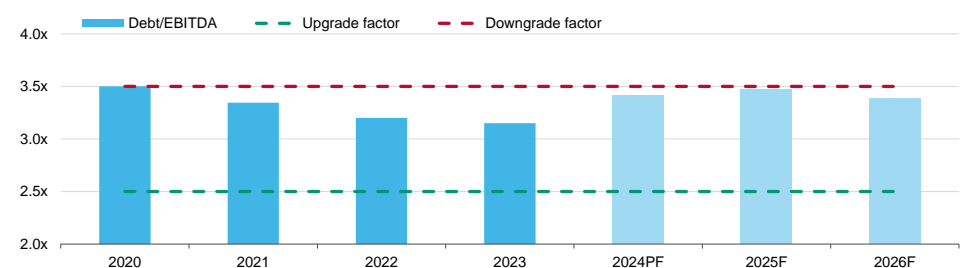
The rating action balances the underlying strengths of a strong fixed and mobile infrastructure provider in the Czech Republic, with the fact that CETIN is now a smaller company in size, as it no longer has international operations.

CETIN's ratings are also supported by its leading position in the telecom market in the Czech Republic; the stable and predictable operating performance; and the group's financial policy of sustaining net reported leverage at or below 3.25x.

Conversely, the ratings are constrained by its low free cash flow (FCF) because of high capital spending and dividends payments; the complexity of the TMT Holdco 2 group structure, with presence of debt at different entities; the concentrated ownership; and the somewhat aggressive liquidity management of TMT Holdco 2.

Exhibit 1

**We expect CETIN's gross leverage to remain slightly below 3.5x in the next two years**  
**Moody's-adjusted gross leverage**



For the full report, data in 2020 refers to CETIN Czechia. Data from 2021 to 2023 refers to CETIN Group N.V., including Czechia, Bulgaria, Hungary and Serbia. Data from 2024 onwards refers to CETIN Group N.V., including only Czechia.

All figures and ratios are based on adjusted financial data and incorporate our Global Standard Adjustments for Non-Financial Corporations.

Periods are financial year-end unless indicated.

The forecasts are our opinion and do not represent the views of the issuer.

Sources: Moody's Financial Metrics™ and Moody's Ratings forecasts

## Credit strength

- » Leading position in the Czech telecom market
- » High quality of its mobile infrastructure and significant presence in the fixed market
- » Long-term contracts with the largest operators in the region, which ensures predictable cash flow

## Credit challenges

- » Complex group structure, with various credit pools and debt placed at different group entities
- » Significant capital spending needs and dividend payments, which constrain FCF
- » Somewhat aggressive liquidity management of the TMT Holdco 2 group

## Rating outlook

The stable outlook reflects our expectation that the company's performance will be broadly stable over the next 12-18 months, supported by the high predictability of its cash flows. However, the rating is weakly positioned because we expect its leverage to be at the higher end of the expected range for the rating, at around 3.5x, while its coverage ratio (EBITDA – capex/interest expense) will be at the lower end of the expectations for the rating, at around 2x.

## Factors that could lead to an upgrade

The rating could be upgraded if the company's operating performance sustainably improves and its financial policy targets a lower leverage level such that its Moody's-adjusted debt/EBITDA drops below 2.5x on a sustained basis. An upgrade would also require a track record of prudent liquidity management, and a parallel improvement in credit metrics at CETIN's parent, TMT Holdco 2.

## Factors that could lead to a downgrade

The rating could be downgraded if the company's operating performance weakens as a result of pricing pressure, market share losses or reduction in cash flow, or if CETIN increases its debt as a result of acquisitions or shareholder distributions, such that its Moody's-adjusted debt/EBITDA increases above 3.5x or the coverage ratio (EBITDA- capex/interest expense) remains sustainably below 2x. A weakening of the company's liquidity could also strain the rating.

## Key indicators

Exhibit 2

### CETIN Group N.V.

(in € millions)	2019	2020	2021	2022	2023	2024PF	2025F	2026F
Revenue	747	714	1,036	1,108	1,241	833	798	792
FFO Margin %	40.7%	41.0%	48.2%	46.7%	47.9%	40.0%	41.8%	43.6%
(EBITDA - Capex) / Interest Expense	10.3x	7.2x	9.7x	4.5x	3.4x	1.9x	1.8x	2.6x
FCF / Debt	4.8%	-1.1%	-0.7%	-0.3%	-0.1%	1.9%	-0.8%	0.4%
Debt / EBITDA	3.0x	3.5x	3.3x	3.2x	3.1x	3.4x	3.5x	3.4x
EBITDA Margin %	44.6%	47.3%	57.8%	56.9%	56.6%	49.9%	51.1%	52.8%
EBITA / Interest Expense	n.m.	8.8x	9.8x	6.9x	4.6x	6.7x	7.3x	8.6x

All figures and ratios are based on adjusted financial data and incorporate our Global Standard Adjustments for Non-Financial Corporations.

Periods are financial year-end unless indicated.

The forecasts are our opinion and do not represent the views of the issuer.

Sources: Moody's Financial Metrics™ and Moody's Ratings forecasts

## Profile

CETIN Group N.V. (CETIN) is the owner of the broader group's telecom infrastructure business in the Czech Republic. Pro forma for the reorganization, in 2023, CETIN Group N.V. generated pro forma revenue of €816 million and EBITDA of €416 million. The company operates and manages fixed and mobile infrastructure in the domestic market and transit infrastructure abroad, with international

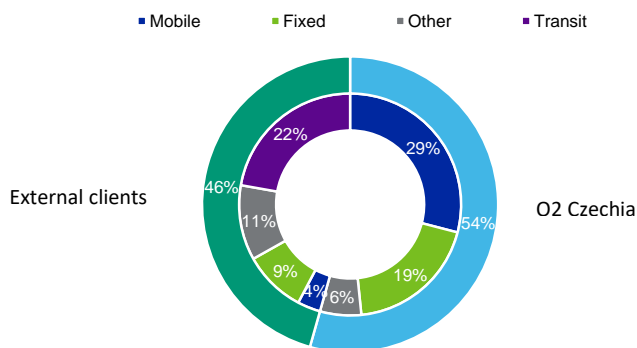
This publication does not announce a credit rating action. For any credit ratings referenced in this publication, please see the issuer/deal page on <https://ratings.moody.com> for the most updated credit rating action information and rating history.

points of presence in Germany; Austria; Slovakia; the UK; and Hong Kong SAR, China. Its key customer is O2 Czechia, which generates 54% of consolidated revenues.

The company is headquartered in Prague, the Czech Republic, and ultimately owned and controlled by PPF Group.

Exhibit 3

**O2 Czechia generates 54% of CETIN's revenue**  
**CETIN's pro forma revenue split in 2023**



Source: Company filings

### Recent developments

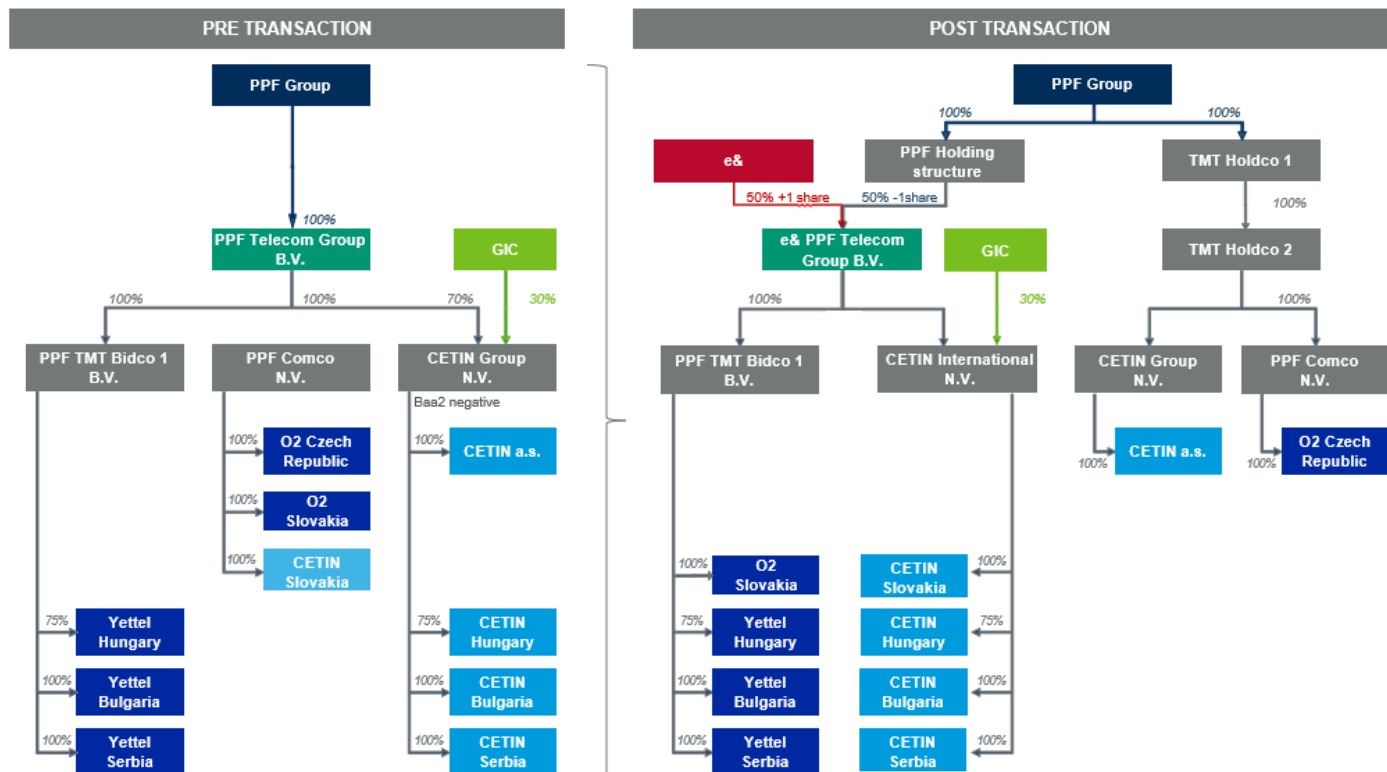
On October 2024, PPF Group completed the separation of the Czech and non-Czech businesses of the former PPF Telecom Group B.V., including the carve out of the subsidiaries in Slovakia, Hungary, Serbia and Bulgaria, and the subsequent sale of a controlling equity stake in the non-Czech business (50% + 1 economic share) to Emirates Telecommunications Group Company PJSC ("e&", Aa3 stable). The Czech assets have been left outside e& PPF Telecom Group B.V. (e& PPF Telecom) in a separate company (PPF TMT Holdco 2 B.V. or TMT Holdco 2).

CETIN's existing assets in Hungary, Bulgaria and Serbia have been separated from the group, and as a result, CETIN will now only own the telecommunication infrastructure assets in Czechia. After the restructuring, CETIN's intermediate parent, TMT Holdco 2 will be fully owned by PPF Group following GIC's (the Singapore sovereign wealth fund) exit from the shareholding structure.

Following the reorganization, CETIN's scale in terms of revenue and EBITDA will roughly reduce by one third, and it will be solely focused in Czechia, losing its international diversification. However, we acknowledge that CETIN a.s. Czechia is the subsidiary with the most valuable assets, with both national fixed and mobile networks.

Exhibit 4

The transaction leads to a significant change in the corporate structure, separating Czech and international assets



Source: Company filings

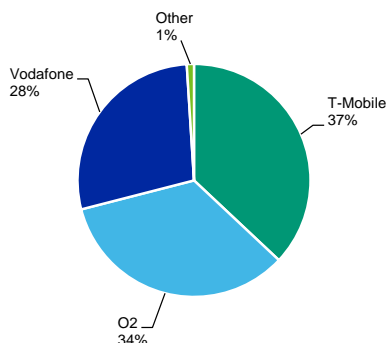
## Detailed credit considerations

### Leader in the Czech telecom market

CETIN owns and operates the largest telecommunications infrastructure portfolio in Czechia. CETIN has passed more than 4 million homes connected out of 5.1 million households in the country, and around 1.2 million of these were connected via cable or fibre, as of September 2024. However, CETIN still relies mostly on alternative technologies to fiber-to-the-home (FTTH), which only represents around 20% of the households connected. This is below the European average of around 40%.

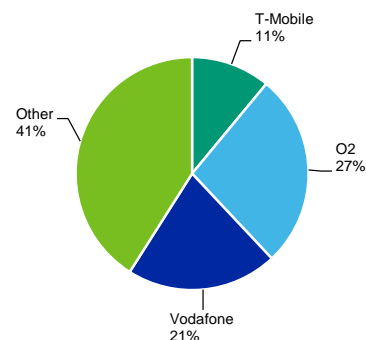
In the mobile segment, the company's 4G and 5G coverage extended to 100% and 94% of the Czech population, respectively, as of September 2024. This strong position is underpinned by the fact that CETIN provides mobile voice and data services to O2 Czech and T-Mobile through the shared network; it has a partnership with O2 Czech in all downstream retail markets; T-Mobile's fixed broadband services mostly represent a resale of CETIN's xDSL and voice; and CETIN delivers a backbone transport network to numerous alternative network operators and retail service providers, including T-Mobile and Vodafone. CETIN's two key customers, O2 Czech and T-Mobile, are the market leaders in mobile, with estimated market shares of 34% and 37%, respectively, as of March 2024, in terms of retail revenue.

Exhibit 5  
**T-Mobile and O2, the two main clients of CETIN, lead the mobile market in Czech Republic...**  
**Mobile market share in Czech Republic as of March 2024**



Source: Company filings

Exhibit 6  
**...while fixed market is much more diversified in terms of operators**  
**Fixed market share in Czech Republic as of March 2024**



Source: Company filings

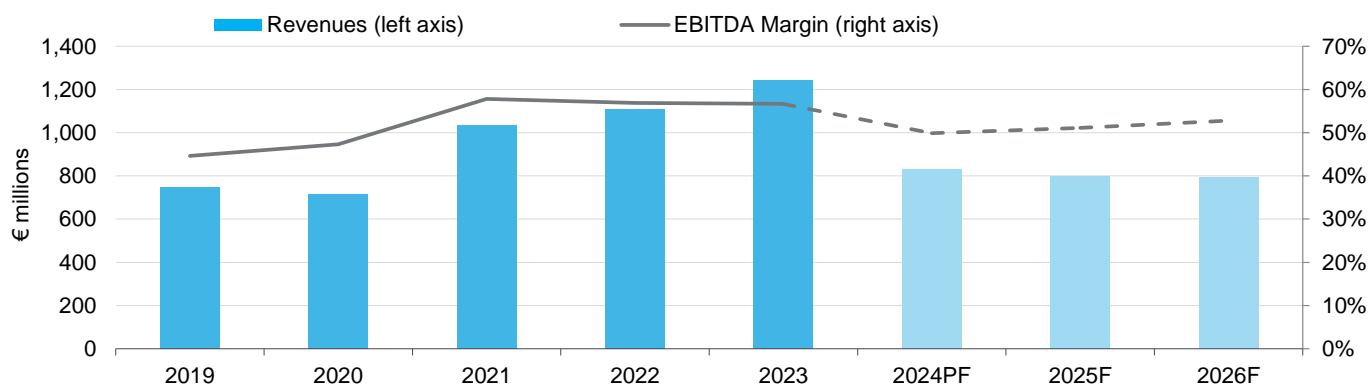
In 2023, CETIN acquired the Czech internet service provider Nej.cz. This transaction has brought additional fixed capacity, mostly FTTH, and market share to the group.

**We expect stable and predictable operating performance in the next 24 months**

Overall CETIN's pro forma revenue grew by 6.8% in 2023, driven mainly by underlying cost inflation protection. Additionally, revenue growth was supported by growing data demand, and higher demand for fixed connection. Pro forma EBITDA grew by 12.4%, mainly supported by high revenue and tight cost management. The major part of the company's profitability is secured by long-term take-or-pay contracts for mobile, fixed and data centre services.

We expect CETIN's pro forma revenue growth to decelerate in 2024 owing to reduced inflation and foreign currency volatility. We also expect revenue to drop by 4% in 2025 due to the sustained decline in transit revenues and stabilize in 2026. EBITDA will remain broadly flat, as transit revenues are low margin and the company will implement cost savings. As a result, EBITDA margins will stay around 52%.

Exhibit 7  
**We expect the company's Moody's-adjusted EBITDA margin to remain high at around 57%**  
**Evolution of revenue and Moody's-adjusted EBITDA margin**



All figures and ratios are based on adjusted financial data and incorporate our Global Standard Adjustments for Non-Financial Corporations. Periods are financial year-end unless indicated. The forecasts are our opinion and do not represent the views of the issuer. Sources: Moody's Financial Metrics™ and Moody's Ratings forecasts

### CETIN's leverage will remain stable as capital spending and dividend payouts slow the pace of leverage reduction

Following the group reorganization, CETIN will have a total debt amount of €1.4 billion (including lease liabilities), bringing Moody's-adjusted leverage to around 3.5x, positioning the company weakly in the rating category, given our expectation of flattish EBITDA of around €415 million per year. Management has declared a target net leverage of 3.25x, which roughly equates to Moody's adjusted gross leverage of 3.5x, and no dividend payout through 2026. Given the relatively high capex over revenues of around 35% over the next two years, we expect our coverage ratio (EBITDA – Capex/Interest Expense) to remain below 2x with an expected improvement in 2026.

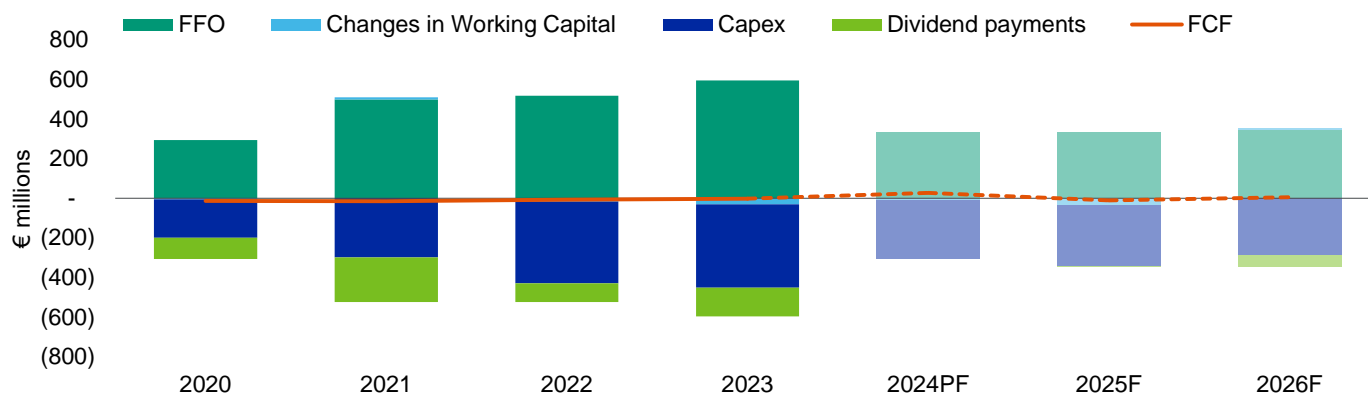
Although the rating reflects the company's reliable and predictable revenues, based on existing contracts with O2 Czechia and T-Mobile and its predictable operating costs, FCF remains constrained by high capital spending and the dividend payout policy. We expect FCF to be breakeven in 2024 and 2025, despite zero dividends in those years.

CETIN is implementing a major capital spending plan that will provide a strong base for long-term growth. The group aims to gradually upgrade its 5G network and improve its fixed network by investing in the FTTH rollout in the Czech Republic and replacing the xDLS technology with fibre. The updated plan entails accumulated capital investments of around €600 million in the next two years (excluding lease payments), predominantly driven by infrastructure development.

Exhibit 8

#### We expect FCF to remain close to breakeven due to high capital spending in the next 2 years

Moody's-adjusted funds from operations (FFO), capital spending, changes in working capital, dividend payments and FCF



All figures and ratios are based on adjusted financial data and incorporate our Global Standard Adjustments for Non-Financial Corporations.

Periods are financial year-end unless indicated.

The forecasts are our opinion and do not represent the views of the issuer.

Sources: Moody's Financial Metrics™ and Moody's Ratings forecast

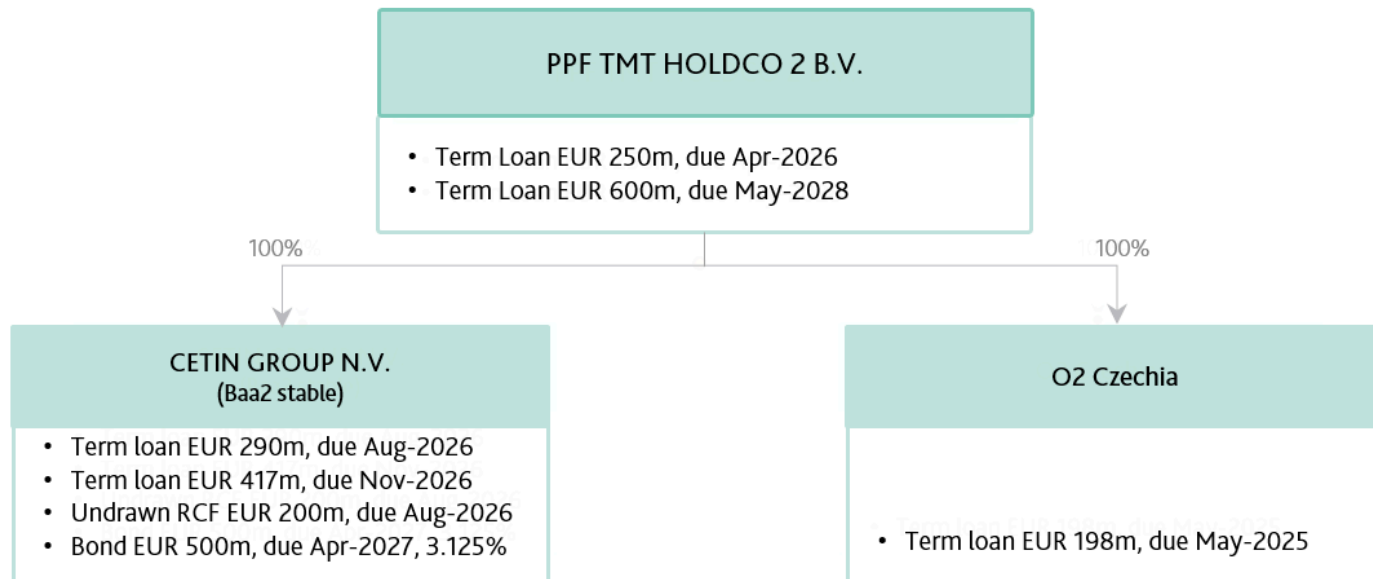
### CETIN's credit quality also reflects the financial policies and the complexity of TMT Holdco 2's structure

TMT Holdco 2 has a complex structure, with debt allocated across the holding company and operating subsidiaries. Pro forma for the transaction, 38% of the debt stands at TMT Holdco 2, with the balance allocated to CETIN (54%) and O2 (8%). TMT Holdco 2 is a holding company that relies entirely and exclusively on the cash flow and dividends upstreamed from its operating companies to support its cash needs, mainly interest cost, although debt at the holding company is not guaranteed by the operating subsidiaries and a default at TMT Holdco 2 will not trigger any default at the operating subsidiaries.

There is a limit to how far the credit quality of CETIN can be delinked from that of TMT Holdco 2 because the latter owns and controls the former. Therefore, any weakness in the credit quality of TMT Holdco 2 could strain CETIN's rating — for example, if there are debt-financed acquisitions, the overall performance deteriorates or the group's liquidity deteriorates.

Exhibit 9

More than 50% of the group's debt is CETIN Group level  
TMT Holdco 2 debt allocation as of October 2024



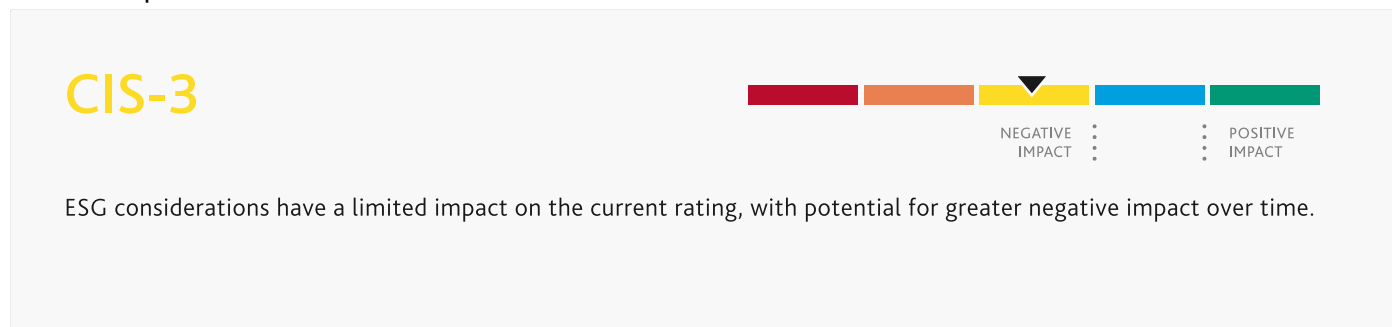
Source: Company filings

### ESG considerations

CETIN Group N.V.'s ESG credit impact score is CIS-3

Exhibit 10

ESG credit impact score

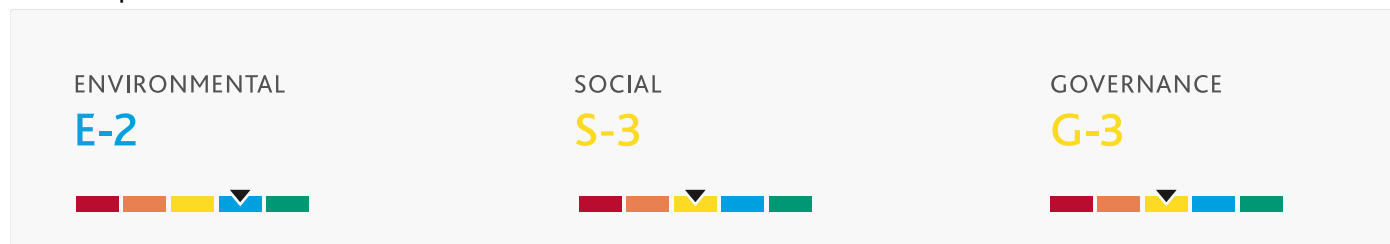


Source: Moody's Ratings

CETIN Group's **CIS-3** indicates that ESG considerations have a limited impact on the current rating. Environmental and social risks are manageable, but the company is exposed to governance risks owing to its concentrated ownership, the group's financial policy and TMT Holdco 2's complex structure.

Exhibit 11

## ESG issuer profile scores



Source: Moody's Ratings

### Environmental

CETIN Group's **E-2** is driven by its low exposure to environmental risks and it is in line with the overall industry. Its communications infrastructure releases very low levels of carbon emissions. Physical climate risks are also neutral-to-low in the countries where it operates.

### Social

CETIN Group's **S-3** reflects its exposure to social risks, arising from its exposure to labour unions and changing of demographic and societal trends towards the use of telecom related technology. The company's exposure to changes in technology and potential obsolescence of its mobile and fixed network is viewed as a long-term risk. This risk is mitigated by strong growth in data usage, which is driving investments in their networks.

### Governance

CETIN Group's **G-3** reflects its aggressive liquidity management, with high dividend payments and limited external liquidity resources, together with a complex and evolving corporate structure at TMT Holdco 2 level and a concentrated ownership. TMT Holdco has a complex structure, with debt allocated across the holding company and the operating subsidiaries. About 54% of debt is raised at CETIN Group, with the balance being allocated to TMT Holdco 2 (38%) and O2 (8%).

ESG Issuer Profile Scores and Credit Impact Scores for the rated entity/transaction are available on Moodys.com. In order to view the latest scores, please click [here](#) to go to the landing page for the entity/transaction on MDC and view the ESG Scores section.

### Liquidity analysis

CETIN's liquidity is adequate. It is supported by cash balance of around €50 million as of closing of the transaction and full availability of its €200 million revolving credit facility (RCF) due August 2026. We expect low FCF after dividends generation to remain low in the next two years because of high capital spending.

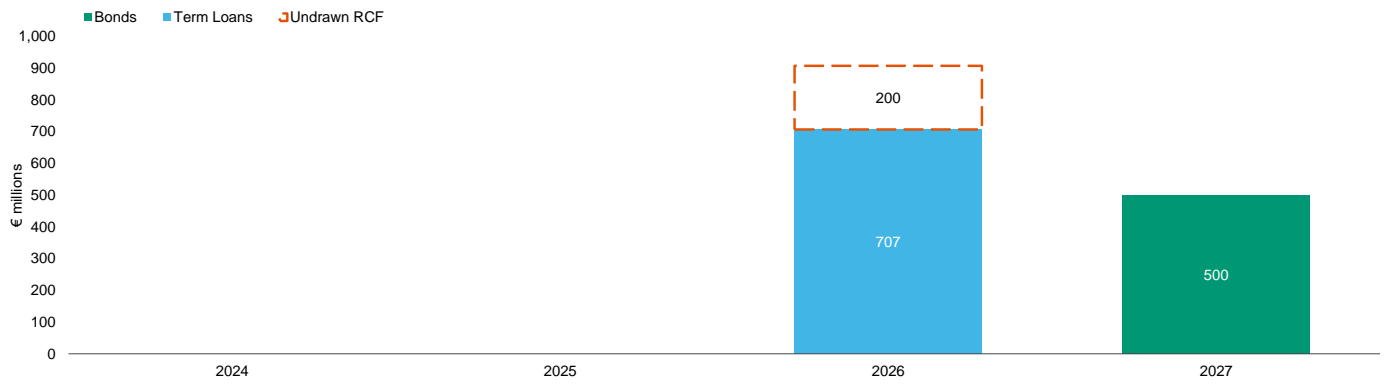
However, we view the group's liquidity management as somewhat aggressive, given the relatively small amount alternative sources of liquidity and the debt maturity wall in 2026 and 2027. Upcoming maturities include a €290 million term loan maturing in August 2026; a €417 million term loan maturing in September 2026; and a €500 million guaranteed senior unsecured bond due April 2027. We expect the group to address its upcoming liquidity needs after the closing of the split transaction, with sufficient time left to fulfill these needs.



Exhibit 12

**CETIN Group will face a significant maturity wall in 2026**

Company's debt maturity profile as of October 2024



Source: Company

## Methodology and scorecard

The methodology used to rate CETIN Group was our Communications Infrastructure rating methodology. The scorecard-indicated outcome for our 12-18-month forward view is Baa3, one notch below CETIN Group's Baa2 rating. The difference reflects the high predictability of its revenue and cash flow.

Exhibit 13

### Rating factors

CETIN Group N.V.

Communications Infrastructure Industry Scorecard		Current LTM Jun-24		Moody's 12-18 month forward view	
		Measure	Score	Measure	Score
<b>Factor 1 : Scale (10%)</b>					
a) Revenue (\$ billions)		1.4	Ba	0.9	B
<b>Factor 2 : Business Profile (25%)</b>					
a) Business Model		A	A	A	A
b) Competitive Environment and Business Conditions		A	A	A	A
<b>Factor 3 : Profitability &amp; Efficiency (20%)</b>					
a) FFO Margin		47.8%	Ba	42%	Ba
<b>Factor 4 : Leverage &amp; Coverage (30%)</b>					
a) (EBITDA - CAPEX) / Interest Expense		2.7x	Ba	1.8x - 2.6x	Ba
b) FCF / Debt		1.4%	B	0%	B
c) Debt / EBITDA		3.1x	Ba	3.4x - 3.5x	Ba
<b>Factor 5 : Financial Policy (15%)</b>					
a) Financial Policy		Baa	Baa	Baa	Baa
<b>Rating:</b>					
a) Scorecard-Indicated Outcome			Baa3		Baa3
b) Actual Rating Assigned					Baa2

All figures and ratios are based on adjusted financial data and incorporate our Global Standard Adjustments for Non-Financial Corporations.

LTM = Last 12 months.

The forecasts are our opinion and do not represent the views of the issuer.

Sources: Moody's Financial Metrics™ and Moody's Ratings forecasts

## Appendix

Exhibit 14

Peer comparison  
CETIN Group N.V.

(in \$ millions)	CETIN Group N.V.			Chorus Limited			EuroTeleSites AG	
	Baa2 Stable			Baa2 Stable			Baa2 Stable	
	FY Dec-22	FY Dec-23	PF Dec-24	FY Jun-22	FY Jun-23	FY Jun-24	FY Dec-21	FY Dec-22
Revenue	1,168	1,342	916	657	604	613	32	61
FFO Margin %	46.7%	47.9%	40.0%	61.8%	54.0%	53.5%	29.3%	54.5%
(EBITDA - Capex) / Interest Expense	4.5x	3.4x	1.9x	1.6x	1.0x	1.3x	-36.6x	-11.7x
FCF / Debt	-0.3%	-0.1%	1.9%	-2.2%	-4.9%	-4.6%	-34.9%	-23.9%
Debt / EBITDA	3.2x	3.1x	3.4x	4.0x	4.3x	4.1x	19.2x	5.5x
RCF / Net Debt	21.8%	21.0%	24.4%	17.6%	12.2%	11.5%	4.0%	15.0%

All figures and ratios are based on adjusted financial data and incorporate our Global Standard Adjustments for Non-Financial Corporations.

Source: Moody's Financial Metrics™

Exhibit 15

Moody's-adjusted debt reconciliation  
CETIN Group N.V.

(in € millions)	2019	2020	2021	2022	2023	2024PF
<b>As reported total debt</b>	<b>1,018.0</b>	<b>1,171.0</b>	<b>2,003.0</b>	<b>2,013.0</b>	<b>2,214.0</b>	<b>1,420.0</b>
Pensions	-	1.0	1.0	1.0	-	-
Non-Standard Adjustments	(1.0)	-	-	-	-	-
<b>Moody's-adjusted total debt</b>	<b>1,017.0</b>	<b>1,172.0</b>	<b>2,004.0</b>	<b>2,014.0</b>	<b>2,214.0</b>	<b>1,420.0</b>

All figures and ratios are based on adjusted financial data and incorporate our Global Standard Adjustments for Non-Financial Corporations.

Periods are financial year-end unless indicated. LTM = Last 12 months.

Source: Moody's Financial Metrics™

Exhibit 16

Moody's-adjusted EBITDA reconciliation  
CETIN Group N.V.

(in € millions)	2019	2020	2021	2022	2023	2024PF
<b>As reported EBITDA</b>	<b>334.2</b>	<b>327.0</b>	<b>638.0</b>	<b>650.0</b>	<b>703.0</b>	<b>416.0</b>
No adjustments	(1.2)	11.0	(39.0)	(20.0)	-	-
<b>Moody's-adjusted EBITDA</b>	<b>333.0</b>	<b>338.0</b>	<b>599.0</b>	<b>630.0</b>	<b>703.0</b>	<b>416.0</b>

All figures and ratios are based on adjusted financial data and incorporate our Global Standard Adjustments for Non-Financial Corporations.

Periods are financial year-end unless indicated. LTM = Last 12 months.

Source: Moody's Financial Metrics™

Exhibit 17

Overview on select historical and forecast Moody's-adjusted financial data  
CETIN Group N.V.

(in € millions)	2020	2021	2022	2023	2024PF	2025F	2026F
<b>INCOME STATEMENT</b>							
Revenue	714	1,036	1,108	1,241	833	798	792
EBITDA	338	599	630	703	416	408	418
Interest Expense	20	31	48	83	62	56	48
<b>BALANCE SHEET</b>							
Cash & Cash Equivalents	124	83	82	75	55	50	50
Total Debt	1,172	2,004	2,014	2,214	1,420	1,416	1,414
Net Debt	1,048	1,921	1,932	2,139	1,365	1,366	1,364
<b>CASH FLOW</b>							
Funds From Operations (FFO)	293	499	517	595	333	333	345
Capital Expenditures	(194)	(298)	(413)	(421)	(297)	(306)	(290)
Dividends	(106)	(226)	(95)	(146)	0	(1)	(57)
Retained Cash Flow (RCF)	187	273	422	449	333	332	288
RCF / Net Debt	17.8%	14.2%	21.8%	21.0%	24.4%	24.3%	21.1%
Free Cash Flow (FCF)	(13)	(15)	(7)	(2)	27	(11)	5
FCF / Debt	-1.1%	-0.7%	-0.3%	-0.1%	1.9%	-0.8%	0.4%
<b>PROFITABILITY</b>							
% Change in Sales (YoY)	-4.4%	45.1%	6.9%	12.0%	2.1%	-4.2%	-0.8%
FFO margin %	41.0%	48.2%	46.7%	47.9%	40.0%	41.8%	43.6%
EBITDA margin %	47.3%	57.8%	56.9%	56.6%	49.9%	51.1%	52.8%
<b>INTEREST COVERAGE</b>							
EBITDA / Interest Expense	16.9x	19.3x	13.1x	8.5x	6.7x	7.3x	8.6x
(EBITDA - Capex) / Interest Expense	7.2x	9.7x	4.5x	3.4x	1.9x	1.8x	2.6x
<b>LEVERAGE</b>							
Debt / EBITDA	3.5x	3.3x	3.2x	3.1x	3.4x	3.5x	3.4x

All figures and ratios are based on adjusted financial data and incorporate our Global Standard Adjustments for Non-Financial Corporations.

Periods are financial year-end unless indicated.

The forecasts are our opinion and do not represent the views of the issuer.

Sources: Moody's Financial Metrics™ and Moody's Ratings forecasts

## Ratings

Exhibit 18

<u>Category</u>	<u>Moody's Rating</u>
<b>CETIN GROUP N.V.</b>	
Outlook	Stable
Issuer Rating	Baa2
Senior Unsecured -Dom Curr	Baa2

Source: Moody's Ratings

© 2024 Moody's Corporation, Moody's Investors Service, Inc., Moody's Analytics, Inc. and/or their licensors and affiliates (collectively, "MOODY'S"). All rights reserved.

CREDIT RATINGS ISSUED BY MOODY'S CREDIT RATINGS AFFILIATES ARE THEIR CURRENT OPINIONS OF THE RELATIVE FUTURE CREDIT RISK OF ENTITIES, CREDIT COMMITMENTS, OR DEBT OR DEBT-LIKE SECURITIES, AND MATERIALS, PRODUCTS, SERVICES AND INFORMATION PUBLISHED OR OTHERWISE MADE AVAILABLE BY MOODY'S (COLLECTIVELY, "MATERIALS") MAY INCLUDE SUCH CURRENT OPINIONS. MOODY'S DEFINES CREDIT RISK AS THE RISK THAT AN ENTITY MAY NOT MEET ITS CONTRACTUAL FINANCIAL OBLIGATIONS AS THEY COME DUE AND ANY ESTIMATED FINANCIAL LOSS IN THE EVENT OF DEFAULT OR IMPAIRMENT. SEE APPLICABLE MOODY'S RATING SYMBOLS AND DEFINITIONS PUBLICATION FOR INFORMATION ON THE TYPES OF CONTRACTUAL FINANCIAL OBLIGATIONS ADDRESSED BY MOODY'S CREDIT RATINGS. CREDIT RATINGS DO NOT ADDRESS ANY OTHER RISK, INCLUDING BUT NOT LIMITED TO: LIQUIDITY RISK, MARKET VALUE RISK, OR PRICE VOLATILITY. CREDIT RATINGS, NON-CREDIT ASSESSMENTS ("ASSESSMENTS"), AND OTHER OPINIONS INCLUDED IN MOODY'S MATERIALS ARE NOT STATEMENTS OF CURRENT OR HISTORICAL FACT. MOODY'S MATERIALS MAY ALSO INCLUDE QUANTITATIVE MODEL-BASED ESTIMATES OF CREDIT RISK AND RELATED OPINIONS OR COMMENTARY PUBLISHED BY MOODY'S ANALYTICS, INC. AND/OR ITS AFFILIATES. MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND MATERIALS DO NOT CONSTITUTE OR PROVIDE INVESTMENT OR FINANCIAL ADVICE, AND MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND MATERIALS ARE NOT AND DO NOT PROVIDE RECOMMENDATIONS TO PURCHASE, SELL, OR HOLD PARTICULAR SECURITIES. MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND MATERIALS DO NOT COMMENT ON THE SUITABILITY OF AN INVESTMENT FOR ANY PARTICULAR INVESTOR. MOODY'S ISSUES ITS CREDIT RATINGS, ASSESSMENTS AND OTHER OPINIONS AND PUBLISHES OR OTHERWISE MAKES AVAILABLE ITS MATERIALS WITH THE EXPECTATION AND UNDERSTANDING THAT EACH INVESTOR WILL, WITH DUE CARE, MAKE ITS OWN STUDY AND EVALUATION OF EACH SECURITY THAT IS UNDER CONSIDERATION FOR PURCHASE, HOLDING, OR SALE.

MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS, AND MATERIALS ARE NOT INTENDED FOR USE BY RETAIL INVESTORS AND IT WOULD BE RECKLESS AND INAPPROPRIATE FOR RETAIL INVESTORS TO USE MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS OR MATERIALS WHEN MAKING AN INVESTMENT DECISION. IF IN DOUBT YOU SHOULD CONTACT YOUR FINANCIAL OR OTHER PROFESSIONAL ADVISER.

ALL INFORMATION CONTAINED HEREIN IS PROTECTED BY LAW, INCLUDING BUT NOT LIMITED TO, COPYRIGHT LAW, AND NONE OF SUCH INFORMATION MAY BE COPIED OR OTHERWISE REPRODUCED, REPACKAGED, FURTHER TRANSMITTED, TRANSFERRED, DISSEMINATED, REDISTRIBUTED OR RESOLD, OR STORED FOR SUBSEQUENT USE FOR ANY SUCH PURPOSE, IN WHOLE OR IN PART, IN ANY FORM OR MANNER OR BY ANY MEANS WHATSOEVER, BY ANY PERSON WITHOUT MOODY'S PRIOR WRITTEN CONSENT. FOR CLARITY, NO INFORMATION CONTAINED HEREIN MAY BE USED TO DEVELOP, IMPROVE, TRAIN OR RETRAIN ANY SOFTWARE PROGRAM OR DATABASE, INCLUDING, BUT NOT LIMITED TO, FOR ANY ARTIFICIAL INTELLIGENCE, MACHINE LEARNING OR NATURAL LANGUAGE PROCESSING SOFTWARE, ALGORITHM, METHODOLOGY AND/OR MODEL.

MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND MATERIALS ARE NOT INTENDED FOR USE BY ANY PERSON AS A BENCHMARK AS THAT TERM IS DEFINED FOR REGULATORY PURPOSES AND MUST NOT BE USED IN ANY WAY THAT COULD RESULT IN THEM BEING CONSIDERED A BENCHMARK.

All information contained herein is obtained by MOODY'S from sources believed by it to be accurate and reliable. Because of the possibility of human or mechanical error as well as other factors, however, all information contained herein is provided "AS IS" without warranty of any kind. MOODY'S adopts all necessary measures so that the information it uses in assigning a credit rating is of sufficient quality and from sources MOODY'S considers to be reliable including, when appropriate, independent third-party sources. However, MOODY'S is not an auditor and cannot in every instance independently verify or validate information received in the credit rating process or in preparing its Materials.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability to any person or entity for any indirect, special, consequential, or incidental losses or damages whatsoever arising from or in connection with the information contained herein or the use of or inability to use any such information, even if MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers is advised in advance of the possibility of such losses or damages, including but not limited to: (a) any loss of present or prospective profits or (b) any loss or damage arising where the relevant financial instrument is not the subject of a particular credit rating assigned by MOODY'S.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability for any direct or compensatory losses or damages caused to any person or entity, including but not limited to by any negligence (but excluding fraud, willful misconduct or any other type of liability that, for the avoidance of doubt, by law cannot be excluded) on the part of, or any contingency within or beyond the control of, MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers, arising from or in connection with the information contained herein or the use of or inability to use any such information.

NO WARRANTY, EXPRESS OR IMPLIED, AS TO THE ACCURACY, TIMELINESS, COMPLETENESS, MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OF ANY CREDIT RATING, ASSESSMENT, OTHER OPINION OR INFORMATION IS GIVEN OR MADE BY MOODY'S IN ANY FORM OR MANNER WHATSOEVER.

Moody's Investors Service, Inc., a wholly-owned credit rating agency subsidiary of Moody's Corporation ("MCO"), hereby discloses that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by Moody's Investors Service, Inc. have, prior to assignment of any credit rating, agreed to pay to Moody's Investors Service, Inc. for credit ratings opinions and services rendered by it. MCO and Moody's Investors Service also maintain policies and procedures to address the independence of Moody's Investors Service credit ratings and credit rating processes. Information regarding certain affiliations that may exist between directors of MCO and rated entities, and between entities who hold credit ratings from Moody's Investors Service, Inc. and have also publicly reported to the SEC an ownership interest in MCO of more than 5%, is posted annually at [www.moody's.com](http://www.moody's.com) under the heading "Investor Relations — Corporate Governance — Charter Documents - Director and Shareholder Affiliation Policy."

Moody's SF Japan K.K., Moody's Local AR Agente de Calificación de Riesgo S.A., Moody's Local BR Agência de Classificação de Risco LTDA, Moody's Local MX S.A. de C.V., I.C.V., Moody's Local PE Clasificadora de Riesgo S.A., and Moody's Local PA Calificadora de Riesgo S.A. (collectively, the "Moody's Non-NRSRO CRAs") are all indirectly wholly-owned credit rating agency subsidiaries of MCO. None of the Moody's Non-NRSRO CRAs is a Nationally Recognized Statistical Rating Organization.

Additional terms for Australia only: Any publication into Australia of this document is pursuant to the Australian Financial Services License of MOODY'S affiliate, Moody's Investors Service Pty Limited ABN 61 003 399 657AFSL 336969 and/or Moody's Analytics Australia Pty Ltd ABN 94 105 136 972 AFSL 383569 (as applicable). This document is intended to be provided only to "wholesale clients" within the meaning of section 761G of the Corporations Act 2001. By continuing to access this document from within Australia, you represent to MOODY'S that you are, or are accessing the document as a representative of, a "wholesale client" and that neither you nor the entity you represent will directly or indirectly disseminate this document or its contents to "retail clients" within the meaning of section 761G of the Corporations Act 2001. MOODY'S credit rating is an opinion as to the creditworthiness of a debt obligation of the issuer, not on the equity securities of the issuer or any form of security that is available to retail investors.

Additional terms for India only: Moody's credit ratings, Assessments, other opinions and Materials are not intended to be and shall not be relied upon or used by any users located in India in relation to securities listed or proposed to be listed on Indian stock exchanges.

Additional terms with respect to Second Party Opinions (as defined in Moody's Investors Service Rating Symbols and Definitions): Please note that a Second Party Opinion ("SPO") is not a "credit rating". The issuance of SPOs is not a regulated activity in many jurisdictions, including Singapore. JAPAN: In Japan, development and provision of SPOs fall under the category of "Ancillary Businesses", not "Credit Rating Business", and are not subject to the regulations applicable to "Credit Rating Business" under the Financial Instruments and Exchange Act of Japan and its relevant regulation. PRC: Any SPO: (1) does not constitute a PRC Green Bond Assessment as defined under any relevant PRC laws or regulations; (2) cannot be included in any registration statement, offering circular, prospectus or any other documents submitted to the PRC regulatory authorities or otherwise used to satisfy any PRC regulatory disclosure requirement; and (3) cannot be used within the PRC for any regulatory purpose or for any other purpose which is not permitted under relevant PRC laws or regulations. For the purposes of this disclaimer, "PRC" refers to the mainland of the People's Republic of China, excluding Hong Kong, Macau and Taiwan.