

CREDIT OPINION

19 June 2024

Update



Send Your Feedback

RATINGS

Al Rayan Bank PLC

Domicile	United Kingdom
Long Term CRR	A1
Type	LT Counterparty Risk Rating - Fgn Curr
Outlook	Not Assigned
Long Term Debt	Not Assigned
Long Term Deposit	A2
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

Farooq Khan +44.20.7772.1638
VP-Senior Analyst - Financial Institutions
farooq.khan@moodys.com

Carola Schuler +49.69.70730.766
MD-Banking
carola.schuler@moodys.com

Alexandra Engels +44.20.7772.2214
Ratings Associate
alexandra.engels@moodys.com

CLIENT SERVICES

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

Al Rayan Bank PLC

Update following downgrade of deposit ratings, outlook stable

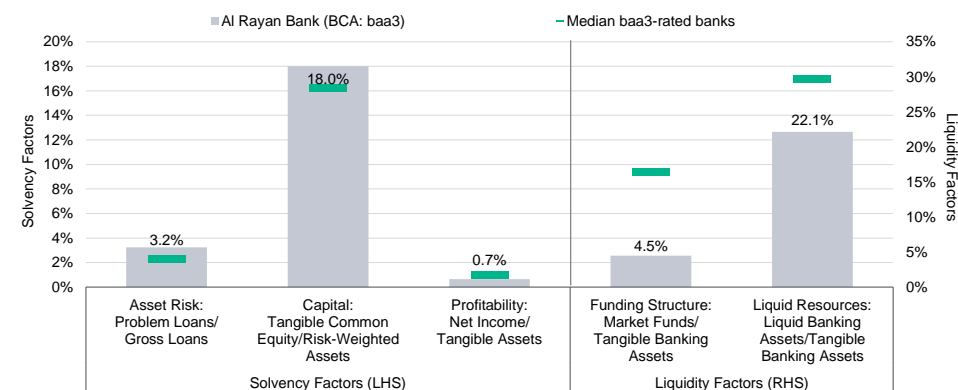
Summary

[Al Rayan Bank PLC](#) (ARB's) A2/Prime-1 bank deposit ratings reflect (1) the bank's Baseline Credit Assessment (BCA) of baa3; (2) our assumption of a very high probability of support for ARB's senior creditors from the bank's parent bank, [Masraf Al Rayan \(Q.P.S.C.\)](#) (MAR, A2 stable, baa3)¹, which result in no notches of uplift and leads to an Adjusted BCA of baa3, in line with the BCA; (3) the results of our Advanced Loss Given Failure (LGF) analysis, which results in one notch of uplift of the bank deposit rating; and (4) our expectation of a very high probability of support from [Government of Qatar \(Aa2 stable\)](#), resulting in a three notches of uplift for deposit ratings, which is to the same support assumption incorporated in MAR's ratings. ARB's Counterparty Risk Rating (CRRs) is A1/Prime-1 and its Counterparty Risk (CR) Assessment is Aa3(cr)/Prime-1(cr).

ARB's BCA of baa3 reflects the bank's strong capital, deposit based funding profile and improving profitability. These act as offsets to the bank's rising asset risk as reflected by a near tripling of its problem loan ratio in 2023, albeit to a still moderate 3.2% of gross loans, driven by its predominantly buy to let lending book in the context of a higher interest rate environment. The BCA also reflects the cost-sensitive nature and internet sourcing of the bank's deposit base, and the continuation of the strategic shift towards providing banking services to high net worth clients with links to the Gulf Cooperation Council (GCC) and property finance to a wider customer base, which started three years ago.

Exhibit 1

Rating Scorecard - Key financial ratios



Note: When we state "Loans", "Interest" and "debt" in the exhibits, we are referring to "Financing assets", "Income from Islamic financing transactions" and "Funding".

Source: Moody's Ratings

Credit strengths

- » Robust capitalisation, which supports solid loss absorption
- » Adequate levels of high-quality liquidity resources
- » Very high likelihood of support from Qatar

Credit challenges

- » Managing a jump in non performing loans given higher concentration in Commercial Property Finance (CPF)
- » Limited operating history and evolving strategic shift away from retail banking business model
- » Relatively high-cost deposit base

Outlook

The stable outlook on ARB's long-term deposit rating reflects the stable outlook on the issuer ratings of ARB's parent, MAR, and the stable outlook on Qatar's sovereign debt rating.

Factors that could lead to an upgrade

- » An upgrade of ARB's long-term deposit ratings is unlikely given the downgrade. However, an upgrade of MAR's BCA or an upgrade of Qatar's rating could lead to upward pressure on ARB's long-term deposit ratings.

Factors that could lead to a downgrade

- » ARB's BCA could be downgraded following a continued deterioration in the bank's asset risk, for example due to a continuation challenging macroeconomic environment, greater than expected loan growth in its new business segments leading to increased concentration and a decline in its liquidity. However, the very high likelihood of support from MAR and from the Government of Qatar could offset the impact of a lower BCA for ARB with additional notching on the bank's Adjusted BCA and long-term deposit ratings.
- » A downgrade of MAR's BCA could also result in a downgrade of ARB's long-term deposit ratings.

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

Al Rayan Bank PLC (Consolidated Financials) [1]

	12-23 ²	12-22 ²	12-21 ²	12-20 ²	12-19 ²	CAGR/Avg. ³
Total Assets (GBP Billion)	2.5	2.4	2.3	2.3	2.2	2.6 ⁴
Total Assets (USD Billion)	3.2	2.9	3.0	3.2	3.0	1.6 ⁴
Tangible Common Equity (GBP Billion)	0.2	0.2	0.2	0.1	0.1	7.7 ⁴
Tangible Common Equity (USD Billion)	0.2	0.2	0.2	0.2	0.2	6.7 ⁴
Problem Loans / Gross Loans (%)	3.2	1.0	0.4	0.3	0.2	1.0 ⁵
Tangible Common Equity / Risk Weighted Assets (%)	18.0	16.4	16.0	13.9	14.4	15.8 ⁶
Problem Loans / (Tangible Common Equity + Loan Loss Reserve) (%)	31.4	11.4	5.1	3.2	2.7	10.8 ⁵
Net Interest Margin (%)	3.0	2.4	1.9	1.6	1.9	2.2 ⁵
PPI / Average RWA (%)	3.1	2.1	0.9	0.6	0.8	1.5 ⁶
Net Income / Tangible Assets (%)	0.9	0.7	0.4	0.2	0.3	0.5 ⁵
Cost / Income Ratio (%)	53.4	62.4	79.4	85.3	83.0	72.7 ⁵
Market Funds / Tangible Banking Assets (%)	4.5	6.1	4.4	7.9	9.8	6.5 ⁵
Liquid Banking Assets / Tangible Banking Assets (%)	22.1	19.3	16.5	23.9	25.3	21.4 ⁵
Gross Loans / Due to Customers (%)	88.3	92.6	95.2	89.3	89.8	91.0 ⁵

[.] 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. [1] All figures and ratios are adjusted using Moody's standard adjustments. [2] Basel III - fully loaded or transitional phase-in; IFRS. [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

Al Rayan Bank PLC (ARB) is the first wholly Sharia-compliant retail bank based in the [United Kingdom](#) (Aa3 stable) serving more than 90,000 personal, business and premier customers. It is a majority-owned subsidiary of [Masraf Al Rayan \(Q.P.S.C\)](#) (MAR), the second-largest Islamic bank in [Qatar](#) (Aa2 stable) (fourth largest overall), with total assets of \$44 billion as of 31 March 2024, which acquired the bank in 2014. Formerly called Islamic House of Britain PLC, it was established in 2002 and obtained a license in August 2004 as Islamic Bank of Britain PLC. Qatar Holding (wholly owned by Qatar Investment Authority [QIA]) acquired a 30% (2023: 25%) stake in the bank from MAR in December 2016. QIA owns around 25% of ARB on a look-through basis. There is no letter of comfort in relation to the QIA investment.

Detailed credit considerations

Jump in NPLs and increasing concentration to commercial property and buy to let underpin rise in asset risk

Our assigned baa3 Asset Risk score reflects the moderate non-performing asset levels, but also takes into consideration the risks from its limited operating history and evolving business model.

ARB strategy has shifted and it will now focus on growing its commercial property business and providing banking services, predominantly deposits and Home Purchase Plan Premier (HPPP), to high net worth clients from GCC, while its retail home financing (HPP = home purchase plan) is currently in run-off. As of December 2023, ARB's total financing book was £1.9 billion, split 37% between retail financing, 47% in commercial property finance portfolio and 16% in Premier. The bank also has exposure to Gulf Cooperation Council (GCC) countries (ca. 13% of the total financing book).

The commercial property finance portfolio, which amounted to £903 million (47% of total financing assets as of year-end 2023), an increase from £789 million (42% of total financing assets) as of year-end 2022, and covers large residential investment private rental sector schemes, mixed use retail park, student property, as well as prime offices. The client base is composed of both UK and GCC corporates and family offices.

The Premier segment offers private banking services to GCC customers, including real estate finance and day-to-day banking services. The portfolio reached £300 million as of year-end 2023 and will continue to be a key area of focus and growth for the bank.

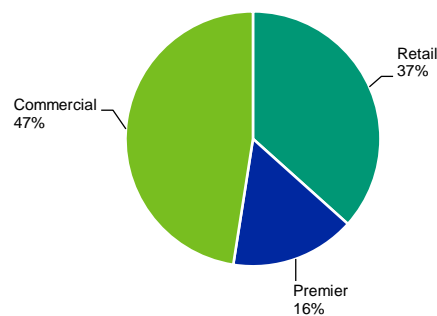
In terms of asset risk, non-performing financings jumped to 3.2% as of year-end 2023, three times higher than the 1.03% as of year-end 2022. This increase results mainly from an increase in commercial property finance, which problem loans almost quadrupled from

£ 8.6 million at year-end 2022 to £42.4 million at year-end 2023, but also from an increase in HPP stage 3 loans, increased by 75% YoY on the back of a decreasing loan book. CPF and HPP are primary residential with greater loan book concentration in buy-to-let (BTL) increasing base rates and inflationary pressures have put pressure on customers' and tenants' ability to repay.

Reflective of the customer base, ARB's financing is concentrated in the south east of England, particularly London. In addition, ARB has large average ticket size financings of £1 million to primarily new London-based GCC customers, exposing the bank to higher-than-average single-name concentration risk. The average finance-to-value ratio for BTL-HPP and HPP are comfortably below the limit of 80%.

The retail business is mostly composed of Home Purchase Plans (HPPs) and Buy-to-Let Home Purchase Plan products (BTL-HPP), which adhere to Sharia principles. Unlike traditional mortgage lenders, ARB retains ownership of the property, with customers paying a rent, rather than the payment of interest by customers, which is forbidden under Sharia (Islamic law). We deem this feature as positive for ARB, given that customers cannot take a second-line mortgage on the property, as they themselves are not the legal owners. As of year-end 2023, ARB's total retail financing book was £698 million, equating to 37% of total financing assets, a reduction from 42% as of year-end 2022 (£794 million). However, this will decrease in line with the run off plans.

Exhibit 3
ARB's financing assets' breakdown
As of year-end 2023



Source: ARB's Annual report

Capitalisation is higher as balance sheet shrinks and provides loss absorption

We view ARB's capital levels as solid and assign an a3 Capital score. ARB's tangible common equity (TCE) capital is composed by £194 million common equity. ARB's TCE to risk-weighted assets was 17.99% in 2023 and TCE leverage ² was 7.64% as of 31 December 2023. ARB uses the standardised approach to calculate risk weighted assets and has adequate capital to meet its growth plans, without the further need for a capital injection. However, if asset risk was to deteriorate through lower underwriting standards or a deterioration in the UK macro environment, additional capital may be required or reduced financing growth would have to take place. In fact, ARB raised £3 million external Sharia-compliant high-trigger AT1 capital in July 2019, the first by a bank in the UK, that boosts its Tier 1 ratio by 30bps.

Improving profitability, high cost to income ratio and funding costs

We view ARB's profitability as improving and assign a ba3 Profitability score that reflects the bank's improving profitability, cost to income ratio and relatively higher funding costs.

The bank's profitability had been largely negative until 2014, historically driven by losses made from financing and the high cost base maintained by ARB. However, in line with the rising rate environment and a shift towards its CPF portfolio which is more floating rate, the bank has seen an increase in its net income in 2023, and reported a ratio of net income to tangible banking assets of 0.9%, up from 0.6% as of year-end 2022. ARB's net interest margin (NIM) surged from 2.4% at year-end 2022 to 3.0% at year-end 2023.

The bank's cost-to-income ratio was 53%, an improvement from 62% at year-end 2022, but remaining above that of its peers. The underlying cost to income ratio has been historically high due to a mixture of the low interest rate environment in recent years and higher regulatory and compliance costs. We expect ARB's profitability to stay at levels commensurate with its ba3 score as base rates are expected to gradually decline in H2 2024, while cost of funding is pressured by its persistently expensive retail deposits.

Deposit based funding profile at a relatively high-cost base

We assign a baa3 market funds score to reflect ARB's material reliance on internet sourced deposits which we view as likely to be less stable given its cost-sensitive nature and its evolving funding profile. As of year-end 2023, ARB's limited external market funding decreased to 4.5% of tangible banking assets (TBA) from 6.1% as of year-end 2022, which mainly consist of deposits from banks and financial institutions.

To support its funding profile, ARB offers very competitive retail profit rates on the best buy tables, attracting mainly retail deposits. Deposits from customers increased by 5% YoY to £2.15 billion at year-end 2023 (year-end 2022: £2.05 billion). However, this increases the overall cost of funding, reduces margins and strains profitability, and exposes the bank to less-stable funding sources.

ARB is predominantly funded via retail and SME deposits. In 2023, By making its savings products accessible via aggregators in 2023, ARB experienced a significant transition in customer preference from instant access accounts to term deposits. Now, over two-thirds of its total deposits constitute secure longer-term funding. (2022: 57% of deposits were term deposits).

In December 2020, the BoE announced that in 2021, it will establish a Sharia compliant non-interest-based deposit facility for UK-based Islamic banks and will improve their liquidity management capabilities. In December 2021, ARB participated in the Bank of England Alternative Liquidity Facility (ALF) which has been set up to facilitate access for Sharia compliant banks in the UK to High Quality Liquid Assets (HQLA) denominated in GBP.

Adequate levels of high-quality liquidity resources

Our assigned Liquid Resources score is baa3. Our overall assessment of ARB's liquidity profile reflects the adequate level of liquidity held by ARB to meet its short-term requirements. The bank's liquidity is largely made up of HQLA ³ from the Bank of England ALF and cash on demand and short-term commodity Murabaha and Wakala⁴.) transactions equating to 22.1% of Tangible Banking Assets as of year-end 2023 (19.3% in 2022). ARB maintains surplus liquidity well in excess of regulatory requirements, as evidenced by its LCR of 786% as at 31 December 2023.

ARB's BCA is supported by the UK's Strong+ Macro Profile

ARB's operating environment is influenced largely by the UK; the bank's Macro Profile is thus in line with the UK's [Macro Profile](#) of Strong+.

Qualitative adjustments

ARB's Financial Profile score of baa2 is subject to a negative one-notch downward qualitative adjustment for Corporate Behaviour, given the bank's relatively limited operating history, its evolving business model and transition risk as it changes its strategic direction.

The rating is capped by close links between ARB and MAR

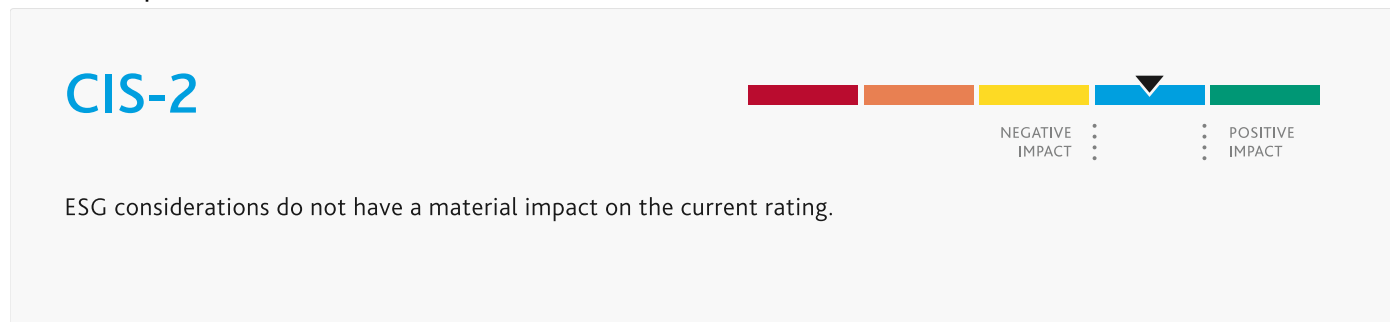
When a bank is owned by another entity, the probability of default of the bank is unlikely to be significantly lower than that of its parent, and the BCA of a bank is, therefore, typically constrained by the rating of its owner. This is because credit issues at one part of a group can be transmitted to another. We believe that ARB's credit profile could be weakened by a deterioration in its parent's creditworthiness. The shared branding and overlapping customer base between the two entities expose the bank to reputational risk, potentially leading to adverse credit events, such as deposit outflow at the bank, in the event of severe credit problems at MAR. ARB's BCA is currently positioned at the same level as the baa3 BCA of MAR. If ARB's financial profile were to improve MAR's BCA would be a constraint on ARB's BCA, due to the above mentioned interlinkages.

ESG considerations

Al Rayan Bank PLC's ESG credit impact score is CIS-2

Exhibit 4

ESG credit impact score



Source: Moody's Ratings

Al Rayan Bank (ARB)'s ESG Credit Impact Score is neutral-to-low (**CIS-2**). The score reflects the fact that ARB's rating is constrained by its parent's rating, which neutralises the impact of ESG risk exposures. ARB's governance risks stem from the bank's evolving business model and recent track record. Environmental and social factors have a limited credit impact on the rating to date.

Exhibit 5

ESG issuer profile scores



Source: Moody's Ratings

Environmental

ARB faces moderate environmental risks primarily because of its portfolio exposure to commercial property financing. In line with peers, commercial property financing elevates the bank's exposure to carbon transition risk, as compared to the majority of the bank's loan book which is geared towards residential property financing, which Moody's regards as having limited exposure to carbon transition risks.

Social

ARB faces high industrywide social risks related to customer relations and associated regulatory risk, litigation exposure and high compliance standards, as well as data security and customer privacy. These risks are mitigated by the bank's developed policies and procedures and its sound IT framework.

Governance

ARB faces high governance risks reflecting the bank's evolving business model and recent track record. Following the regulatory investigation of ARB by the FCA in 2019 and its closure in 2022, risk management policies and procedures have improved to be more in line with industry best practices. The bank is also shifting its focus to private banking services to clients from GCC countries, running off its retail lending operations and focussing on commercial property finance. ARB is a subsidiary of Qatar's Masraf Al Rayan and the QIA owns around 25% of ARB on a look-through basis. Because the bank is effectively controlled by Masraf Al Rayan through its 75% shareholding, 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.

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

Given the strategic importance of ARB to its parent MAR, which allows GCC customers to have access to private banking services in the UK, we expect the probability of support from MAR to be very high. The parent has representation on ARB's board and is active in the development of its forward-looking strategy. We position ARB's Adjusted BCA at the parent's BCA of baa3, which results in no uplift to ARB's assigned BCA.

Loss given failure and additional notching

We apply our Advanced LGF analysis to ARB because it is domiciled in the UK, which we consider has an operational resolution regime, following the implementation of the EU Bank Recovery and Resolution Directive. Our standard assumptions, which are applied to ARB, assume residual tangible common equity at failure of 3% of TBA, losses post-failure of 8% of TBA, junior wholesale deposits of 10% of the bank's total deposit book, instead of the standard 26% assumption, a 25% run-off in junior wholesale deposits, a 5% run-off in preferred deposits and a 25% probability of deposits being preferred to senior unsecured funding.

We use the 10% junior wholesale deposits assumption to reflect the more retail and small-middle enterprise deposit funding. Under these assumptions, ARB's deposits are likely to face a moderate loss given failure because of the loss absorption provided by the volume of deposits themselves. This results in a Preliminary Rating Assessment (PRA) for ARB's deposits of baa2, one notch above the Adjusted BCA of baa3.

Government support

Our assumption of very high government support reflects (1) MAR's evolving role as a flagship Islamic bank in Qatar with ARB as its largest overseas subsidiary; (2) ARB's direct and indirect ownership by the Qatari government and related institutions; and (3) the strong track record of the Qatari government preemptively supporting its banks in the past. This results in a three notches of uplift to the deposit ratings, in line with the support assumption incorporated in MAR's, a three notch uplift to the Counterparty Risk (CR) Assessment and a three notch uplift to the Counterparty Risk Ratings (CRRs).

We have a low expectation of support from the Government of the United Kingdom because of ARB's very small role domestically.

About Moody's Bank Scorecard

Our Bank 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

Al Rayan Bank PLC

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		3.2%	a3	↔	baa3	Loan growth	Single name concentration
Capital							
Tangible Common Equity / Risk Weighted Assets (Basel III - transitional phase-in)		18.0%	aa2	↔	a3	Stress capital resilience	
Profitability							
Net Income / Tangible Assets		0.7%	baa2	↔	ba3	Earnings quality	Expected trend
Combined Solvency Score			a2		baa3		
Liquidity							
Funding Structure							
Market Funds / Tangible Banking Assets		4.5%	aa2	↔	baa3	Deposit quality	Expected trend
Liquid Resources							
Liquid Banking Assets / Tangible Banking Assets		22.1%	baa1	↔	baa3	Expected trend	Access to committed facilities
Combined Liquidity Score			a1		baa3		
Financial Profile					baa3		
Qualitative Adjustments					Adjustment		
Business Diversification					0		
Opacity and Complexity					0		
Corporate Behavior					-1		
Total Qualitative Adjustments					-1		
Sovereign or Affiliate constraint					-		
BCA Scorecard-indicated Outcome - Range					baa3 - ba2		
Assigned BCA					baa3		
Affiliate Support notching					0		
Adjusted BCA					baa3		
Balance Sheet			in-scope (GBP Million)	% in-scope	at-failure (GBP Million)	% at-failure	
Other liabilities			238	9.6%	389	15.6%	
Deposits			2,149	86.3%	1,999	80.3%	
Preferred deposits			1,934	77.7%	1,838	73.8%	
Junior deposits			215	8.6%	161	6.5%	
Dated subordinated bank debt			25	1.0%	25	1.0%	
Preference shares (bank)			3	0.1%	3	0.1%	
Equity			75	3.0%	75	3.0%	
Total Tangible Banking Assets			2,490	100.0%	2,490	100.0%	

Debt Class	De Jure waterfall		De Facto waterfall		Notching		LGF	Assigned	Additional	Preliminary
	Instrument	Sub-ordination	Instrument	Sub-ordination	De Jure	De Facto	Notching Guidance vs. Adjusted BCA	LGF notching	Notching	Rating Assessment
Counterparty Risk Rating	10.6%	10.6%	10.6%	10.6%	2	2	2	2	0	baa1
Counterparty Risk Assessment	10.6%	10.6%	10.6%	10.6%	3	3	3	3	0	a3 (cr)
Deposits	10.6%	4.1%	10.6%	4.1%	1	1	1	1	0	baa2

Instrument Class	Loss Given Failure notching	Additional notching	Preliminary Rating Assessment	Government Support notching	Local Currency Rating	Foreign Currency Rating
Counterparty Risk Rating	2	0	baa1	3	A1	A1
Counterparty Risk Assessment	3	0	a3 (cr)	3	Aa3(cr)	
Deposits	1	0	baa2	3	A2	A2

[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
AL RAYAN BANK PLC	
Outlook	Stable
Counterparty Risk Rating	A1/P-1
Bank Deposits	A2/P-1
Baseline Credit Assessment	baa3
Adjusted Baseline Credit Assessment	baa3
Counterparty Risk Assessment	Aa3(cr)/P-1(cr)
PARENT: MASRAF AL RAYAN (Q.P.S.C.)	
Outlook	Stable
Counterparty Risk Rating	A1/P-1
Baseline Credit Assessment	baa3
Adjusted Baseline Credit Assessment	baa3
Counterparty Risk Assessment	A1(cr)/P-1(cr)
Issuer Rating	A2
ST Issuer Rating	P-1

Source: Moody's Ratings

Endnotes

- 1 The bank ratings shown in this report are the bank's deposit rating and BCA.
- 2 defined as 'Tangible Common Equity / (Total Assets - Derivatives)'
- 3 High Quality Liquid Assets
- 4 Commodity Murabaha is a contract for purchase and resale for cost plus profit, which provides cash or liquidity facility without having to take out a loan and pay interest. Wakala is an investment agency contract, which usually includes in its terms a fee for the expertise of the agent.

© 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