

CREDIT OPINION

27 October 2022

New Issue



RATINGS

Raiffeisen Bank d.d. Bosna i Hercegovina

Domicile	Sarajevo, Bosnia and Herzegovina
Long Term CRR	B3
Type	LT Counterparty Risk Rating - Fgn Curr
Outlook	Not Assigned
Long Term Debt	(P)B3
Type	Senior Unsecured MTN - Fgn Curr
Outlook	Not Assigned
Long Term Deposit	B3 / B1
Type	LT Bank Deposits - Fgn Curr / Dom 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

Alexios Philippides +357.2569.3031
 VP-Senior Analyst
 alexios.philippides@moodys.com

George Kattos +357.2569.3043
 Associate Analyst
 george.kattos@moodys.com

Henry MacNevin +44.20.7772.1635
 Associate Managing Director
 henry.macnevin@moodys.com

Sean Marion +44.20.7772.1056
 MD-Financial Institutions
 sean.marion@moodys.com

Raiffeisen Bank d.d. Bosna i Hercegovina

New issuer

Summary

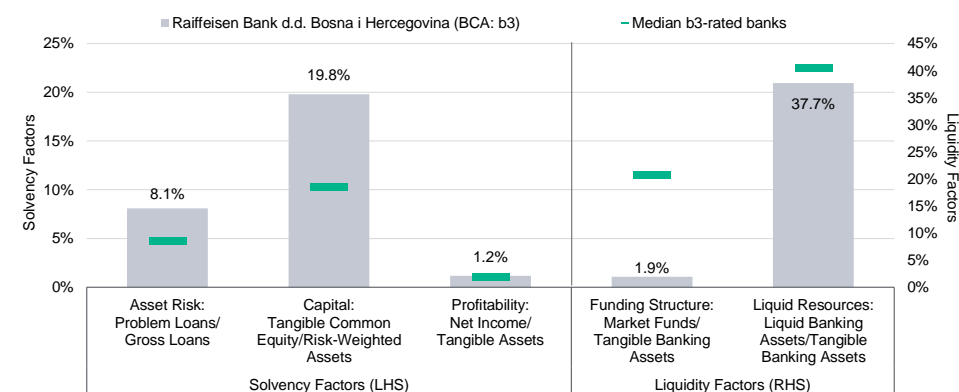
On 25 October 2022, we assigned first-time B1/NP local-currency and B3/NP foreign-currency deposit ratings to [Raiffeisen Bank d.d. Bosna i Hercegovina](#) (RBBiH), a b3 Baseline Credit Assessment (BCA) and a b1 Adjusted BCA.

RBBiH's B1 local-currency deposit rating reflects the bank's b3 BCA and two notches of rating uplift from our assessment of a high probability of affiliate support from [Raiffeisen Bank International AG](#) (RBI, A2/A2 stable, baa3¹), resulting in a b1 Adjusted BCA. The B3 foreign-currency deposit rating is constrained by [Bosnia and Herzegovina's](#) (BiH, B3 stable) foreign-currency country ceiling,

RBBiH's b3 standalone BCA reflects its (1) robust capital, that affords it substantial capacity to absorb unexpected losses; and (2) a granular deposit-based funding structure and adequate liquidity. These strengths are balanced by (1) high asset risks from a challenging operating environment and indirect linkages with BiH sovereign credit risk, while problem loans are higher than similarly rated peers but are well provisioned; and (2) the lack of lender of last resort, which complicates liquidity management.

Exhibit 1

Rating Scorecard - Key financial ratios



These are our [Banks Methodology](#) scorecard ratios. Asset Risk and Profitability reflect the weaker of either the latest figure or the three-year and latest figure average. Capital is the latest reported figure. Funding Structure and Liquid Resources reflect the latest fiscal year-end figures.

Source: Moody's Investors Service

Credit strengths

- » Capital is robust and significantly above requirements
- » A granular deposit-based funding structure and adequate liquidity
- » Our assessment of a high probability of parental support in case of need

Credit challenges

- » High asset risks driven by a challenging operating environment
- » Indirect exposure to sovereign event risk at the B3 rating level, although direct exposure to government and public sector debt is low.
- » Lack of a 'lender of last resort' complicates liquidity management

Outlook

The stable outlook on the bank's ratings reflects our expectation that its financial performance will remain broadly stable and its capital significantly above regulatory requirements, despite operating environment pressures and some increase in problem loan formation. The outlook is also aligned with the stable outlook on the sovereign rating.

Factors that could lead to an upgrade

- » RBBiH's b3 BCA is at the same level as the sovereign rating, and its local-currency ratings are at the level of the local-currency country ceiling, an upgrade is therefore unlikely in the absence of an upgrade of the sovereign rating and a raising of the local-currency country ceiling.
- » Given that the bank's foreign-currency ratings are constrained by the relevant country ceiling, the ratings could be upgraded if the foreign-currency country ceiling is raised.

Factors that could lead to a downgrade

- » RBBiH's ratings could be downgraded if its BCA is downgraded, the sovereign rating is downgraded, or any of the country's ceilings are lowered.
- » The bank's BCA could be downgraded if core capital buffers decline more than we expect, if problem loans increase significantly and provisioning coverage declines, or if its profitability is sustainably impaired. A significant deterioration in the bank's funding or liquidity can also put pressure on the BCA.
- » Significantly reduced willingness by RBI to provide support to RBBiH, in case of need could also result in a ratings downgrade.

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

Raiffeisen Bank d.d. Bosna i Hercegovina (Unconsolidated Financials) [1]

	12-21 ²	12-20 ²	12-19 ²	12-18 ²	12-17 ²	CAGR/Avg. ³
Total Assets (EUR Million)	2,496.4	2,501.3	2,418.0	2,247.7	2,115.0	4.2 ⁴
Total Assets (USD Million)	2,828.6	3,060.5	2,714.2	2,569.5	2,539.7	2.7 ⁴
Tangible Common Equity (EUR Million)	280.6	284.2	278.9	283.2	273.6	0.6 ⁴
Tangible Common Equity (USD Million)	318.0	347.7	313.1	323.8	328.5	(0.8) ⁴
Problem Loans / Gross Loans (%)	8.1	8.0	7.4	7.2	8.9	7.9 ⁵
Tangible Common Equity / Risk Weighted Assets (%)	19.8	20.6	18.9	19.7	17.1	19.2 ⁶
Problem Loans / (Tangible Common Equity + Loan Loss Reserve) (%)	28.0	27.5	26.8	25.2	29.1	27.3 ⁵
Net Interest Margin (%)	2.5	2.8	3.1	3.3	3.3	3.0 ⁵
PPI / Average RWA (%)	3.7	3.4	3.6	3.4	3.2	3.5 ⁶
Net Income / Tangible Assets (%)	1.4	0.9	1.2	1.9	1.8	1.4 ⁵
Cost / Income Ratio (%)	53.7	55.0	53.0	52.6	52.0	53.3 ⁵
Market Funds / Tangible Banking Assets (%)	1.9	3.1	7.2	4.0	3.5	4.0 ⁵
Liquid Banking Assets / Tangible Banking Assets (%)	37.7	37.1	34.0	29.5	29.8	33.6 ⁵
Gross Loans / Due to Customers (%)	63.1	65.1	72.9	73.7	73.0	69.5 ⁵

[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 Investors Service and company filings

Profile

RBBiH is a universal commercial bank operating in BiH and headquartered in Sarajevo. As of June 2022, RBBiH was the second-largest bank in the country with a 13% market share in terms of assets. The bank's total assets were BAM4.8 billion (€2.4 billion) as of the same date, according to information from the Federation of BiH Banking Agency (FBA).

RBBiH is a 100%-owned subsidiary of RBI, through Raiffeisen SEE Region Holding GmbH. The bank has been operating in BiH since 1992 as Market banka d.d. Sarajevo. Market banka was acquired in 2000 by the Raiffeisen Group and was renamed RBBiH.

Detailed credit considerations

High asset risk driven by a challenging operating environment

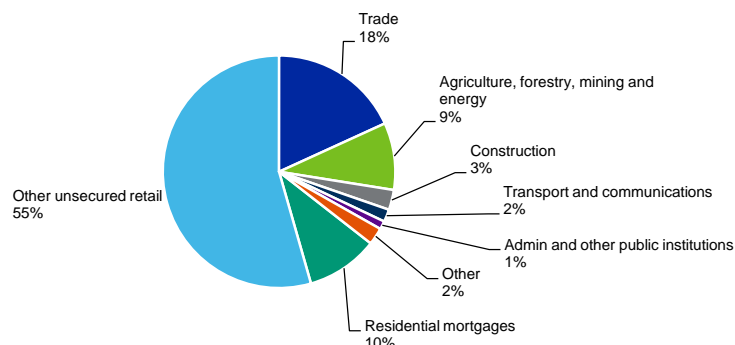
RBBiH's asset risk is high, mainly driven by a challenging operating environment. The macro profile we assign to BiH is '[Very Weak](#)'. While RBBiH's exposure to domestic government securities and public sector entities is low, the bank operates exclusively within BiH and is exposed to sovereign event risk at the B3-rating level given that generally sovereign crises can transmit shocks across the economy and the banking system. Reported problem loans are higher compared to similarly-rated global peers, however these are well provisioned. Additionally, underwriting standards are broadly conservative and borrower concentration levels are moderate.

Loans accounted for 49% of the bank's assets at the end of 2021 and loan growth was broadly flat in past 3 years. Loans to individuals made up 64% of total gross loans (see Exhibit 3), of which 84% were unsecured loans and 16% housing loans. Higher credit risk for unsecured retail loans, mainly general purpose consumer loans, is mitigated by salary-assignment, while local requirements cap the maturity and the total amount of the loan, and provide for a maximum loan repayment per income bracket. Currency risk for borrowers, 55% of the bank's loans have a euro currency clause, is mitigated by the long-standing currency board arrangement that pegs the convertible mark to the euro.

Exhibit 3

Retail loans to individuals dominate RBBiH's loan book

Loan breakdown by sector as of the end of 2021

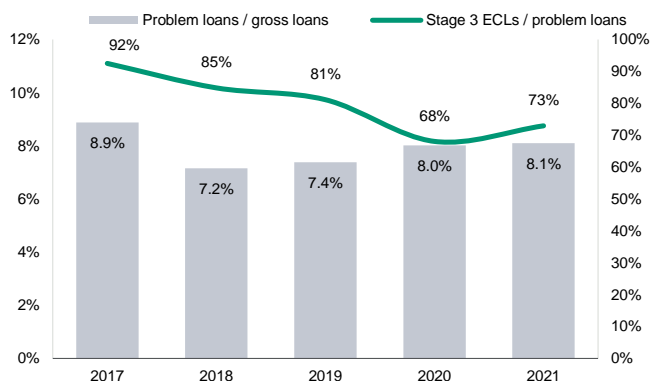


Sources: Bank's financial statements, Moody's Investors Service

Problem loans (defined as IFRS 9 Stage 3 loans and purchased or originated credit impaired loans that are in Stage 3) were 8.1% of gross loans as of the end of 2021 (end-2020: 8.0%). However, coverage of problem loans by Stage 3 expected credit losses (ECLs) was adequate at 73% (see Exhibit 4). Stage 2 loans (loans with a significant increase in credit risk) made up a further 11.1% of total loans at end-2021 and coverage with Stage 2 ECLs was also relatively high at 8.0%. Conservative provisioning is supported by a domestic regulatory framework that mandates minimum ECLs by IFRS 9 stage.²

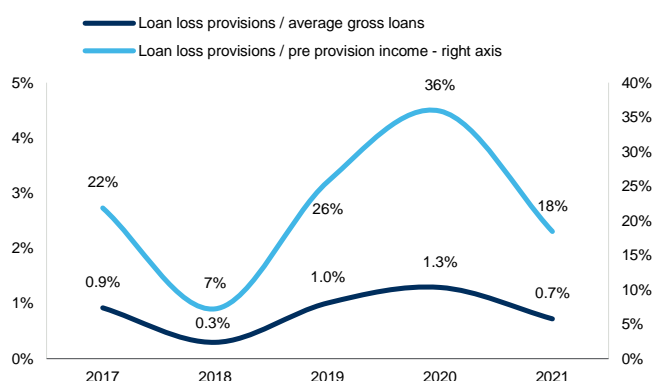
Cost of risk (loan loss provisions to average gross loss) averaged 0.8% during 2017 to 2021 (see Exhibit 5) and was generally well covered by pre-provision income. Provisions increased during 2020 in light of the pandemic-driven economic downturn, consuming a higher 36% of pre-provision income, but then declined again in 2021.

Exhibit 4

Problem loans were relatively high, but are well-provisioned

Source: Moody's Investors Service

Exhibit 5

Cost of risk peaked in 2020 but subsided in 2021

Source: Moody's Investors Service

Higher interest rates, high inflation and an economic slowdown will challenge borrower's capacity to service loans. A significant proportion of loans are at variable rates and predominantly linked to Euribor. We therefore expect new problem loan formation. We also expect higher cost of risk as the bank books additional provisions driven by measures from the authorities to mitigate the impact on credit risk from rapidly rising interest rates.³

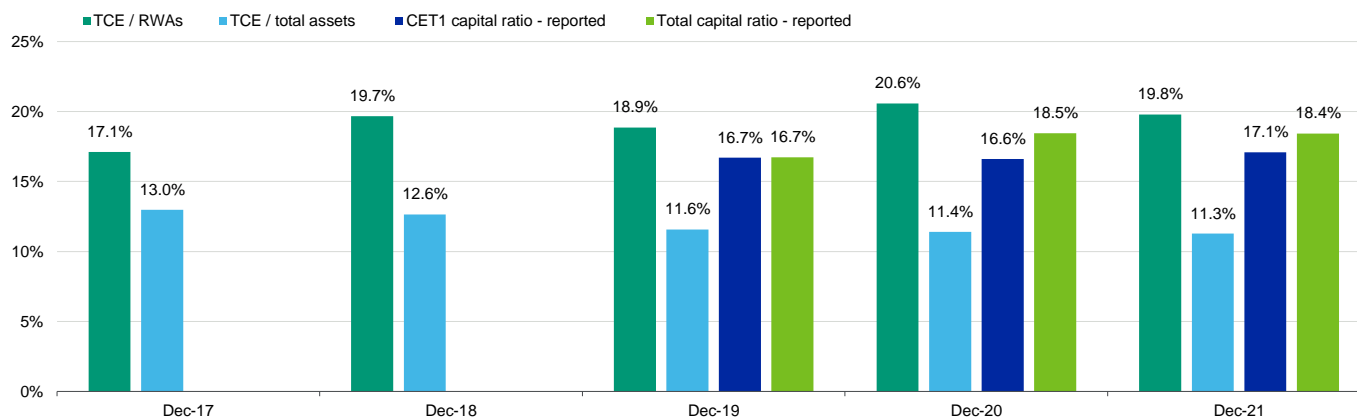
Capital is robust and significantly above requirements

RBBiH's capital levels are robust, which we consider a credit strength, affording it capacity to absorb sizeable unexpected losses also taking into account its adequate problem loan coverage. We expect the bank's core capitalisation to decline somewhat as it upstreams dividends and grows its loan book, but to remain sufficiently above regulatory requirements and to be compatible with the current rating level.

RBBiH's adjusted tangible common equity (TCE)-to-risk-weighted assets (RWAs) ratio, where we risk-weight government exposures according to BiH's sovereign rating and that includes all current period profits, was 19.8% and its TCE-to-total assets ratio was 11.3% as of the end of 2021 (see Exhibit 6).

Exhibit 6

Capital is robust and well above requirements



In 2019, the bank transitioned calculating capital under Basel III from Basel II
 Source: Moody's Investors Service

RBBiH reported a regulatory Common Equity Tier 1 (CET1) capital ratio and total capital ratio of 17.1% and 18.4% respectively as of the end of 2021. Both metrics were substantially above the bank's requirements for that period. These were 9.25% for the CET1 ratio 14.5% for the total capital ratio, which include the 2.5% capital conservation buffer but not the undisclosed pillar 2 capital charge that is specific to RBBiH. The bank also reported a Basel leverage ratio of 9.2%, which also incorporates off-balance sheet exposures, that is also well above the 6% requirement.

RBBiH applies the standardised approach to calculate credit-related risk-weighted assets and therefore the bank's capital metrics are less sensitive to potential amendments in regulatory methods to calculating risk-weighted assets, including floor requirements, or to macroeconomic shocks that could increase risk-weights of more risk-sensitive models.

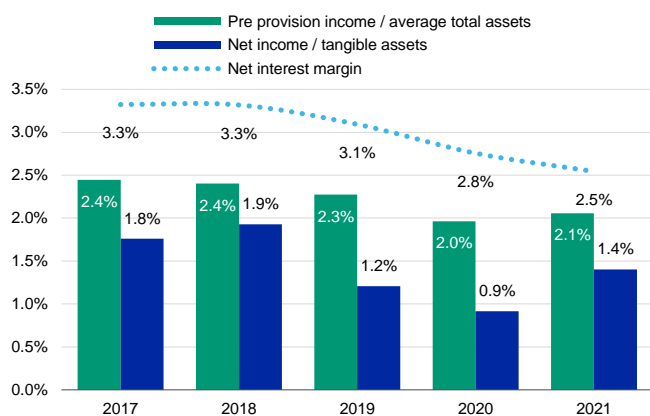
Moderate profitability has been challenged by the low interest rate environment and fierce competition

The bank's profitability has been moderate, challenged by narrowing net interest margins in light of declining lending yields and high liquidity in a low interest rate environment. However, as mentioned earlier pre-provision profits sufficiently cover cost of risk and bottom-line profitability generates adequate internal capital. Return on equity was 12% in 2021. Looking ahead, we expect profitability to improve as interest rates rise, although cost of risk will also increase and price inflation will increase operating costs, particularly staff expenses.

Net income rose to 1.4% of tangible assets in 2021, from 0.9% in 2020 when pandemic-driven provisions consumed a higher portion of pre-provision income (see Exhibit 7). However, profitability remains lower than the pre-pandemic levels and the net interest margin according to our definitions has gradually declined to 2.5% in 2021 from 3.3% in 2018. Intense competition and high liquidity eroded the banking sector's lending and asset yields. The bank partly mitigated this by expanding fee and commission and other income, which accounted for 48% of net revenue in 2021 up from 40% in 2018.

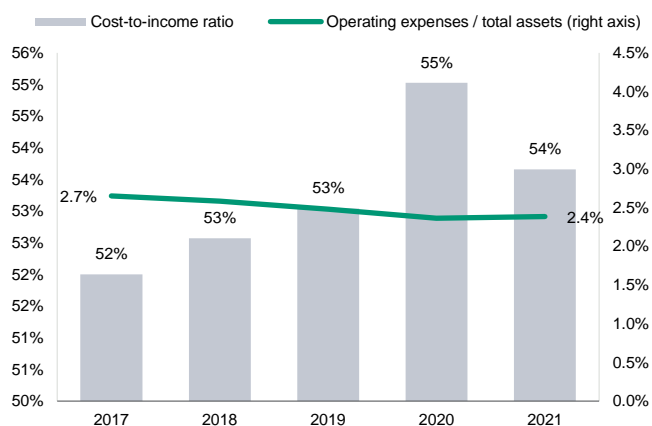
The bank benefits from an established franchise, as the second-largest bank in the country and some economies of scale. Therefore, pre-provision profitability has been broadly stable. Operating efficiency remains adequate with a cost-to-income ratio of 54% in 2021, while a focus on cost control has allowed the bank to reduce operating expenses to 2.4% of total assets in 2021 from 2.7% in 2017 (see Exhibit 8).

Exhibit 7

Profitability is moderate, challenged by declining margins

Source: Moody's Investors Service

Exhibit 8

Operating efficiency is adequate, benefiting from a focus on cost control

Source: Moody's Investors Service

Over the coming quarters we expect the net interest margin to widen given higher euro area rates, the bank's high proportion of variable rate loans and a lower cost on placements and reserves with the central bank.⁴ Provisions will also rise somewhat, as will operating expenses but ongoing efforts to digitalise branches, to increase process automation and to move transaction to digital and alternative channels will support efficiency, despite high IT investments.

Granular deposit-based funding structure and adequate liquidity, but lack of a 'lender of last resort' complicates liquidity management in a crisis

RBBiH's reliance on potentially more confidence sensitive market funding has been very low at 2% of tangible banking assets as of year end 2021, because its funding structure is mainly driven by a granular deposit base. Going forward we expect some increase in market funding reliance because of issuances to meet a definite minimum requirement for own funds and eligible liabilities (MREL) starting from 2023, which will also increase funding costs. This is reflected in our assigned score for the bank.

Customer deposits made up 94% of total liabilities, excluding equity, as of the end of 2021. Additionally, the deposit base is relatively granular whereby 58% of deposits were from private individuals. The remaining 42% was from legal entities. Around 35% of deposits were denominated in foreign currency, mostly in euro. The rest of the liabilities were predominantly funds from developmental and international financial institutions that are generally less confidence sensitive.

Nevertheless, the lack of a lender of last resort because of the country's strict currency board arrangement complicates liquidity management in a crisis. Further exacerbating this constraint is a lack of developed domestic interbank and capital markets, or a secondary market for government securities.

Mitigating this concern, the bank has some access to funding from its parent, while it also maintains a sufficient level of liquid assets on its balance sheet. Liquid assets made up 38% of tangible banking assets at the end of 2021. The bulk of these liquid assets were cash and money market placements. RBBiH also reported a liquidity coverage ratio of 268% at end-2021 (379% for end-2020), significantly above the 100% requirement. The bank's net stable funding ratio was 178% as of the end of 2021, also well above 100%.

Source of facts and figures cited in this report

Unless noted otherwise, we have sourced data relating to systemwide trends and market shares from the central bank of BiH, the FBA and the Banking Agency of Republika Srpska. Bank-specific figures originate from the banks' reports and all figures are based on our own chart of account and may be adjusted for analytical purposes. Please refer to the document [Financial Statement Adjustments in the Analysis of Financial Institutions](#) published on 9 August 2018.

To date, RBBiH has only published unconsolidated accounts. We have used these unconsolidated accounts as a proxy for the bank's consolidated financial profile given that the contribution from its subsidiaries was relatively immaterial in terms of total assets, or profit and loss.

ESG considerations

In line with the banking sector, RBBiH has a low exposure to environmental risks because direct lending to the hydrocarbon sector is fairly limited. See our [Environmental](#) risk heat map for further information.

The most relevant social risks for banks arise from the way they interact with their customers. See our [Social](#) risk heat map for further information. Social risks are particularly high in the area of data security and customer privacy, which are mitigated by sizeable technology investments and banks' long track record of handling sensitive client data. Fines and reputational damage because of product mis-selling or other types of misconduct are further social risks. Societal trends are also relevant in a number of areas, such as shifting customer preferences towards digital banking services, increasing information technology cost, ageing population concerns in several countries, including BiH, affecting demand for financial services or socially driven policy agendas that may translate into regulation that affects banks' revenue base. We also regard the coronavirus pandemic as a social risk under our environmental, social and governance (ESG) framework because of the substantial implications for public health and safety. Overall, banks, including RBBiH face moderate social risks.

Governance is highly relevant for RBBiH, as it is to all participants in the banking industry. Corporate governance weaknesses can lead to a deterioration in a bank's credit quality, while governance strengths can benefit a bank's credit profile. Governance risks are largely internal rather than externally driven, and for RBBiH, we do not have any particular governance concerns. However, corporate governance remains a key credit consideration and requires ongoing monitoring.

Support and structural considerations

Affiliate support

We assess that there is a high probability of support by RBI to RBBiH. Our assessment is based on RBI's 100% stake in RBBiH, the parent's ongoing operational support and oversight, and the subsidiary's use of the Raiffeisen logo and name. RBBiH is also a strategic fit to RBI's Western Balkans presence given its established and sustainable franchise as one of BiH's largest banks. Therefore, the risk of the parent disposing of its subsidiary is relatively low. This assessment results in two notches of rating uplift for RBBiH's Adjusted BCA to b1 from the bank's standalone BCA of b3.

Government support considerations

RBBiH's ratings do not benefit from government support uplift given that the bank's Adjusted BCA and therefore the preliminary rating assessments (PRAs) for its ratings are already above the sovereign rating of BiH.

Counterparty Risk Ratings (CRRs)

RBBiH's local-currency CRRs are B1/NP and its foreign-currency CRRs are B3/NP

In line with our methodology, for the CRRs, we constrain the PRA to two notches above the sovereign rating, reflecting our view that expected loss is likely to be higher under a sovereign default. The foreign-currency CRRs are constrained by the relevant ceiling at B3.

Counterparty Risk (CR) Assessment

RBBiH's CR Assessment is B1(cr)/NP(cr)

According to our methodology, the CR Assessment typically does not exceed the sovereign's rating by more than two notches where the Adjusted BCA is already above the sovereign rating.

Methodology and scorecard

Rating methodology

The principal methodology used is [Banks Methodology](#), published in July 2021.

About Moody's Bank 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 9

Raiffeisen Bank d.d. Bosna i Hercegovina

Macro Factors							
Weighted Macro Profile	Very Weak	100%					
Factor	Historic Ratio	Initial Score	Expected Trend	Assigned Score	Key driver #1	Key driver #2	
Solvency							
Asset Risk							
Problem Loans / Gross Loans	8.1%	caa2	↔	caa1	Collateral and provisioning coverage		
Capital							
Tangible Common Equity / Risk Weighted Assets (Basel III - transitional phase-in)	19.8%	b1	↓	b2	Expected trend	Access to capital	
Profitability							
Net Income / Tangible Assets	1.2%	caa1	↑	caa1	Expected trend	Loan loss charge coverage	
Combined Solvency Score		b3		b3			
Liquidity							
Funding Structure							
Market Funds / Tangible Banking Assets	1.9%	ba3	↓↓	b3	Expected trend		
Liquid Resources							
Liquid Banking Assets / Tangible Banking Assets	37.7%	b3	↔	b3	Stock of liquid assets		
Combined Liquidity Score		b1		b3			
Financial Profile				b3			
Qualitative Adjustments				Adjustment			
Business Diversification				0			
Opacity and Complexity				0			
Corporate Behavior				0			
Total Qualitative Adjustments				0			
Sovereign or Affiliate constraint				B3			
BCA Scorecard-indicated Outcome - Range				b2 - caa1			
Assigned BCA				b3			
Affiliate Support notching				2			
Adjusted BCA				b1			
Instrument Class	Loss Given Failure notching	Additional notching	Preliminary Rating Assessment	Government Support notching	Local Currency Rating	Foreign Currency Rating	
Counterparty Risk Rating	1	0	b1	0	B1	B3	
Counterparty Risk Assessment	1	0	b1 (cr)	0	B1(cr)		
Deposits	0	0	b1	0	B1	B3	
Senior unsecured bank debt	0	0	b1	0	(P)B1	(P)B3	

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

Source: Moody's Investors Service

Ratings

Exhibit 10

Category	Moody's Rating
RAIFFEISEN BANK D.D. BOSNA I HERCEGOVINA	
Outlook	Stable
Counterparty Risk Rating -Fgn Curr	B3/NP
Counterparty Risk Rating -Dom Curr	B1/NP
Bank Deposits -Fgn Curr	B3/NP
Bank Deposits -Dom Curr	B1/NP
Baseline Credit Assessment	b3
Adjusted Baseline Credit Assessment	b1
Counterparty Risk Assessment	B1(cr)/NP(cr)
Senior Unsecured MTN -Fgn Curr	(P)B3
Senior Unsecured MTN -Dom Curr	(P)B1

Source: Moody's Investors Service

Endnotes

- 1 The ratings shown here are RBI's deposit rating, senior unsecured debt rating and Baseline Credit Assessment.
- 2 Under local rules, the minimum ECL for Stage 1 exposures is 0.1% for low risk exposures, such as to the country's central bank and state and entity governments, and 0.5% for all other exposures, 5% for Stage 2 exposures and minimum ECLs start at 15% for Stage 3 exposures, rising gradually to 100% depending on days past due and whether the exposure is secured or unsecured.
- 3 At the end of September 2022 the two banking agencies announced temporary measures to mitigate risk from rising interest rates. Banks are instructed to assess the impact of rising interest rates on their exposures before implementing the increase and to reflect the risk in expected credit losses (ECLs). For existing or new exposures with a significant increase in interest rates, defined as 200 basis points from the rate that would be applicable in June 2022, the minimum ECL for Stage 1 exposures is 2% and for Stage 2 exposures 12%. Banks should also determine whether the significant increase in interest rate represents also a significant increase in credit risk, and therefore assign those exposure to Stage 2
- 4 As of July 2022, the central bank of BiH will [remunerate](#) funds exceeding the required reserves at -0.25% up from -0.75% and required reserves in foreign currency at -0.10% from -0.60%. There is no remuneration for required reserves in local currency.

© 2022 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 BY MOODY'S (COLLECTIVELY, "PUBLICATIONS") 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 PUBLICATIONS ARE NOT STATEMENTS OF CURRENT OR HISTORICAL FACT. MOODY'S PUBLICATIONS 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 PUBLICATIONS DO NOT CONSTITUTE OR PROVIDE INVESTMENT OR FINANCIAL ADVICE, AND MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS ARE NOT AND DO NOT PROVIDE RECOMMENDATIONS TO PURCHASE, SELL, OR HOLD PARTICULAR SECURITIES. MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS 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 ITS PUBLICATIONS 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 PUBLICATIONS 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 PUBLICATIONS 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.

MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS 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 rating process or in preparing its Publications.

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 fees ranging from \$1,000 to approximately \$5,000,000. 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 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 — Director and Shareholder Affiliation Policy."

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 Japan only: Moody's Japan K.K. ("MJKK") is a wholly-owned credit rating agency subsidiary of Moody's Group Japan G.K., which is wholly-owned by Moody's Overseas Holdings Inc., a wholly-owned subsidiary of MCO. Moody's SF Japan K.K. ("MSFJ") is a wholly-owned credit rating agency subsidiary of MJKK. MSFJ is not a Nationally Recognized Statistical Rating Organization ("NRSRO"). Therefore, credit ratings assigned by MSFJ are Non-NRSRO Credit Ratings. Non-NRSRO Credit Ratings are assigned by an entity that is not a NRSRO and, consequently, the rated obligation will not qualify for certain types of treatment under U.S. laws. MJKK and MSFJ are credit rating agencies registered with the Japan Financial Services Agency and their registration numbers are FSA Commissioner (Ratings) No. 2 and 3 respectively.

MJKK or MSFJ (as applicable) hereby disclose that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by MJKK or MSFJ (as applicable) have, prior to assignment of any credit rating, agreed to pay to MJKK or MSFJ (as applicable) for credit ratings opinions and services rendered by it fees ranging from JPY100,000 to approximately JPY550,000,000.

MJKK and MSFJ also maintain policies and procedures to address Japanese regulatory requirements.

REPORT NUMBER 1343434

CLIENT SERVICES

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