

CREDIT OPINION

14 March 2025

Update



RATINGS

Barclays Bank UK PLC

Domicile	London, United Kingdom
Long Term CRR	Aa3
Type	LT Counterparty Risk Rating - Fgn Curr
Outlook	Not Assigned
Long Term Debt	Not Assigned
Long Term Deposit	A1
Type	LT Bank Deposits - 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

Edoardo Calandro +44.20.7772.1097
VP-Sr Credit Officer
edoardo.calandro@moodys.com

Siri Ginjupalli +1.212.553.3805
Lead Ratings Associate
siri.ginjupalli@moodys.com

Simon James Robin +44 207 772 5347
Ainsworth
Associate Managing Director
simon.ainsworth@moodys.com

Barclays Bank UK PLC

Update to credit analysis

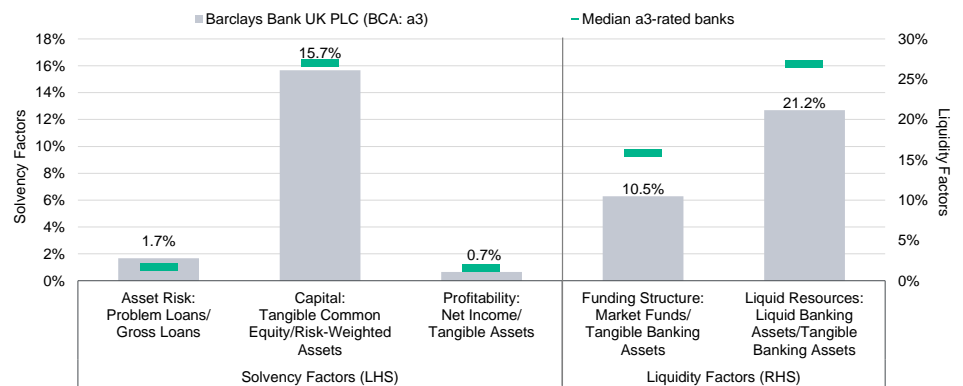
Summary

[Barclays Bank UK PLC's](#) (Barclays Bank UK) long-term deposit ratings of A1, with a stable outlook, reflect the bank's standalone creditworthiness, illustrated by a Baseline Credit Assessment (BCA) of a3, and very low loss given failure under our Advanced Loss Given Failure (LGF) analysis, which results in a two-notch uplift. Our assessment of a high probability of support for Barclays Bank UK from its holding company [Barclays PLC](#) (Barclays, Baa1 stable, baa1¹) and a moderate probability of support from the [Government of the UK](#) (Aa3 stable) does not lead to any additional uplift.

Barclays Bank UK's a3 BCA reflects the bank's reflects the bank's strong capitalisation, stable deposit funding and strong liquidity. The bank's BCA is positioned one notch above the baa1 notional BCA of Barclays and is not constrained by the group's notional BCA, reflecting the ring-fenced nature of Barclays Bank UK according to the local regulation.

Exhibit 1

Rating Scorecard - Key financial ratios
As of 31 December 2024



Ratios are from Moody's banking scorecard. The capital ratio is as of the most recent period; the asset risk and profitability ratios are the worse of the most recent year-to-date period or the average of the last three years and the most recent year-to-date; the funding structure and liquid resources ratios are as of the most recent year-end.

Source: Moody's Ratings

Credit strengths

- » Solid asset quality
- » Good risk-weighted capitalisation
- » Stable deposit funding and strong liquidity

Credit challenges

- » High reliance on inherently volatile revenue from credit card and other personal unsecured lending
- » Relatively weak leverage according to our metrics

Outlook

The outlook on Barclays Bank UK's long-term deposit ratings is stable.

The outlook reflects our expectation of a broad stability in the solvency and liquidity metrics. In particular, we expect credit quality to remain broadly resilient, while capital levels will remain within the group's target. Profitability will be challenged by declining interest rates and still fierce competition in the UK domestic market and in the global capital markets business; these challenges will be mitigated by Barclays' structural hedges and cost cutting programmes.

Factors that could lead to an upgrade

Barclays Bank UK's long-term deposit ratings could be upgraded following an upgrade of the bank's BCA. Barclays Bank UK's BCA could be upgraded following a reduction in problem loans, while maintaining a low stock of credit card lending and strong profitability.

An upgrade of the UK's sovereign rating could also lead to an upgrade of Barclays Bank UK's long-term deposit ratings via the introduction of a notch of government support.

Factors that could lead to a downgrade

Barclays Bank UK's long-term deposit ratings could be downgraded following a downgrade of the bank's BCA. Barclays Bank UK's BCA could be downgraded following a material deterioration in the bank's solvency or liquidity profiles.

A downgrade of the group's notional BCA may not lead to a downgrade of Barclays Bank UK's BCA, because Barclays Bank UK is ring-fenced from the rest of the group.

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

Key indicators

Exhibit 2

Barclays Bank UK PLC (Consolidated Financials) [1]

	12-24 ²	12-23 ²	12-22 ²	12-21 ²	12-20 ²	CAGR/Avg. ³
Total Assets (GBP Billion)	303.2	293.6	312.2	319.7	287.5	1.3 ⁴
Total Assets (USD Billion)	379.7	374.2	375.5	431.5	393.0	(0.9) ⁴
Tangible Common Equity (GBP Billion)	13.1	11.6	10.8	11.5	10.5	5.8 ⁴
Tangible Common Equity (USD Billion)	16.4	14.8	12.9	15.5	14.3	3.5 ⁴
Problem Loans / Gross Loans (%)	1.7	1.7	1.7	1.8	1.9	1.7 ⁵
Tangible Common Equity / Risk Weighted Assets (%)	15.7	16.1	14.8	16.1	14.5	15.4 ⁶
Problem Loans / (Tangible Common Equity + Loan Loss Reserve) (%)	23.7	25.5	27.9	28.2	28.0	26.7 ⁵
Net Interest Margin (%)	2.3	2.1	1.8	1.6	1.8	1.9 ⁵
PPI / Average RWA (%)	4.1	4.1	3.8	2.4	2.3	3.3 ⁶
Net Income / Tangible Assets (%)	0.7	0.6	0.6	0.5	0.1	0.5 ⁵
Cost / Income Ratio (%)	58.4	60.4	62.3	73.5	73.2	65.5 ⁵
Market Funds / Tangible Banking Assets (%)	10.5	9.6	9.3	10.0	4.9	8.8 ⁵
Liquid Banking Assets / Tangible Banking Assets (%)	21.1	20.8	24.7	27.1	22.0	23.2 ⁵
Gross Loans / Due to Customers (%)	85.1	83.9	79.4	80.0	85.2	82.7 ⁵

[1] Further to the publication of our revised methodology in July 2021, only ratios from annual 2020 onwards included in this report reflect the change in analytical treatment of the "high-trigger" Additional Tier 1 instruments. [2] All figures and ratios are adjusted using Moody's standard adjustments. [3] Basel III - fully loaded or transitional phase-in; IFRS. [4] May include rounding differences because of the scale of reported amounts. [5] Compound annual growth rate (%) based on the periods for the latest accounting regime. [6] Simple average of periods for the latest accounting regime. [7] Simple average of Basel III periods.

Sources: Moody's Ratings and company filings

Profile

Barclays Bank UK PLC (Barclays Bank UK) is the ring-fenced bank of the Barclays group, accounting for around 23% of the group's risk-weighted assets as of 31 December 2024.

The bank houses the group's retail and small business activities in the UK: these are mainly residential mortgages, credit cards and personal unsecured loans, and small business loans, following the transfer of the group's UK retail and small business banking operations from [Barclays Bank PLC](#) (A1/A1 stable, baa2 stable) in 2018.

On 1 November 2024, the Barclays Bank UK Group completed the acquisition of Tesco Bank which includes credit cards, unsecured personal loans, deposits and the operating infrastructure. The bank also entered into a 10 year strategic partnership to continue to originate banking products and services using the Tesco Bank brand.

Detailed credit considerations

Solid asset quality

We assign an a3 Asset Risk score to Barclays Bank UK, two notches below the Macro Adjusted score. The adjustment reflects the bank's higher-than-average exposure to credit cards and other unsecured retail lending, for which the problem loan ratio is not a good indicator of potential losses.

As of 31 December 2024, Barclays Bank UK's loan book (excluding debt securities) comprised residential mortgages (78% of gross loans), credit cards and other retail loans (12%), and corporate loans (10%). The level of credit cards and unsecured loans is higher than that of many of Barclays Bank UK's local peers, but still small in the context of Barclays Bank UK's loan book.

Barclays Bank UK reported a relatively low level of Stage 3 loans as of December 2024, equivalent to 1.7% of its overall loan book (December 2023: 1.7%). Stage 2 loans, at 12.2% of gross loans, are still moderately high, reflecting a still-uncertain operating environment and a high portion of unsecured loans: as of December 2024, 13% of credit cards and other unsecured personal loans were classified as Stage 2 loans.

Despite a still uncertain macroeconomic environment in the UK, weak growth and interest rates still higher (albeit slowly declining) interest rates, we believe that Barclays Bank UK's loan book will remain resilient. This is because the bank's borrowers have already performed well during recent times of higher stress, and because the bank's loan book has been adequately provisioned.

Good risk-weighted capitalisation but relatively weak leverage according to our metrics

We assign an a1 Capital score to Barclays Bank UK, one notch below the Macro Adjusted score to reflect weak leverage according to our metrics.

Barclays Bank UK reported Common Equity Tier 1 (CET1) ratio of 14.2% as of 31 December 2024, down 0.6 percentage points from a year prior reflecting the acquisition of Tesco Bank. We expect the bank's CET1 ratio to remain good and well in excess of regulatory requirements.

As of 31 December 2023, Barclays Bank UK reported a 5.3% leverage ratio (31 December 2023: 5.2%) calculated using the guidelines from the Bank of England. As of the same date, we estimate that the bank's tangible common equity / tangible banking assets was around 4.3%, which is weak².

High reliance on inherently volatile earnings from credit cards and other personal unsecured lending

We assign a baa2 Profitability score to Barclays Bank UK, in line with the Macro Adjusted score and the score implied by the bank's return on tangible assets in 2022, 2023 and 2024. The score reflects our expectation that Barclays Bank UK's profitability will remain strong, with challenges from gradually declining interest rates being offset by higher volumes and the effect of the bank's structural hedges.

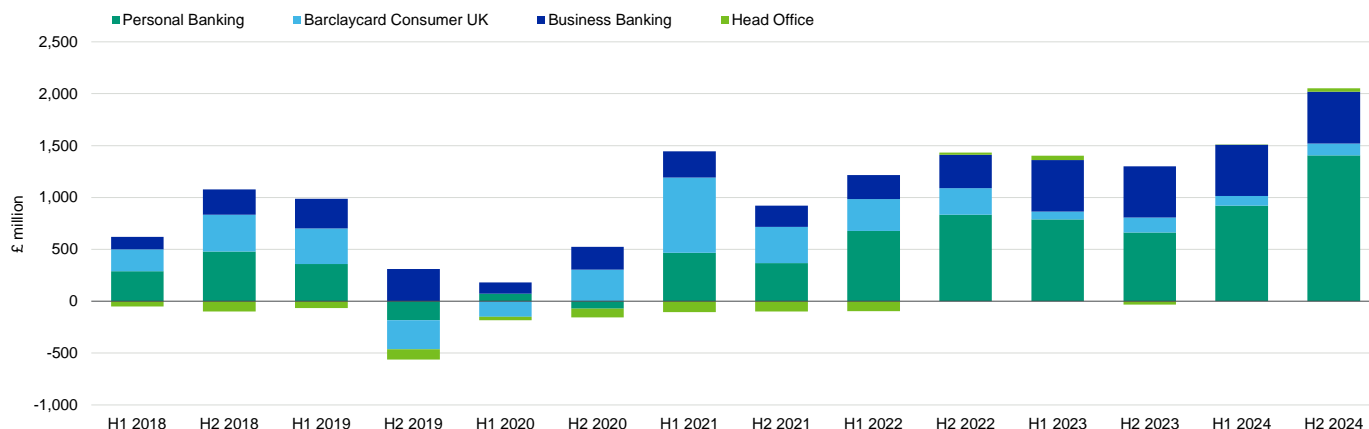
In 2024, Barclays Bank UK reported a profit of £2.6 billion after tax, up from £1.9 billion a year ago, primarily driven by a one-off gain from the acquisition of Tesco Bank. Total income, excluding the one-off gain, increased 3% to £7.9 from £7.7 reported in 2023. We expect Barclays Bank UK's profitability to remain sound in 2025 as margin pressure on UK mortgages and deposits will be balanced against structural hedges and stronger margins in the growing UK unsecured business following the acquisition of Tesco Bank.

The majority of Barclays Bank UK's profitability comes from retail mortgages, which also represent the bulk of the bank's loan book. The contribution of Barclay Bank UK's credit card business is volatile in nature and linked with consumer spending and debt servicing capacity.

Exhibit 3

Personal banking generated a majority of profits in 2024 and 2023

Pretax profit by division from H1 2018 to H2 2024



The material increase in Q4 2024 largely reflects the one-off gain from the acquisition of Tesco Bank in the quarter.

Source: Company and Moody's Ratings

Stable deposits funding and strong liquidity

We assign an a2 Funding Structure score, in line with the Macro Adjusted score to reflect our expectation that market funding will remain around 10% of the bank's tangible banking assets.

Barclays Bank UK is predominantly retail funded, which we expect to continue. Customer deposits, which are inherently more stable than market funds, are significantly higher than loans; we calculate a loan-to-deposit ratio of 85% as of the end of December 2024 and 84% at the end of December 2023. Market funds were just 10.5% as of the end of June 2024 (year-end 2023: 9.6%). Most of Barclays Bank UK's wholesale funding is in the form of bail-in-able liabilities issued to the parent company, as required by regulation.

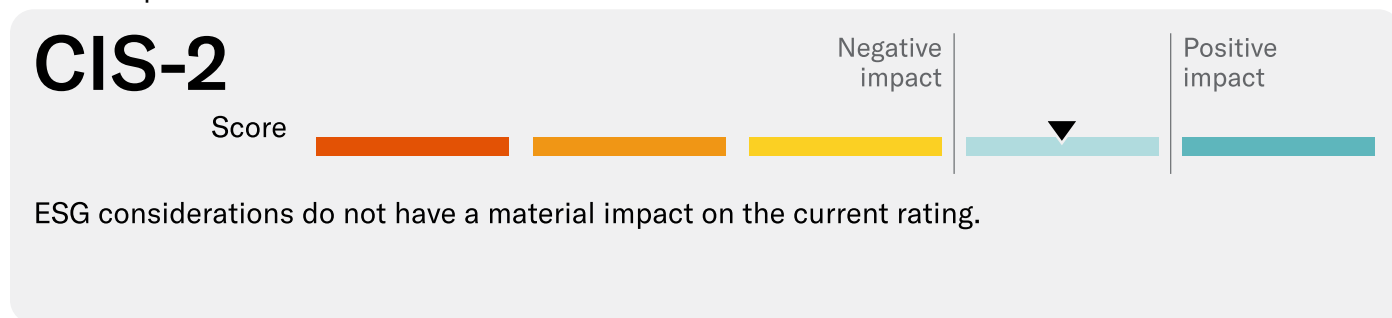
We assign a baa1 Liquid Resources score to Barclays Bank UK, in line with the Macro Adjusted scores to reflect that liquidity will remain strong.

Liquidity at Barclays Bank UK is strong, supported by a large and high-quality liquid asset pool of £67 billion as of December 2024 (December 2023: £65 billion). The bank's ample liquidity is also reflected in its strong liquidity coverage ratio of 202% as of the same reporting date (December 2023: 180%).

ESG considerations

Barclays Bank UK PLC's ESG credit impact score is CIS-2

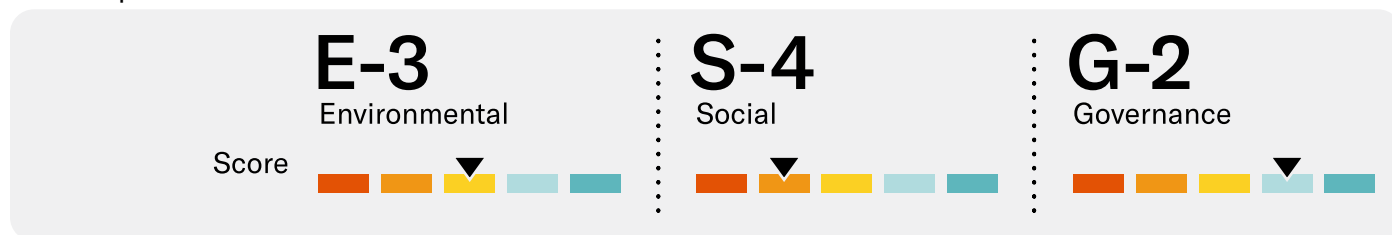
Exhibit 4
ESG credit impact score



Source: Moody's Ratings

Barclays Bank UK's **CIS-2** indicates that ESG considerations have no material impact on the current ratings.

Exhibit 5
ESG issuer profile scores



Source: Moody's Ratings

Environmental

Barclays Bank UK faces moderate exposure to environmental risks primarily because of its portfolio exposure to carbon transition risk. In line with peers, it is facing mounting business risks and stakeholder pressure to meet more demanding carbon transition targets. In response, the entire Barclays group is actively engaging in developing its comprehensive risk management and climate risk reporting frameworks and transitioning its lending and investment portfolios to carbon neutrality targets.

Social

Barclays Bank UK faces high social risks from customer relations, because of considerable focus on consumer protection in the UK, exposing banks to potential fines from regulators and litigation from customers as well as cyber risk and the financial and reputational implications of data breaches. The bank's developed policies and procedures help manage associated credit risks. The bank also faces moderate social risks related to potential competition from technology firms and other disruptors.

Governance

Barclays Bank UK has strong corporate governance practices, and prudent capital, liquidity and risk management policies and procedures. Barclays Bank UK is effectively controlled by Barclays PLC, which fully owns it. Therefore, we have aligned the subsidiary's board structure, policies and procedures score with that of its parent, given the bank's strategic importance and public affiliation with

the group, the parent's oversight of its subsidiary board and the regulated nature of both entities. Eight out of the current 11 Board members of Barclays Bank UK are independent non-executive directors (the others are the Chair, the CEO and CFO). As a ring-fenced bank, Barclays Bank UK is subject to separate governance arrangements compared with the rest of the group; Barclays Bank UK's board acts independently from the group, and it prioritises the interests of Barclays Bank UK over those of Barclays PLC and Barclays Bank PLC.

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.

Support and structural considerations

Affiliate support considerations

We expect a high probability of support from Barclays; this does not lead to any uplift to Barclays Bank UK because Barclays' group notional BCA is below the BCA of Barclays Bank UK.

Our assessment reflects the importance of the UK retail and SME business in the context of the group's broader strategy.

Loss Given Failure (LGF) analysis

Barclays Bank UK is subject to the UK's implementation of the EU Bank Recovery and Resolution Directive, which we consider an operational resolution regime.

We apply our advanced Loss Given Failure (LGF) analysis to Barclays Bank UK, considering the bank's consolidated tangible assets, the debt issued to the group, and its deposits; Barclays Bank UK has not issued bail-in-able debt externally.

Our analysis assumes a residual tangible common equity of 3%, post-failure losses of 8% of tangible banking assets and a 25% runoff of junior wholesale deposits, and we assign a 25% probability to deposits being preferred to senior unsecured debt. These assumptions are in line with our standard assumptions. We also assume the proportion of deposits considered junior at 10%, compared with our standard assumption of 26%, because of the nature of its depositor base, focused on retail and SMEs.

Our LGF analysis indicates that Barclays Bank UK's deposits are likely to face very low loss given failure because of the loss absorption provided by bail-in-able debt downstreamed from the holding company and the volume of deposits themselves. This results in a two-notch uplift for the long-term deposit ratings from the bank's Adjusted BCA.

Government support considerations

Because of the systemic importance of Barclays Bank UK to the UK economy, reflecting its large market share in retail and SME lending, and deposits in the country, there is a moderate probability of government support for the bank's deposits. However, there is no uplift to the long-term deposit ratings because they are only one notch below the sovereign debt rating.

About Moody's scorecard

Our scorecard is designed to capture, express and explain in summary form our Rating Committee's judgement. When read in conjunction with our research, a fulsome presentation of our judgement 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 6

Rating Factors

Macro Factors							
Weighted Macro Profile	Strong +	100%					
Factor	Historic Ratio	Initial Score	Expected Trend	Assigned Score	Key driver #1	Key driver #2	
Solvency							
Asset Risk							
Problem Loans / Gross Loans	1.7%	a1	↔	a3	Sector concentration		
Capital							
Tangible Common Equity / Risk Weighted Assets (Basel III - fully loaded)	15.7%	aa3	↔	a1	Nominal leverage		
Profitability							
Net Income / Tangible Assets	0.6%	baa2	↔	baa2	Return on assets		
Combined Solvency Score		a2		a3			
Liquidity							
Funding Structure							
Market Funds / Tangible Banking Assets	10.5%	a2	↔	a2	Extent of market funding reliance		
Liquid Resources							
Liquid Banking Assets / Tangible Banking Assets	21.1%	baa1	↔	baa1	Stock of liquid assets		
Combined Liquidity Score		a3		a3			
Financial Profile		a2		a3			
Qualitative Adjustments				Adjustment			
Business Diversification				0			
Opacity and Complexity				0			
Corporate Behavior				0			
Total Qualitative Adjustments				0			
Sovereign or Affiliate constraint				Aa3			
BCA Scorecard-indicated Outcome - Range				a2 - baa1			
Assigned BCA				a3			
Affiliate Support notching				0			
Adjusted BCA				a3			
Balance Sheet							
		in-scope (GBP Million)		% in-scope	at-failure (GBP Million)		% at-failure
Other liabilities		29,343		9.8%	46,450		15.5%
Deposits		244,376		81.7%	227,270		76.0%
Preferred deposits		219,938		73.5%	208,941		69.8%
Junior deposits		24,438		8.2%	18,328		6.1%
Senior unsecured bank debt		200		0.1%	200		0.1%
Dated subordinated bank debt		13,885		4.6%	13,885		4.6%
Preference shares (bank)		2,450		0.8%	2,450		0.8%
Equity		8,977		3.0%	8,977		3.0%
Total Tangible Banking Assets		299,231		100.0%	299,231		100.0%

Debt Class	De Jure waterfall		De Facto waterfall		Notching		LGF	Assigned LGF	Additional Notching	Preliminary Rating Assessment
	Instrument volume + subordination	Sub-ordination	Instrument volume + subordination	Sub-ordination	De Jure	De Facto				
Counterparty Risk Rating	14.7%	14.7%	14.7%	14.7%	3	3	3	3	0	aa3
Counterparty Risk Assessment	14.7%	14.7%	14.7%	14.7%	3	3	3	3	0	aa3 (cr)
Deposits	14.7%	8.5%	14.7%	8.5%	2	2	2	2	0	a1

Instrument Class	Loss Given Failure notching	Additional notching	Preliminary Rating Assessment	Government Support notching	Local Currency Rating	Foreign Currency Rating
Counterparty Risk Rating	3	0	aa3	0	Aa3	Aa3
Counterparty Risk Assessment	3	0	aa3 (cr)	0	Aa3(cr)	
Deposits	2	0	a1	0	A1	A1

[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 7

Category	Moody's Rating
BARCLAYS BANK UK PLC	
Outlook	Stable
Counterparty Risk Rating	Aa3/P-1
Bank Deposits	A1/P-1
Baseline Credit Assessment	a3
Adjusted Baseline Credit Assessment	a3
Counterparty Risk Assessment	Aa3(cr)/P-1(cr)
Commercial Paper	P-1
PARENT: BARCLAYS PLC	
Outlook	Stable
Baseline Credit Assessment	baa1
Adjusted Baseline Credit Assessment	baa1
Issuer Rating -Dom Curr	Baa1
Senior Unsecured	Baa1
Subordinate	Baa1
Pref. Stock Non-cumulative	Ba1 (hyb)
ST Issuer Rating -Dom Curr	P-2
Other Short Term -Dom Curr	(P)P-2

Source: Moody's Ratings

Endnotes

- 1 Unless otherwise noted, the bank ratings shown in this report are the long-term deposit rating, the senior unsecured debt rating (where available) and the standalone baseline credit assessment (BCA).
- 2 The main differences between our tangible common equity/tangible assets and the leverage ratio calculated using the guidelines from the Bank of England are the inclusion of high-trigger additional tier 1 instruments in the numerator and the exclusion of certain exposures to central banks in the denominator for the latter. We typically assign a one-notch negative adjustment for Capital when leverage, calculated as TCE over tangible assets, is below 5%.

© 2025 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 Moody's Investors Service, Inc. for credit ratings opinions and services rendered by it. MCO and all MCO entities that issue ratings under the "Moody's Ratings" brand name ("Moody's Ratings"), also maintain policies and procedures to address the independence of Moody's Ratings' 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 ir.moody.com under the heading "Investor Relations — Corporate Governance — Charter and Governance 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 and Net Zero Assessments (as defined in Moody's Ratings Rating Symbols and Definitions): Please note that neither a Second Party Opinion ("SPO") nor a Net Zero Assessment ("NZA") is a "credit rating". The issuance of SPOs and NZAs is not a regulated activity in many jurisdictions, including Singapore. JAPAN: In Japan, development and provision of SPOs and NZAs 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.

REPORT NUMBER 1439797

CLIENT SERVICES

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