

CREDIT OPINION

14 August 2024

Update



Send Your Feedback

RATINGS

Bank Leumi Le-Israel B.M.

Domicile	Tel Aviv, Israel
Long Term CRR	A2
Type	LT Counterparty Risk Rating - Fgn Curr
Outlook	Not Assigned
Long Term Debt	Not Assigned
Long Term Deposit	A3
Type	LT Bank Deposits - Fgn Curr
Outlook	Negative

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

Corina Moustra, CFA +357.2569.3003
Lead Ratings Associate
corina.moustra@moodys.com

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

Antonello Aquino +44.20.7772.1582
Managing Director
antonello.aquino@moodys.com

Bank Leumi Le-Israel B.M.

Update to credit analysis

Summary

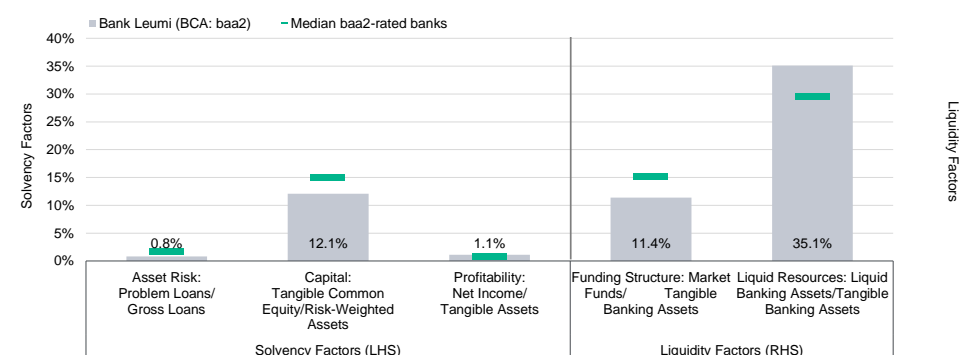
[Bank Leumi Le-Israel B.M.](#) (Bank Leumi)'s A3 long-term deposit ratings reflect (1) the bank's baa2 Baseline Credit Assessment (BCA); and (2) two notches of rating uplift based on our assessment of a very high likelihood of support from the [Government of Israel](#) (A2 negative), in case of need.

Bank Leumi's baa2 standalone BCA reflects a strong domestic deposit-based funding structure, that comfortably funds lending activities, healthy liquidity and its low problem loans and credit losses over a whole economic cycle.

Persistent geopolitical risks are captured in the BCA and the negative rating outlook. The BCA also reflects additional downside risks from a significant exposure concentration to the Israeli property market. Capitalisation is moderate although below similarly-rated international peers, but has been consistently stable and mainly reflects Bank of Israel's (BoI) conservative risk weighting.

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 Ratings

Credit strengths

- » Strong domestic deposit-based funding structure and healthy liquidity
- » Asset quality has been sound, underpinned by a conservative risk appetite
- » Very high likelihood of government support, in case of need, underpins the deposit ratings

Credit challenges

- » Asset quality will likely deteriorate because of the ongoing military conflict
- » Large exposure concentration to Israel's property market is also a tail risk

Rating outlook

The negative outlook on the long-term deposit ratings captures both the negative outlook on the Government of Israel's rating and the potential for a significantly more negative impact on the economy in the event of an escalation in the ongoing conflict, which could lead to the bank's standalone fundamentals being impacted more severely.

Factors that could lead to an upgrade

- » There is a limited scope for an upgrade of the Bank Leumi's deposit ratings given the negative outlook. We could stabilise the outlook on the bank's ratings in case the outlook on the sovereign rating changes to stable and/or downside risks to the economy and the bank subside.

Factors that could lead to a downgrade

- » Bank Leumi's long-term deposit ratings could be downgraded if both the sovereign rating and the standalone BCA are downgraded.
- » The bank's BCA could be downgraded in case of a prolonged and wider conflict that could have a significant impact on the standalone fundamentals, or if the bank's performance proves more volatile than in previous conflicts and economic crises.

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

Bank Leumi Le-Israel B.M. (Consolidated Financials) [1]

	03-24 ²	12-23 ²	12-22 ²	12-21 ²	12-20 ²	CAGR/Avg. ³
Total Assets (ILS Million)	753,673.0	731,497.0	699,166.0	656,454.0	556,035.0	9.8 ⁴
Total Assets (USD Million)	205,713.6	203,142.8	198,148.2	211,408.1	173,176.5	5.4 ⁴
Tangible Common Equity (ILS Million)	58,822.0	55,692.2	51,322.6	38,657.2	33,501.1	18.9 ⁴
Tangible Common Equity (USD Million)	16,055.4	15,466.2	14,545.2	12,449.4	10,433.9	14.2 ⁴
Problem Loans / Gross Loans (%)	0.7	0.9	0.5	1.1	1.6	1.0 ⁵
Tangible Common Equity / Risk Weighted Assets (%)	12.1	11.6	11.9	10.2	9.9	11.1 ⁶
Problem Loans / (Tangible Common Equity + Loan Loss Reserve) (%)	4.5	6.0	3.5	9.0	12.5	7.1 ⁵
Net Interest Margin (%)	2.0	2.3	2.0	1.7	1.7	2.0 ⁵
PPI / Average RWA (%)	3.1	3.3	2.7	2.5	2.0	2.8 ⁶
Net Income / Tangible Assets (%)	1.2	1.0	1.1	1.0	0.5	1.0 ⁵
Cost / Income Ratio (%)	30.7	28.5	35.9	42.6	48.3	37.2 ⁵
Market Funds / Tangible Banking Assets (%)	10.0	11.4	9.8	7.9	7.1	9.3 ⁵
Liquid Banking Assets / Tangible Banking Assets (%)	35.9	35.1	37.7	42.4	40.3	38.3 ⁵
Gross Loans / Due to Customers (%)	73.3	75.4	70.1	64.8	67.4	70.2 ⁵

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

[6] Simple average of Basel III periods.

Sources: Moody's Ratings and company filings

Profile

Bank Leumi provides banking, financial and nonbanking services to large corporations, middle-market companies, small businesses, households and wealthy customers. It also holds some investments in nonbanking corporations in various fields.

As of March 2024, Bank Leumi was the largest bank in Israel in term of total assets with a 30% market share, reporting total consolidated assets of NIS754 billion (\$206 billion).

The bank was founded in 1902 in London as the Anglo Palestine Company. Until 1954, when the Bank of Israel was established, it served as the financial agent of the State of Israel and issued the country's first currency. In 1950, the bank's name was officially changed to Bank Leumi. The bank's common stock trades on the Tel Aviv Stock Exchange (ticker: LUMI).

In recent years, the bank has focused its activities in Israel, and sold or scaled-back overseas operations. In April 2022, Bank Leumi completed the [sale of its US subsidiary](#) to New Jersey-based Valley National Bancorp (Valley). Bank Leumi became Valley's largest shareholder, holding approximately 14% of Valley's stock. Additionally, the two banks have entered into a cooperation agreement that allows Bank Leumi to maintain access to the US banking market through Valley.

Following the transaction, the bank's investment in Valley's shares is recorded according to the equity method. Because of significant decline in the share price of Valley since the beginning of 2024, Bank Leumi announced that, based on a preliminary estimate, the bank will recognise an impairment loss on its investment in Valley in the second quarter of 2024 amounting to NIS550 million, after tax.

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. Bank-specific figures originate from the banks' reports and are based on our own chart of accounts and may be adjusted for analytical purposes. Please refer to [Financial Statement Adjustments in the Analysis of Financial Institutions](#) published on 8 April 2024. We do not use the Bank of Israel's exchange rates in converting figures from Israeli shekel into US dollars, so US dollar figures may differ from bank reported figures.

Detailed credit considerations

Sound asset quality that will likely deteriorate

Bank Leumi's sound asset quality will deteriorate from strong levels because of the economic impact of the ongoing military conflict. The bank is proactively provisioning against downside scenarios. Additionally to risks from geopolitical tensions and similarly to other

Israeli banks, the bank's significant exposure to [Israel's property market](#) through its lending activities is also a downside risk for its asset quality.

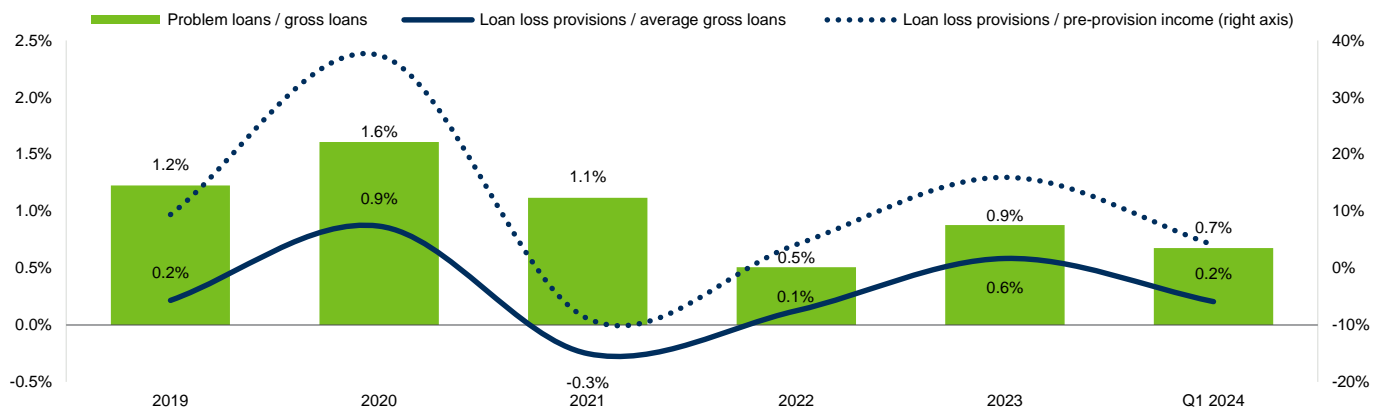
Our assessment also reflects the bank's modest credit losses over a long period, with the bank's cost of risk averaging 0.3% in the period 2006-2019 (before the pandemic and including an entire economic cycle), as well as relatively tight underwriting standards supported by proactive oversight by the BoI and limited single-name concentrations (with no exposures exceeding 15% of its capital as of March 2024).

Bank Leumi's problem loans (defined as non-accruing loans and accruing loans that are more than 90 days overdue) remained low at 0.7% of gross loans as of March 2024 (see Exhibit 3). Credit costs (loan loss provision expenses to average gross loans) increased to 0.6% in 2023 from very low levels in 2021 and 2022, mainly driven by collective provisions that reflected deterioration in macroeconomic indicators and increased risk in sectors most exposed to the conflict. Credit costs declined to 0.2% in the first three months of 2024, driven mainly by collective provisions which were partly offset by recoveries.

Exhibit 3

Bank Leumi's asset quality has been sound with low problem loans and modest credit losses

Evolution of problem loans ratio and annualised credit costs



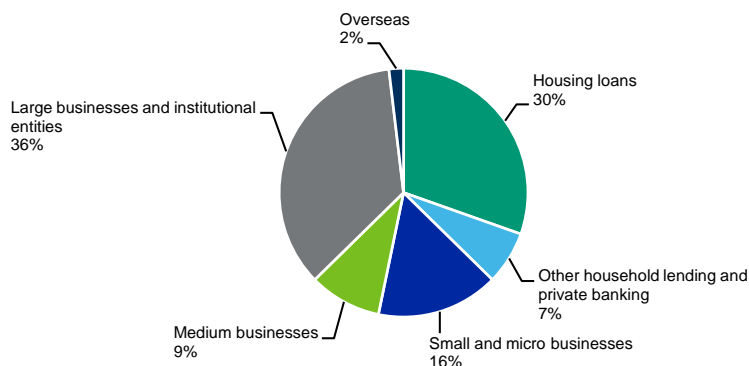
Source: Moody's Ratings

The bank's loan portfolio is relatively diversified within segments in Israel. Low-risk residential mortgages, with an average loan-to-value of 48% as of March 2024, accounted for 30% of total gross loans and medium and large businesses (including institutional entities) for an additional 45% as of March 2024 (see Exhibit 4). The bank's exposure to small businesses¹ in Israel, was 16% and consumer lending was 7%. Loan growth (mainly in mortgages, middle-market and corporate) moderated to 9% in 2023, although still higher than peers, and 2% during Q1 2024, from a double digit growth in 2022, driving some unseasoned risk.

Exhibit 4

Bank Leumi's loan book is relatively diversified by segment

Loan book breakdown as of March 2024 (gross loans, regulatory operating segments)



Source: Bank's financial statements

Sector concentration to real estate is high, which exposes the bank to the risk of a sustained disruption in activity in the sector, as well as the risk of a sharp property price correction together with reduced ability of borrowers to service their loan. In addition to mortgages, lending to the construction and real estate sector made up a further 26% of total lending as of March 2024², the highest in the system, and the bank's exposure grew by a high 10% year-over-year as of March 2024. However, residential projects made up 60% of the bank's total credit risk secured by real estate in Israel as of March 2024, where risk is mitigated by close oversight of closed residential construction. Also, underwriting criteria are relatively conservative. Bank Leumi is working towards reducing the concentration in this sector.

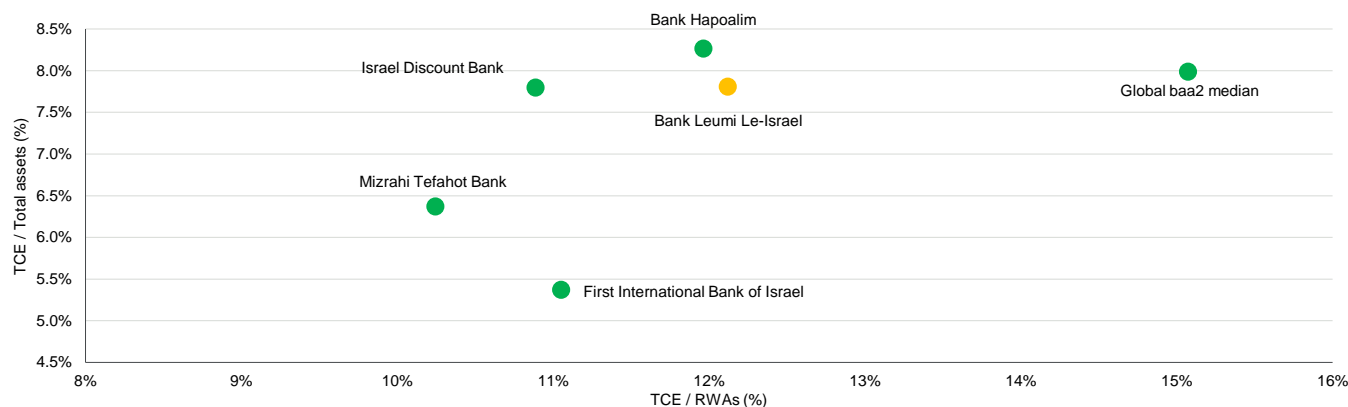
Moderate risk-weighted capitalisation and leverage

We view Bank Leumi's capitalisation as moderate. Although risk-weighted capital metrics are below global peers, the bank's loss-absorption buffers are supported by conservative regulatory risk-weights. Mortgages are risk-weighted according to their loan-to-value and have an average risk weight of over 50% in Israel, which is higher than the 35% risk weight normally used in the standardised approach. The bank's capital ratios are also more stable compared to banks globally that use a model based approach in calculating credit risk-weighted assets (RWAs).

Bank Leumi's tangible common equity (TCE)/RWAs ratio was 12.1% as of March 2024, below the global peer median (see Exhibit 5). The bank's TCE-to-total assets ratio was 7.8% as of March 2024 and in-line with global peers. The reported Basel leverage ratio was 6.7% as of March 2024, above the 5.5% minimum regulatory requirement that applied at that time.

Exhibit 5

Bank Leumi's risk-weighted capitalisation is lower than global peers, mainly because of more conservative risk weights
Risk-weighted capitalisation and leverage of Israeli banks and the global median as of March 2024



Source: Moody's Ratings

Bank Leumi also reported a Common Equity Tier 1 (CET1) ratio of 12.0% as of March 2024, substantially exceeding the 10.2% minimum regulatory requirement and the bank's internal minimum threshold of 10.6%. Similarly to other periods of high volatility and in line with the Bol's guidance, Bank Leumi distributed earnings below its dividend policy (of up to 50% of net profits in each quarter, supplemented by share buybacks) in the last three quarters, building up its capital buffers.

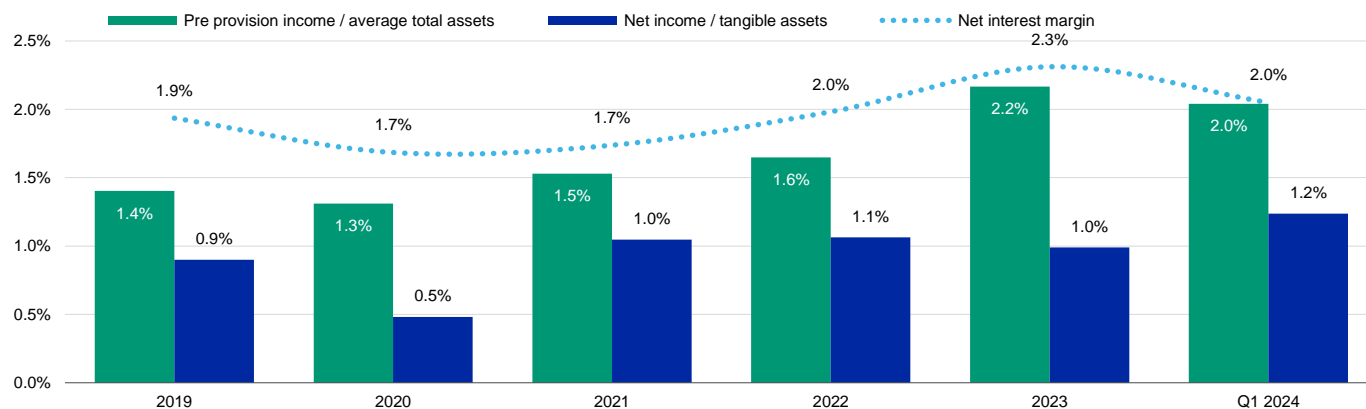
We expect capital levels to decline back to historical levels once uncertainty subsides because of lower earnings retention. Through adjustments in earnings distributions, capital raising and RWAs management, Bank Leumi has demonstrated its ability to maintain steady capital ratios over time.

Profitability is moderate and supported by strong revenue generating capacity and cost control

Bank Leumi's ongoing profitability is moderate, supported by strong revenue generating capacity given its established franchise and long-term business growth potential in Israel. Tight cost control and operating [efficiency gains](#) also support sustainable profitability and the bank's ability to resist [growing competition](#), income headwinds, and to withstand and recover from shocks. Following successive streamlining initiatives, which include headcount reduction and real estate downsizing and strong business growth, the bank's reported a cost-to-income ratio was 33% for the first three months of 2024³, one of the lowest levels ever reported.

The bank's net income to tangible assets was an annualised 1.2%⁴ in the first three months of 2024 and 1.0% for 2023 (see Exhibit 6), higher than the average of 0.8% over the period 2017-2019, because of higher interest rates and contained costs. In the coming quarters, profitability will decline from recent exceptionally high levels because of subdued credit growth, support measures to customers affected by the conflict and higher bank taxes for 2024 and 2025, as well as the impairment loss on its investment in Valley, as mentioned above. Still overall high interest rates, with the Bol's research department [expecting](#) that the policy rate will be 4.25% in the first quarter of 2025 compared to 4.5% currently, will be supportive of a healthy net interest margin and robust revenues.

Exhibit 6

Bank Leumi's profitability is moderate**Evolution of profitability metrics**

Profits included the gain from the sale of Bank Leumi USA in 2022 and the impairment loss on the investment in Valley in 2023. Q1 2024 figures exclude capital gains from the sale of headquarters.

Source: Moody's Ratings

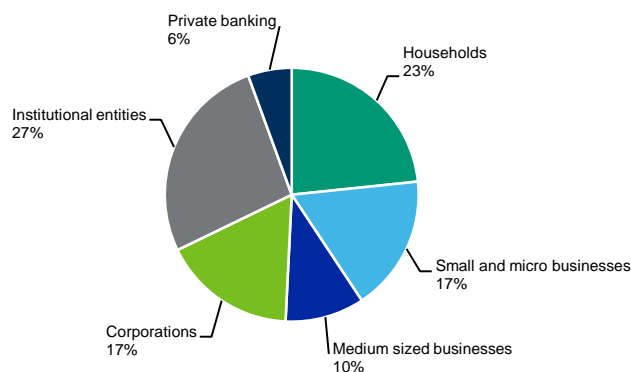
The bank's net interest margin narrowed to 2.0% in the first three months of 2024 from 2.3% in 2023, driven by the customer shift to higher-yielding deposit accounts, with the bank's non-interest bearing deposits accounting for 24% of total deposits as of March 2024 compared to 35% at end-2022. Margins are still higher than the 2021 level because rate hikes allowed the bank to unlock the value from its low-cost core deposit base.

Strong domestic deposit-based funding structure and healthy liquidity

Bank Leumi's funding structure is strong and made up of a large deposit base in Israel, helped by the country's strong savings culture. Customer deposits were equivalent to 79% of total assets as of March 2024 and comfortably funded the bank's lending activities. Bank Leumi's net-loans-to-deposits ratio was 72% as of March 2024.

Deposits are relatively granular. Deposits from households (excluding private banking) and small businesses (based on regulatory operating segments) made up 41% of total deposits as of March 2024. Our assessment also takes into account that as of the same date, 27% of total deposits were sourced from institutional investors that would be more vulnerable to a loss in depositor confidence. However, Bank Leumi's deposit base has proven to be stable during past systemic shocks, and the risk of shekel-denominated deposit outflows is limited, given that the closed shekel market.

Exhibit 7

Granular household and small business deposits make up a large part of Bank Leumi's deposit base**Breakdown of deposits by segment as of March 2024**

Source: Bank's financial statements

The bank has relatively low reliance on potentially more confidence-sensitive market funding at around 10% of tangible banking assets as of March 2024, including some senior issuances and derivative balances that are mainly driven by customer activity. Bonds and subordinated notes stood at NIS30.9billion (4% of total assets) as of March 2024, providing term funding. These balances are mainly sourced from the local capital market and allow for better matching of assets and liabilities.

The bank also maintains a healthy level of liquidity. Liquid assets made up 36% of total assets as of March 2024. Cash and interbank placements accounted for 19% of total assets, and securities for a further 18% as of March 2024. Israeli government bonds made up 55% of the bank's securities portfolio, and US government bonds an additional 11%. Bank Leumi reported a liquidity coverage ratio of 133% and a net stable funding ratio of 119% as of March 2024, both of which were substantially above the 100% minimum regulatory requirement.

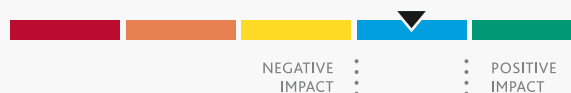
ESG considerations

Bank Leumi Le-Israel B.M.'s ESG credit impact score is CIS-2

Exhibit 8

ESG credit impact score

CIS-2



ESG considerations do not have a material impact on the current rating.

Source: Moody's Ratings

Bank Leumi's **CIS-2** indicates that ESG factors are not material to the current ratings because a high level of government support mitigates the impact from ESG risks, which have lately increased (especially social risks) because of the military conflict and the high customer relations risks in Israel.

Exhibit 9

ESG issuer profile scores

ENVIRONMENTAL

E-3



SOCIAL

S-4



GOVERNANCE

G-2



Source: Moody's Ratings

Environmental

Bank Leumi faces moderate exposure to environmental risks, mainly because of its portfolio exposure to carbon transition risks as a diversified bank and one of Israel's two largest banks with a significant corporate exposure. In line with its peers, Bank Leumi faces growing business risks and stakeholder pressure to meet broader carbon transition goals. Bank Leumi is engaging in further developing its climate risk and relevant portfolio management capabilities and increasing its green financing.

Social

Bank Leumi faces high social risks, related to societal and demographic trends as well as from customer relations. The current military conflict may cause a severe disruption of the economy and impact the bank's financial performance, depending on its duration and

scale. However, a relatively young and growing population in Israel affords business opportunities for the bank. Further, Bank Leumi faces high customer relations risk because of the considerable focus on consumer protection in Israel, exposing banks to potential fines from regulators and litigation from customers. High cyber and personal data risks are mitigated by a sound IT framework.

Governance

Bank Leumi faces low governance risks, and its risk management, policies and procedures are in line with industry practices and commensurate with its universal banking model, while the bank provides timely and detailed external reporting. The bank's financial strategy is conservative, under the oversight of a proactive and hands-on regulator.

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

Government support considerations

Bank Leumi's A3 deposit ratings incorporate two notches of government support uplift from the bank's baa2 Adjusted BCA because of our expectation of a very high probability of support from the Israeli authorities, in case of need. This expectation is based on Bank Leumi's systemic importance as the country's largest banking group and the Israeli government's long standing practice of supporting systemically important banks in case of need.

Methodology and scorecard

About Moody's Bank Scorecard

Our Bank Scorecard is designed to capture, express and explain in summary form our Rating Committee's judgment. When read in conjunction with our research, a fulsome presentation of our judgment is expressed. As a result, the output of our scorecard may materially differ from that suggested by raw data alone (though it has been calibrated to avoid the frequent need for strong divergence). The scorecard output and the individual scores are discussed in rating committees and may be adjusted up or down to reflect conditions specific to each rated entity.

Rating methodology and scorecard factors

Exhibit 10

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	0.8%	a1	↓↓	baa3	Sector concentration	Expected trend
Capital						
Tangible Common Equity / Risk Weighted Assets (Basel III - transitional phase-in)	12.1%	baa2	↓	baa3	Expected trend	
Profitability						
Net Income / Tangible Assets	1.1%	baa2	↓↓	ba1	Expected trend	
Combined Solvency Score		a3		baa3		
Liquidity						
Funding Structure						
Market Funds / Tangible Banking Assets	11.4%	a3	↔	baa1	Deposit quality	
Liquid Resources						
Liquid Banking Assets / Tangible Banking Assets	35.1%	a3	↓	a3	Expected trend	
Combined Liquidity Score		a3		baa1		
Financial Profile				baa2		
Qualitative Adjustments				Adjustment		
Business Diversification				0		
Opacity and Complexity				0		
Corporate Behavior				0		
Total Qualitative Adjustments				0		
Sovereign or Affiliate constraint				A2		
BCA Scorecard-indicated Outcome - Range				baa1 - baa3		
Assigned BCA				baa2		
Affiliate Support notching				0		
Adjusted BCA				baa2		
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	baa1	2	A2	A2
Counterparty Risk Assessment	1	0	baa1 (cr)	2	A2(cr)	
Deposits	0	0	baa2	2	A3	A3

[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 11

Category	Moody's Rating
BANK LEUMI LE-ISRAEL B.M.	
Outlook	Negative
Counterparty Risk Rating	A2/P-1
Bank Deposits	A3/P-2
Baseline Credit Assessment	baa2
Adjusted Baseline Credit Assessment	baa2
Counterparty Risk Assessment	A2(cr)/P-1(cr)

Source: Moody's Ratings

Endnotes

- [1](#) The regulatory definition of small businesses includes businesses with an annual turnover up to NIS50 million.
- [2](#) Banks' total construction and real estate exposure excluding national infrastructure is capped at 22% of total exposure to the public (on and off-balance sheet) by the BoI
- [3](#) Excluding capital gains from the sale of headquarters.
- [4](#) Adjusted for the capital gains from the sale of headquarters.

© 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