

CREDIT OPINION

22 May 2024

Update



Send Your Feedback

RATINGS

Belgrade, City of

Domicile	Serbia
Long Term Rating	Ba2
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

Maksym Rudnichenko
Ratings Associate
maksym.rudnichenko@moodys.com
+44.20.7772.8725

Massimo Visconti, MBA
VP-Sr Credit Officer/Manager
massimo.visconti@moodys.com
+39.02.9148.1124

CLIENT SERVICES

Americas	1-212-553-1653
Asia Pacific	852-3551-3077
Japan	81-3-5408-4100
EMEA	44-20-7772-5454

City of Belgrade (Serbia)

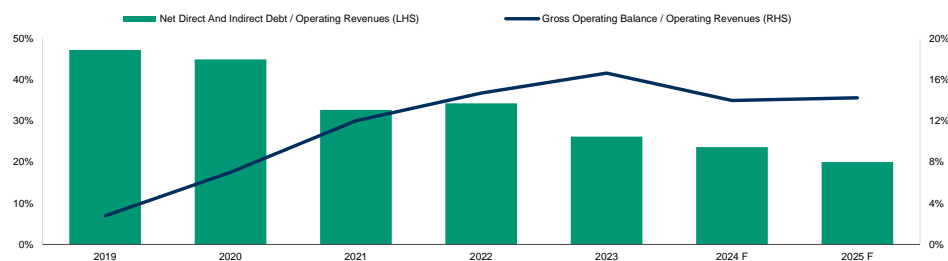
Update following rating affirmation

Summary

The credit profile of [City of Belgrade](#) (Ba2 stable) reflects its robust fiscal management, demonstrated by its strong financial results and a strong likelihood that the [Government of Serbia](#) (Ba2 stable) would provide support in case the city were to face acute liquidity stress. The rating is also underpinned by a track record of low debt levels with limited borrowing needs, as well as comfortable liquidity position. The credit profile is further supported by Belgrade's position as the nation's capital and the largest economic center, contributing to around 40% of Serbia's GDP. However, the rating takes into account the city's substantial investment requirements and the pressure stemming from the transportation company.

Exhibit 1

Continuation of strong operating performance and declining debt trends



F = Forecast.

Source: City of Belgrade, Moody's Ratings

Credit strengths

- » Strong operating performance fueled by robust rise in tax revenue and prudent budgetary management
- » Overall positive financial results, notwithstanding investment needs
- » Low and declining debt burden as well as sound liquidity position
- » Belgrade's wealthy economy and important role as national economic hub

Credit challenges

- » Indirect debt exposure related to the city-owned public transportation company
- » Limited revenue and expenditure flexibility

Rating outlook

The stable outlook reflects the city's capacity to preserve its overall solid and relatively stable financial performance, and modest debt level. The city's history of prudent budgetary management further supports the stable outlook. It also mirrors the stable outlook on the sovereign rating.

Factors that could lead to an upgrade

An upgrade of Serbia's sovereign rating associated with a continuation of very solid budgetary performance, contained debt and adequate liquidity levels will lead to an upgrade of the city's rating.

Factors that could lead to a downgrade

A deterioration of the sovereign credit strength will apply downward pressure on the city's rating given the close financial, institutional and operational linkages between the two tiers of governments. Significant financial deterioration driven by reduced operating margins, an unexpected sharp increase in debt as well as the emergence of liquidity risks, would also exert downward pressure on the rating.

Key indicators

Exhibit 2

City of Belgrade							
	2019	2020	2021	2022	2023	2024F	2025F
Net direct and indirect debt as a % of operating revenues	47.2	44.9	32.7	34.3	26.0	23.7	20.0
Accrual financing surplus (deficit) as % of total revenues	-3.3	7.5	2.4	5.1	8.3	4.2	2.9
Gross operating balance as % of operating revenues	2.8	7.0	12.0	14.7	16.6	14.0	14.2
Debt Service % of total revenues	4.7	4.1	3.8	3.6	3.9	3.1	3.0
Capital spending as a % of total expenditures	19.1	14.5	19.0	18.6	17.6	16.7	16.6
Interest payments as a % of operating revenues	1.2	1.0	0.7	0.7	0.9	0.8	0.8

F = Forecast.

Source: City of Belgrade, Moody's Ratings

Detailed credit considerations

On 17 May 2024, Moody's affirmed the City of Belgrade's Ba2 ratings and maintained the stable outlook. The key drivers for the rating affirmation were a track record of very solid financial performance as well as prudent financial management as reflected in consistently strong gross operating balances (GOB) over the previous decade, with financial outcomes frequently aligning with budgeted projections. The credit profile of Belgrade, as expressed in its Ba2 stable rating, combines a baseline credit assessment (BCA) of ba2, and a strong likelihood of extraordinary support coming from the Serbian government in the event that the city faces acute liquidity stress.

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.

Baseline credit assessment

Strong operating performance fueled by a robust rise in tax revenue and prudent budgetary management

The City of Belgrade has exhibited an improvement in its operating performance, with the GOB increasing to strong 16.6% of operating revenue in 2023 from 14.7% in 2022 (Exhibit 1). This notable advancement is largely attributable to the robust growth of income tax revenue and prudent budgetary management.

The key driver behind this strong performance was a surge in tax revenue growth, which was underpinned by a Serbia's real gross domestic product (GDP) growth of 2.5% in 2023, along with inflation of 12.4% (annual average) recorded over the same period. These contributed to a higher tax revenue base, which in turn bolstered Belgrade's operating performance. Income tax and other shared tax revenues form more than a half of Belgrade's operating income.

Furthermore, the city's prudent budgetary management has played a crucial role in the improved operating performance. The city's administration has shown a strong commitment to maintaining fiscal discipline, which is reflected in the effective management of expenditures, prioritization of investments, and efficient allocation of resources. The city has been able to balance its budget and even generate a surplus, contributing to the increased operating margin.

Moody's forecast the country's GDP to grow by 3.2% in 2024 and 4.0% in 2025, which will lead to a strong proceeds from income tax, maintaining the Belgrade's financial health with GOB at around 14% of projected operating revenue over the same period.

Own source revenue represents a minor proportion of the city's revenue and it accounts for around 20% of operating revenue, incorporating property tax, local utility fees, and administrative fees. The high fiscal dependence on state decisions exposes city's finances to the performance of the general government budget and evolving intergovernmental relations.

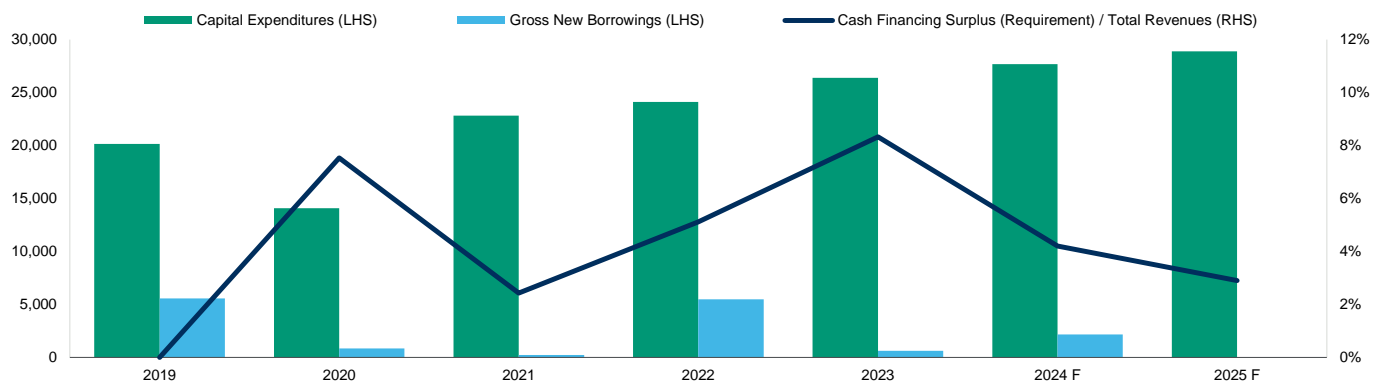
Overall positive financial results, notwithstanding investment needs

In 2023, the City of Belgrade demonstrated considerable financial stability, posting a financing surplus of 8.3% of total revenue, an increase from a surplus of 5% reported in the prior year.

Looking ahead, we expect the city's capital spending to remain at around 17% of total expenditures over 2024-2025, a level that can put some pressure on city's finances, given that greater part of capital expenditures are funded from own source revenues rather than debt financing. The City of Belgrade retains some flexibility to enhance its financial outcomes by deferring some of the capital investments that were initially planned.

Exhibit 3

Growing spending pressure to address investment needs



F = Forecast.

Source: City of Belgrade, Moody's Ratings

The city's capital spending program is primarily directed towards infrastructure development, including transportation-related projects such as a new metro line, as well as the reconstruction of the water supply system and enhancements to the sewage system. Other

planned infrastructure projects encompass street renovation, the rehabilitation of public building facades, and the construction and renovation of bridges.

Belgrade's investment strategy also extends to projects within the areas of education, culture, and social services. This multifaceted approach reflects the city's commitment to comprehensive development and progress.

The refurbishment and expansion of the Vinča landfill, along with the disposal and processing of solid waste, are crucial undertakings for the city. These initiatives have been realized through Serbia's inaugural public-private partnership (PPP) in the waste management area. In 2021, the private partner initiated operations, offering specific services to the city. Alongside the completion of the landfill's sanitation and the establishment of a facility for treating construction waste, additional activities such as waste incineration and the functioning of a waste-to-energy plant were launched in 2023.

This project represents a significant development for the city of Belgrade, both in terms of environmental sustainability and financial implications. The center's operation helps the city manage waste more effectively, reducing environmental impact and potentially saving costs in the long run through reduced landfill usage and decreased expenses related to pollution control. Moreover, by converting waste into valuable resources, such as energy or recyclable materials, the center could potentially generate additional income for the city of Belgrade.

The total investment for this project, forecasted to be around EUR 300 million, is financed by the private partner. The city has contributed the land for the facility and made the necessary infrastructure provisions. Apart from the essential costs for the site's infrastructure arrangements, no additional impact on the city's budget is anticipated. The project-related obligations are deemed to be self-sustaining, and are excluded from indirect debt calculations.

The city has set aside approximately RSD1 billion in the budget for guaranteed payments pertaining to waste management obligations. This represented less than 1% of the city's total expenditures in 2023.

Low and declining debt burden and sound liquidity position

The city has kept its direct debt burden low at RSD29.3 billion by the end of 2023, compared to RSD32.8 billion in 2022. This indicates a manageable 18% of operating revenue, which is a reduction from 24% recorded in 2022. This downward trajectory is projected to continue into 2024, with the city's borrowing tendencies remaining restrained. We estimate that the direct debt will amount RSD28.9 billion, which would constitute a mere 16.7% of the forecasted operating revenue in 2024.

At year-end 2023, Belgrade's direct debt consisted of bank loans: (1) RSD15.9 billion loans with [European Investment Bank \(EIB, Aaa stable\)](#), (2) RSD5.4 billion loans with [European Bank for Reconstruction and Development \(EBRD, Aaa stable\)](#), and (3) RSD8 billion loan with Banca Intesa.

The city's debt structure reveals a favorable maturity profile, with 70% of the total debt scheduled to mature between 6 and 20 years. This extended maturity timeline is beneficial for the city as it allows for more manageable debt repayments spread over a longer period, reducing the pressure on the city's annual budget. Belgrade's debt service costs remain low at 3.9% of total revenue in 2023 and will decline to around 3% in 2024-2025.

Lengthy maturity and amortizing nature of Belgrade's debt partially mitigate the pressures associated with the foreign-currency risk as the entire debt of Belgrade is denominated in euro, making the city debt somewhat vulnerable to exchange-rate fluctuations.

The city's month-end cash reserves throughout 2023 averaged RSD15.7 billion representing 12.7% of operating expenditures compared with 9.5% at year-end 2022. The city follows a prudent cash management strategy, which, together with regular distributions of shared taxes, ensures smooth cash flow.

The liquidity coverage ratio, a key indicator of Belgrade's ability to cover short-term liabilities with its short-term assets, was 2.83x in 2023, and is projected to rise to 3.87x in 2024 from 2.46x in 2022. This forecasted improvement indicates an expected strengthening in the city's liquidity position over the next couple of years.

Belgrade does not maintain emergency lines of credit from banks in addition to those that have been signed and committed for project financing.

Belgrade's wealthy economy and important role as national economic hub

The City of Belgrade plays an important role in the national economy as Serbia's capital and largest city with 1.7 million inhabitants within its administrative territory, as of 2021. The city is expected to grow towards nearly 2 million inhabitants by 2041. Belgrade's economy is diversified, limiting its exposure to economic cycles. Belgrade contributes significantly to the country's economy, accounting for 40.2% of the national GDP (2021 latest available data). The city's unemployment rate remained moderate at 7.8% in 2022, compared to 8.8% in 2021. This compares favourably with national unemployment statistics.

The city's relative wealth is evident in its GDP per capita, which is around 163% of the national average according to the 2021 statistics. Belgrade economically outperforms domestic peers and is also well positioned relative to other South-Eastern European cities. Belgrade is a seat of the central government and hosts the country's main universities and the headquarters of the largest companies.

Indirect debt exposure related to the city-owned public transportation company

The city of Belgrade, through its more than 30 majority-owned companies, is striving to balance its infrastructure needs with its financial constraints. This strategy was crucial in the face of inflation and high energy costs, as evidenced over the past two years, which were exerting pressure on Belgrade owned companies' operational performances.

The city-owned transportation company, GSP, which has been operating at a loss, continues to pose a significant burden on the city's budget. This is largely due to ongoing investments, notably the modernization of its bus fleet, which has necessitated the company to incur additional debt on top of the funding supplied by the city. Nevertheless, the city government has initiated a series of measures including a new ticketing system aimed at enhancing the operational and financial efficiency of GSP. Once these measures take effect, they are likely to alleviate some of the financial strain on the city's budget.

The rising costs associated with inflation and energy are not being reflected in the transportation tariffs, necessitating increased operational subsidies from the city to ensure the continuity of public transport services, which amounted RSD2.3 billion in 2023. In addition, the city provided a capital injection of RSD930 million and regular payments made on the basis of the contract between the city and GSP, which allows a full compensation for public transportation service obligations as well as a fair level of profit (including depreciation).

When taking into account the debt of GSP, which we consider as a non-self supporting company according to our methodology, the city's net direct and indirect debt (NDID) accounted for 34.3% of operating revenue as of year-end 2022 (Exhibit 4), up from 32.7% in 2021 (44.9% in 2020). All of the company's debt of RSD9.5 billion in 2022 (compared to RSD4.5 billion in 2020) is included in Belgrade's indirect debt exposure.

Limited revenue and expenditure flexibility

Belgrade's ability to adjust its budget is somewhat constrained. About half of the city's operating revenues in 2023 came from shared taxes, including personal income tax, which the city does not have the power to change. This suggests a significant reliance on the central government for tax revenues. However, the city's institutional framework does provide some counterbalance to this lack of control over tax revenue. Unlike other local governments in Serbia, Belgrade has a larger capacity to increase revenue through local taxes and fees, which made up over 20% of operating revenues.

The rating of Belgrade is also constrained by the institutional structure governing local governments in Serbia. This structure is characterized by frequent alterations, leading to limited financial stability and predictability. This, in turn, hampers the effectiveness of city-level policies and restricts Belgrade's capacity for efficient long-term planning.

Belgrade's spending flexibility is somewhat constrained due to a substantial portion of legally mandated costs, including employee wages and social contributions. These, combined with other fixed expenses like interest payments, subsidies, and transfers to other government levels and city-owned entities, make up around 60-70% of the city's operational expenditures. The city's primary area of financial maneuverability lies in capital expenditures, though this is also limited by the extensive infrastructure requirements that are typical for all local governments in Serbia.

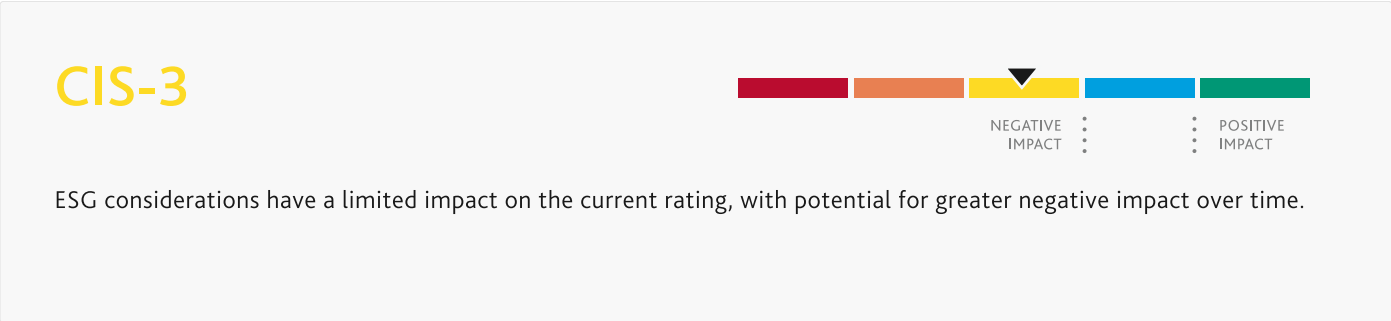
Extraordinary support considerations

We consider Belgrade to have a strong likelihood of extraordinary support from the central government, reflecting our assessment of the city's strategic importance to the national economy. The assessment also indicates a moderate system of oversight by the central government that requires regular monitoring of cities' indebtedness.

ESG considerations

Belgrade, City of's ESG credit impact score is CIS-3

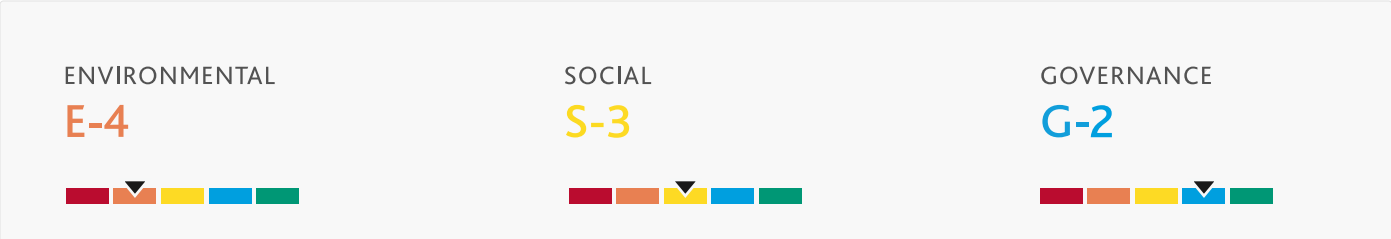
Exhibit 4
ESG credit impact score



Source: Moody's Ratings

City of Belgrade's **CIS-3** indicates that ESG considerations have a limited impact on the current credit rating with potential for greater negative impact over time. Belgrade's credit impact score reflects high exposure to environmental risks, along with moderate exposure to social risks and neutral to low governance risk.

Exhibit 5
ESG issuer profile scores



Source: Moody's Ratings

Environmental

The (**E-4**) score assigned to City of Belgrade reflects its exposure to environmental risk mainly related to physical climate risk and exposure to flood risk. Other environmental risk exposure is related to weather-related events including heatwaves as well as air pollution. However, the protecting measures and adaptation plans introduced, the City of Belgrade manages these risks and the amounts do not result in significant pressure on the city's fiscal profile. In case of an emergency the measures are predominantly managed by national authorities.

Social

The (**S-3**) score assigned to City of Belgrade reflects its moderate exposure to social risks, including net immigration flows, which poses budgetary pressure to secure provision of public services. In addition, population growth is putting some strain to the city's budget to meet the infrastructure and housing needs. This issuer profile score reflects good housing availability and good access to basic services.

Governance

The (**G-2**) score assigned to City of Belgrade reflects institutions and governance strength that is not material in differentiating credit quality. In recent years, the city's implementation of budgetary control plans is indicative of positive management actions and there is

a proven track record of the city frequently meeting or exceeding its fiscal targets. The city has moderate fiscal flexibility and follows prudent budgetary management practices, which allows for multiyear forecasting of key trends, providing the city with the ability to identify potential pressures and allowing for sufficient time to adjust plans to mitigate any credit implications.

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.

Rating methodology and scorecard factors

The assigned baseline credit assessment (BCA) of ba2 is in line with the suggested BCA of ba2 generated by the scorecard. The suggested BCA of ba2 reflects (1) an idiosyncratic risk score of 2 (presented below) on a 1 to 9 scale, where 1 represents the strongest relative credit quality and 9 the weakest; and (2) a systemic risk score of Ba2, as reflected in the sovereign bond rating.

For details about our rating approach, please refer to [Rating Methodology: Regional and Local Governments](#), published on 16 January 2018.

Belgrade, City of

Baseline Credit Assessment – Scorecard	Score	Value	Sub-factor Weighting	Sub-factor Total	Factor Weighting	Total
Factor 1: Economic Fundamentals				1	20%	0.20
Economic Strength	1	169.27%	70%			
Economic Volatility	1		30%			
Factor 2: Institutional Framework				6	20%	1.20
Legislative Background	5		50%			
Financial Flexibility	7		50%			
Factor 3: Financial Position				1.50	30%	0.45
Operating Margin	1	12.84%	12.5%			
Interest Burden	1	0.73%	12.5%			
Liquidity	1		25%			
Debt Burden	1	34.29%	25%			
Debt Structure	3	12.58%	25%			
Factor 4: Governance and Management				1	30%	0.30
Risk Controls and Financial Management	1					
Investment and Debt Management	1					
Transparency and Disclosure	1					
Idiosyncratic Risk Assessment						2.15 (2)
Systemic Risk Assessment						Ba2
Suggested BCA						ba2
Assigned BCA						ba2

[1] Local GDP per capita as % of national GDP per capita [2] Gross operating balance/operating revenues [3] Interest payments/operating revenues [4] Net direct and indirect debt/operating revenues [5] Short-term direct debt/total direct debt

Source: Moody's Investors Service; Fiscal 2022.

Ratings

Exhibit 7

Category	Moody's Rating
BELGRADE, CITY OF	
Outlook	Stable
Baseline Credit Assessment	ba2
Issuer Rating	Ba2

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 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 Clasificadora 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 61 003 399 657 AFSL 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.

CLIENT SERVICES

Americas	1-212-553-1653
Asia Pacific	852-3551-3077
Japan	81-3-5408-4100
EMEA	44-20-7772-5454