

**CREDIT OPINION**

11 October 2024

Update



**RATINGS**

**Banco Cooperativo Sicredi S.A.**

Domicile	Porto Alegre, Rio Grande do Sul, Brazil
Long Term CRR	Baa3
Type	LT Counterparty Risk Rating - Fgn Curr
Outlook	Positive

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**

- Lucas Viegas** +55.11.3956.8717  
VP-Senior Analyst  
lucas.viegas@moodys.com
- Daniel Girola** +55.11.3956.8729  
VP-Senior Analyst  
daniel.girola@moodys.com
- Guy Bernardet, CFA** +55.11.3956.8789  
Ratings Associate  
guy.bernardet@moodys.com

**CLIENT SERVICES**

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

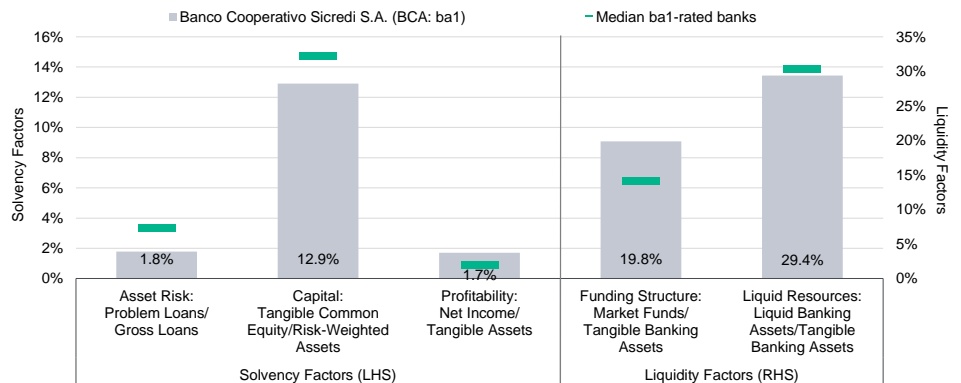
**Banco Cooperativo Sicredi S.A.**

Update following upgrade to Ba1, outlook changed to positive

**Summary**

Moody's assigns a corporate family rating of Ba1 to [Banco Cooperativo Sicredi S.A.](#) (Banco Sicredi). Banco Sicredi is the central entity of Sistema de Crédito Cooperativo Sicredi (Sicredi). Moody's assesses Sicredi's as if it operated as a single entity, taking into consideration its strategic and operational cohesion, common policies for credit risk, liquidity risk and capitalization; as well as the principle of solidarity within the group. The Ba1 rating incorporates the cooperative system's consistently low asset risk, strong capitalization and profitability, as well as the bank's granular funding structure that has supported Sicredi's rapid loan growth. Banco Sicredi's ratings also reflect the complexities involved in operating a large federated cooperative system and its concentrated risk exposure to the agricultural industry. Banco Sicredi's ratings outlook is now positive, reflecting its financial profile surpassing its standalone BCA, yet constrained at Brazil's sovereign debt rating (Ba1, positive outlook), despite the mapped impacts from the floods in Rio Grande do Sul in mid 2024.

Exhibit 1  
**Rating Scorecard - Key financial ratios**  
As of June 2024



For the asset risk and profitability ratios, we calculate the average of the three latest year-end numbers and the latest quarterly data, if available and the ratio used is the weaker of the average and the latest period. For the capital ratio, we use the latest reported figure. For the funding structure and liquid resources ratios, we use the latest year-end figures.  
Source: Moody's Financial Metrics

## Credit strengths

- » Strong capitalization, both at the combined group and at each individual entity of the Sicredi network
- » Resilient profitability, largely driven by high margin lending operations and low cost of funding
- » Granular funding structure, largely composed of cooperative associates' deposits

## Credit challenges

- » Asset risk and profitability pressures due to a high rates operating environment in Brazil despite conservative risk management and below system average problem loans
- » Intrinsic limitations to franchise business flexibility and growth, due to cooperative model

## Rating outlook

The positive outlook for Banco Sicredi's ratings reflects its current financial profile, which currently surpasses its assigned standalone BCA. The BCA is, however, currently limited to the same level as the Government of Brazil's sovereign debt rating of Ba1 with positive outlook.

## Factors that could lead to an upgrade

- » Banco Sicredi's ba1 BCA is at the level of Brazil's sovereign rating. An improvement in the metrics would only lead to upward pressure in the event of an upgrade in Brazil's bond rating.

## Factors that could lead to a downgrade

- » Negative pressure on Banco Sicredi's ratings would derive from significant weakening of its strong financial fundamentals, including a deterioration in the quality loan portfolio that could result from its rapid expansion and adverse selection, which, on the other hand, would strain on Sicredi's profitability and capital generation capacity.
- » A downgrade in Brazil's ratings would lead to a downgrade in the ratings as well.

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.moodys.com> for the most updated credit rating action information and rating history.

## Key Indicators

Exhibit 2

### Banco Cooperativo Sicredi S.A. (Consolidated Financials) [1]

	06-24 <sup>2</sup>	12-23 <sup>2</sup>	12-22 <sup>2</sup>	12-21 <sup>2</sup>	12-20 <sup>2</sup>	CAGR/Avg. <sup>3</sup>
Total Assets (BRL Million)	363,359.1	324,543.2	263,508.6	197,573.8	154,860.9	27.6 <sup>4</sup>
Total Assets (USD Million)	65,417.7	66,811.4	49,909.3	35,431.0	29,814.2	25.2 <sup>4</sup>
Tangible Common Equity (BRL Million)	39,702.2	36,632.5	29,886.7	24,543.5	19,845.5	21.9 <sup>4</sup>
Tangible Common Equity (USD Million)	7,147.8	7,541.3	5,660.6	4,401.4	3,820.7	19.6 <sup>4</sup>
Problem Loans / Gross Loans (%)	1.8	1.5	1.1	0.6	0.6	1.1 <sup>5</sup>
Tangible Common Equity / Risk Weighted Assets (%)	12.9	12.3	--	--	--	12.6 <sup>6</sup>
Problem Loans / (Tangible Common Equity + Loan Loss Reserve) (%)	7.1	6.2	4.9	3.0	2.6	4.8 <sup>5</sup>
Net Interest Margin (%)	7.1	7.3	7.4	6.9	7.5	7.2 <sup>5</sup>
PPI / Average RWA (%)	5.1	--	--	--	--	5.1 <sup>6</sup>
Net Income / Tangible Assets (%)	1.7	2.1	2.2	2.4	2.1	2.1 <sup>5</sup>
Cost / Income Ratio (%)	49.3	49.0	50.1	53.3	55.7	51.5 <sup>5</sup>
Market Funds / Tangible Banking Assets (%)	20.6	19.8	19.7	20.2	16.8	19.4 <sup>5</sup>
Liquid Banking Assets / Tangible Banking Assets (%)	32.4	29.4	26.8	26.4	31.3	29.2 <sup>5</sup>
Gross Loans / Due to Customers (%)	84.4	88.7	93.7	105.5	94.6	93.4 <sup>5</sup>

[1] All figures and ratios are adjusted using Moody's standard adjustments. [2] Basel III - fully loaded or transitional phase-in; LOCAL GAAP. [3] May include rounding differences because of the scale of reported amounts. [4] Compound annual growth rate (%) based on the periods for the latest accounting regime. [5] Simple average of periods for the latest accounting regime. [6] Simple average of Basel III periods.

Sources: Moody's Ratings and company filings

## Profile

Banco Cooperativo Sicredi is the central banking entity of Sistema de Crédito Cooperativo Sicredi, a federated credit cooperative system in Brazil that, as of June 2024, was comprised of 104 credit unions and more than 8.1 million depositors (members) with a presence in all Brazilian states plus the Federal District. Sicredi offers traditional financial services (such as lending, credit cards, insurance and investments) to associates under a common brand and following centralized risk policies and controls. In accordance with the cooperative culture, members of Sicredi's individual credit unions are also the shareholders of those credit unions.

## Detailed credit considerations

### Negative impact from recent climate events are expected to be mitigated by Sicredi's conservative credit underwriting and provisioning standards

Moody's assigns a baa2 score to Sicredi's asset risk, reflecting its granular, geographically diversified loan book and conservative provisioning policies. At the same time, the score incorporates our view on sector concentration and our expectation that the seasoning of the recent strong growth of Sicredi's loan portfolio could lead to higher asset risk. Sicredi reported a 24.8% compound annual growth rate in the past three years (2021-2023). This continued in 2024 with a 23.0% year-over-year (YoY) growth in June 2024, around double the expansion of total credit in Brazil in the same periods.

As of June 2024, Sicredi's problem loans ratio increased to 1.8%, higher than the 1.4% one year prior and the 1.4% average in 2016-2019. The mild deterioration reflects the industry trend on retail lending as a consequence of still high interest rates and household indebtedness. Of note, Sicredi's problem loans as calculated by Moody's include only installments past due by 15 days or more. The group's strong asset quality indicators can also be demonstrated when we look at non performing loans (NPLs) over 90 days, which represented 2.4% of its portfolio in June 2024, below the 3.2% for the entire Brazilian banking system as of the same date. Additionally, the bank also maintained a high reserve coverage ratio, equivalent to 2.1x its NPLs over 90 days in June 2024, which will continue to mitigate rising asset risks related to the accelerated business growth, in an economic environment that will continue to strain individuals' repayment capacity over the next quarters. In addition, recent extreme climate events in the state of Rio Grande do Sul where the bank has around 30% of its loan portfolio may negatively impact asset quality metrics in the next quarters. However, we highlight recent government measures to alleviate the financial impact to the banks and Sicredi's adequate liquidity and current low level of delinquency that provide resilience to the financial profile.

Sicredi actively monitors actual and potential environmental risk that could come from its loans to corporate associates and applies strict underwriting guidelines to manage its potential reputational risks associated with lending to such companies. The group's internal

regulation also states that a credit union cannot provide new loans if it does not comply with the minimum liquidity thresholds established centrally by risk management, and a recovery plan must be implemented. In addition, each credit union must hold sufficient reserves to cover its problem loans, providing a relevant loss absorption buffer.

### Strict leverage policy has supported Sicredi's capitalization through its accelerated expansion

We score Sicredi's capital as baa3, reflecting Sicredi's credit unions above average capitalization, strict leverage policies, and solid track record of capital replenishment capacity through the cycles. According to internal regulations, each credit union must report capital ratios at least 300 basis points above regulatory minimum, which ensures a solid position at the network level. The ratios are centrally monitored by regional centers that handle compliance and adequacy plans. Credit unions whose capital ratios remain below internal thresholds must present plans to replenish capital. The group also benefits from regular reinvestment of net income in its capital structure.

In line with its cooperative nature, each of Sicredi's individual associates is a shareholder of the group and new joiners are required to make an equity injection to be a member. These contributions and the systematic earnings retentions have historically supported a high capitalization at the group level, with capital primarily made of common equity. In Q2 2024, the tangible common equity to adjusted risk-weighted assets ratio<sup>1</sup> was 12.9% and the group's common equity tier 1 ratio 18.2%.

In terms of ownership structure, the local credit unions and the five regional centers are the shareholders of Sicredi Participações - the holding entity that controls Banco Cooperativo Sicredi.

### Strong profitability partially mitigates negative effects from recent climate events

Although profit maximization is not Sicredi's main objective given its cooperative model, the group's profitability metrics remained strong between 2021 and 2023 with an average net income to tangible assets ratio of 2.3%, reflecting the high loan growth pace and stable service revenue that partially compensated for increasing funding and credit costs. The group also benefits from the fact that income from cooperative lending activities is not taxable under Brazilian tax law. In H1 2024, net income to tangible assets reached 1.7%, from 2.2% in H1 2023, impacted by higher loan loss provisions expense, as a result of the higher delinquency metrics. Annualized loan loss provisions to gross loans reached 4.1% in the first half of 2024, from 3.0% in the same period of the previous year. Looking forward we expect provisioning expense to continued pressured as a result of increasing asset risk associated with the floods in Rio Grande do Sul. Moreover, despite Sicredi's well-established position in its core markets, the group is exposed to rising competition from large commercial banks that have increased their footprint in agribusiness, which will pressure future margins and bottom line results.

Operating efficiency remained flat at 49.3% in the first half of 2024, largely helped by digital initiatives despite the higher costs related to the franchise expansion. Sicredi is physically present in over two thousand municipalities, which provides geographical diversification to earnings. At the same time, this characteristic weighs on Sicredi's operating expenses, as individual credit unions lack operational scale and must comply individually with regulatory demands from the Central Bank, including the reporting of audited financials.

Our score of baa2 for profitability reflects Sicredi's strong track record, as well as the challenges the group faces in maintaining high profitability in light of increasing competition and a challenging operational environment.

### Liquidity is supported by Sicredi's granular deposit base and access to local capital markets

Sicredi's combined liquidity score of baa3 is driven by the group's stable and granular funding base, as well its conservative liquidity management across the cooperative system. The adequate liquidity levels provides a buffer for potential deposit withdrawals as a result of the climatic event in Rio Grande do Sul, as well as for the loans forbearance and renegotiations that the situation will require.

As of June 2024, deposits and deposit-like instruments were its major funding source accounting for 75.7% of Sicredi's total funding. The second most important source are domestic onlending operations mostly from government-owned development bank [Banco Nac. Desenv. Economico e Social - BNDES](#)<sup>1</sup> (Ba1 positive, ba1<sup>2</sup>) totaling BRL26.7 billion, which are channeled through Banco Sicredi to the credit unions and represented 8.5% of Sicredi's funding. According to internal regulations, the minimum amount of liquidity established for each entity depends on the volatility of its funding availability, being higher for unions with higher deposit concentrations and noncompliant entities cannot disburse new loans. We understand such measures help to address the challenges imposed by the complex and heterogenic network and reinforce the cross guarantee in place.

Liquidity is managed centrally and operated by its banking entity. In addition, credit unions are protected by a cross guarantee in the event of any liquidity or capital needs, which has historically reflected into a conservative liquidity profile to the group. In 2024, despite

the high growth of the portfolio, liquidity buffers remained stable supported by the increase in deposits from customers. Liquid assets to tangible banking assets ratio increased to 32.4% in June 2024 from 30.4% one year prior, but lower than the 37.5% average between 2015 and 2020.

**Qualitative adjustments**

Sicredi's cooperative model results in intrinsic limitations to its franchise in terms of business flexibility and growth. In addition, the cooperative system as a whole presents higher structural complexity, which derives from the heterogeneity of individual cooperative entities, than rated commercial banks. The comprehensive and timely risk monitoring by Banco Sicredi counterbalances this complexity. Nonetheless, in order to reflect this increased complexity, we assign a qualitative adjustment of -1 for opacity and complexity to Banco Sicredi.

**Banco Sicredi's rating is supported by the Moderate Macro Profile of Brazil**

Brazil's (Ba1 positive) Macro Profile of "Moderate" is supported by the country's large and highly diversified economy with limited exposure to external financing risks. It also incorporates our improvements in the business environment for banks from recent reforms, including the independence of the central bank; the state-owned company law; labor reform; and a collateral framework that reduced uncertainties about judicial disputes and the potential for political intervention in the financial system. We forecast a real GDP growth to moderate in 2024 and 2025 to 2.0% and 2.2% respectively, after growing around 3.0% in the previous couple of years.

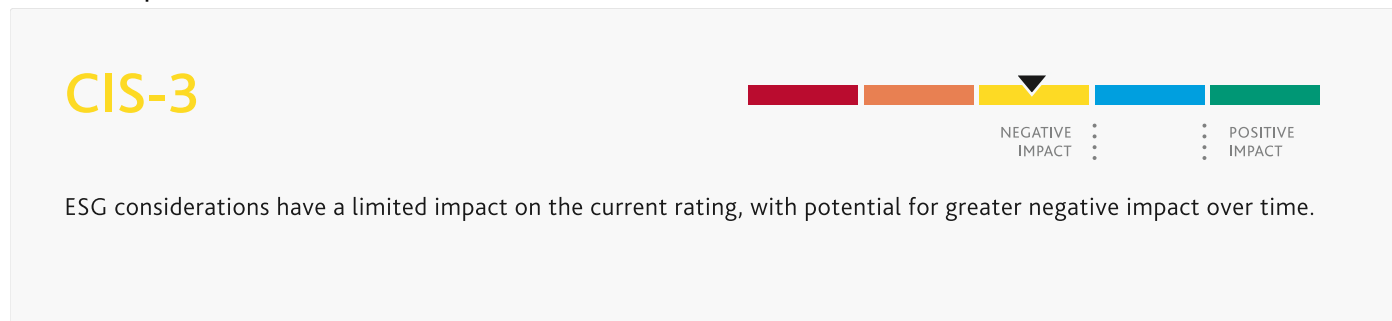
Our assessment acknowledges the current momentum as Brazil's banking system moves out of the credit cycle's downturn, with declining but still-high delinquency ratios and household indebtedness amid tighter liquidity on global capital markets, which will continue to pressure credit conditions ahead.

**ESG considerations**

**Banco Cooperativo Sicredi S.A.'s ESG credit impact score is CIS-3**

Exhibit 3

**ESG credit impact score**

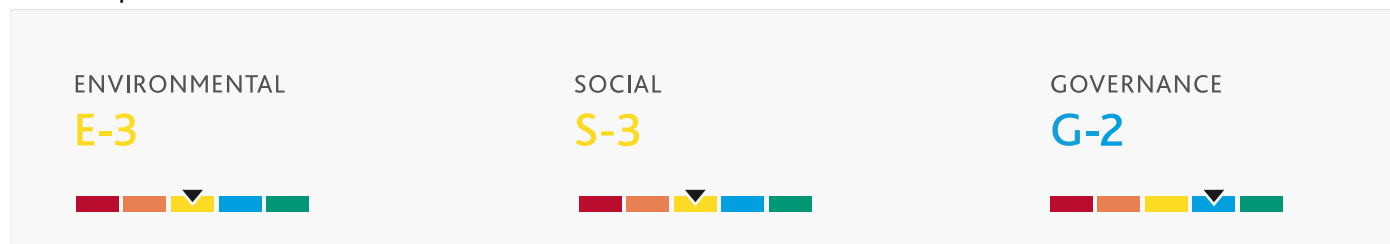


Source: Moody's Ratings

Sicredi's **CIS-3** reflects the moderate credit impact of environmental and social risk factors on the rating to date and low governance risks. Corporate governance practices are robust, relying on Sicredi's corporativism model that have supported the bank's credit profile across different economic cycles. The bank has a strong track record of earnings recurrence, underpinned by its sound risk management practices.

Exhibit 4

## ESG issuer profile scores



Source: Moody's Ratings

### Environmental

Sicredi faces moderate exposure to environmental risks because of its portfolio exposure to carbon transition and physical climate risks as a large cooperative bank with meaningful lending activity to rural borrowers. In line with its peers, the bank is facing mounting business risks and stakeholder pressure to meet broader carbon transition goals.

### Social

Sicredi faces moderate social risks related to customer relations. The bank's developed policies and procedures, mitigate risk associated with the distribution of financial products such as conduct, regulatory and reputational risks, as well as exposure to litigation; Sicredi has activities primarily in Brazil, a country which has imposed only moderate penalties in relation to consumer protection. Continued investments in technology and the bank's long track record of handling sensitive customer data, as well as appropriate culture and governance that ensure adherence to regulatory standards, help to manage high cyber and personal data risks. Opportunities from financial inclusion are reflected in a better than industrywide exposure to demographic and societal trends.

### Governance

Sicredi faces low governance risks, and its risk management policies and procedures are in line with industry best practices. Sicredi's board is elected by the members of the cooperative and its ownership structure is diversified and granular. The bank's management has a strong track record of good compliance and in maintaining the bank's steady earnings generation.

ESG Issuer Profile Scores and Credit Impact Scores for the rated entity/transaction are available on Moody's.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.

## Support and structural considerations

### Notching considerations

In the absence of a bail-in resolution regime framework in Brazil, the ratings of subordinated debts, bank hybrids and contingent capital securities follow the "Additional Notching Guidelines", as per the Rating Methodology: Banks. In these cases, the approach takes into account other features specific to debt classes, resulting in additional notching from the adjusted baseline credit assessment (BCA) of the issuer.

### Government support

We believe there is a low likelihood of government support for Sicredi's ratings, which reflects the bank's small share of deposits and assets in Brazil's banking system.

### Counterparty Risk (CR) Assessment / Counterparty Risk Rating (CRR)

Sicredi's CR Assessment and CRR are one notch above its Adjusted BCA and, therefore, above its deposit/issuer ratings, reflecting our view that the probability of default is lower for operating obligations and other contractual commitments than for deposits or unsecured debt. These obligations will be more likely preserved in order to minimize losses, avoid disruption of critical functions and limit contagion. They are less likely to be subject to the application of a resolution tool to ensure the continuity of operations.

### About Moody's bank scorecard

Our Scorecard is designed to capture, express and explain in summary form our Rating Committee's judgment. When read in conjunction with our research, a fulsome presentation of our judgment is expressed. As a result, the output of our Scorecard

may materially differ from that suggested by raw data alone (though it has been calibrated to avoid the frequent need for strong divergence). The Scorecard output and the individual scores are discussed in rating committees and may be adjusted up or down to reflect conditions specific to each rated entity.

## Rating methodology and scorecard factors

Exhibit 5

### Rating Factors

<b>Macro Factors</b>							
<b>Weighted Macro Profile</b>	<b>Moderate</b>	<b>100%</b>					
<b>Factor</b>	<b>Historic Ratio</b>	<b>Initial Score</b>	<b>Expected Trend</b>	<b>Assigned Score</b>	<b>Key driver #1</b>	<b>Key driver #2</b>	
<b>Solvency</b>							
<b>Asset Risk</b>							
Problem Loans / Gross Loans	1.8%	baa1	↔	baa2	Sector concentration	Loan growth	
<b>Capital</b>							
Tangible Common Equity / Risk Weighted Assets (Basel III - transitional phase-in)	12.9%	baa3	↔	baa3	Risk-weighted capitalisation		
<b>Profitability</b>							
Net Income / Tangible Assets	1.7%	baa1	↔	baa2	Return on assets	Expected trend	
Combined Solvency Score		baa2		baa2			
<b>Liquidity</b>							
<b>Funding Structure</b>							
Market Funds / Tangible Banking Assets	19.8%	baa3	↔	baa3	Deposit quality		
<b>Liquid Resources</b>							
Liquid Banking Assets / Tangible Banking Assets	29.4%	baa3	↔	baa3			
Combined Liquidity Score		baa3		baa3			
<b>Financial Profile</b>							
				baa2			
<b>Qualitative Adjustments</b>				<b>Adjustment</b>			
Business Diversification				0			
Opacity and Complexity				-1			
Corporate Behavior				0			
<b>Total Qualitative Adjustments</b>				-1			
<b>Sovereign or Affiliate constraint</b>				Ba1			
<b>BCA Scorecard-indicated Outcome - Range</b>				baa3 - ba2			
<b>Assigned BCA</b>				ba1			
<b>Affiliate Support notching</b>				0			
<b>Adjusted BCA</b>				ba1			
<b>Instrument Class</b>	<b>Loss Given Failure notching</b>	<b>Additional notching</b>	<b>Preliminary Rating Assessment</b>	<b>Government Support notching</b>	<b>Local Currency Rating</b>	<b>Foreign Currency Rating</b>	
Counterparty Risk Rating	1	0	baa3	-	Baa3	Baa3	
Counterparty Risk Assessment	1	0	baa3 (cr)	-	Baa3(cr)		
Senior unsecured bank debt	0	0	ba1	-	Ba1		

[1] Where dashes are shown for a particular factor (or sub-factor), the score is based on non-public information.

Source: Moody's Ratings



## Ratings

Exhibit 6

Category	Moody's Rating
<b>BANCO COOPERATIVO SICREDI S.A.</b>	
Outlook	Positive
Counterparty Risk Rating	Baa3/P-3
Baseline Credit Assessment	ba1
Adjusted Baseline Credit Assessment	ba1
Counterparty Risk Assessment	Baa3(cr)/P-3(cr)
Corporate Family Rating	Ba1
Issuer Rating -Dom Curr	Ba1
ST Issuer Rating -Dom Curr	NP

Source: Moody's Ratings

## Endnotes

- 1 We adjust banks' TCE to RWA ratios by assigning a 100% risk-weight for government securities and limiting the amount of deferred tax assets (DTA) that can contribute to their TCE.
- 2 The bank ratings shown in this report are the bank's domestic deposit rating and BCA.

© 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 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 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.

CLIENT SERVICES

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