

CREDIT OPINION

28 October 2025

Update



RATINGS

Rikshem AB

Domicile	STOCKHOLM, Sweden
Long Term Rating	A3
Туре	LT Issuer Rating - Dom Curr
Outlook	Stable

Please see the <u>ratings section</u> at the end of this report for more information. The ratings and outlook shown reflect information as of the publication date.

Contacts

Maria Gillholm +46 851.791.270
VP-Sr Credit Officer
maria.gillholm@moodys.com

CFA +49.69.70730.735

Associate Managing Director christian.hendker@moodys.com

Andreas Soteriou +46.8.5179.1272
Senior Ratings Associate
andreas.soteriou@moodys.com

CLIENT SERVICES

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

Rikshem AB

Update to credit analysis

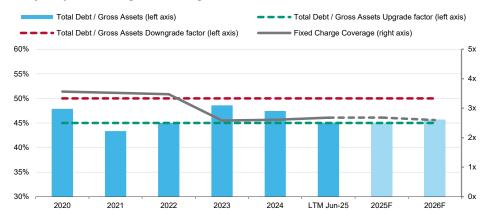
Summary

Rikshem AB's (Rikshem, A3 stable) A3 issuer rating reflects a Baseline Credit Assessment (BCA) of baa1 and a one-notch uplift due to its government-related issuer (GRI) status. Rikshem is 50% indirectly owned by the Government of Sweden (Aaa stable) through the Fourth Swedish National Pension Fund (AP4).

The rating is underpinned by a SEK 56 billion portfolio, mainly comprising regulated Swedish rental housing (72% of fair value) and social infrastructure assets including nursing homes and schools (28% of fair value). The portfolio benefits from strong fundamentals; long lease tenure (6.8 years) for public-use properties, low residential vacancy (3.1%), moderate leverage (45%), high unencumbered assets, excellent liquidity and supportive ownership by AP4 and AMF Tjänstepension (AMF).

Rikshem's interest coverage ratio was 2.7x for the last twelve months ending June, which is somewhat weak. We expect the company to rebalance its portfolio through divestments and acquisitions, which may further reduce interest coverage to 2.6x due to potential acquisitions. Other risks include potential regulatory changes although unlikely in the near future, which could limit national pension system's real estate exposure, and a short average debt maturity of 4.4 years, with 23% maturing within 18 months. These risks are mitigated by robust liquidity management including supportive owners providing a SEK 10 billion two-year evergreen cash facility and a undrawn RCF facility of 2 billion from one of the leading Nordic banks.

Exhibit 1
Moody's-adjusted leverage and coverage metrics for Rikshem



All data based on adjusted financial data, which follow our Financial Statement Adjustments in the Analysis of Nonfinancial Corporations methodology. LTM = Last 12 months.

Moody's forecasts are Moody's opinion and do not represent the views of the issuer.

Sources: Moody's Financial Metrics™ and Moody's Ratings forecasts

Credit strengths

- » Medium-sized, low-risk portfolio concentrated in Sweden's large and growing urban areas
- » Focus on regulated rental housing in a supply-constrained market, ensuring stable cash flow
- » High proportion of social infrastructure tenants that are nearly fully-tax-financed
- » Expected to maintain low leverage, aligned with the company's target to of keeping the leverage ratio below 16x
- » Excellent liquidity position and high share of unencumbered assets
- » Support from strong, committed owners

Credit challenges

- » Macroeconomic uncertainty, potentially leading to lower market values and higher cost of funding
- » Residential rents are not CPI-linked and rely on renegotiations, limiting short-term indexation pass-through-- though it tend to align with inflation over time.
- » Short-dated debt maturity; around 23% of its debt is maturing within 18 months
- » Despite somewhat weak EBITDA interest coverage, the rating benefits from the GRI status and the associated owner support if needed

Rating outlook

The stable rating outlook reflects our view that AP4 and AMF remain committed long-term owners, and that Rikshem will maintain its focused strategy on residential and public-service properties in growing urban areas. Over the next 12–18 months, we expect the company to keep debt/assets around 45–46%, net debt/EBITDA 12-13x, and maintain EBITDA interest coverage near 2.6–2.7x influenced by continued rental growth and net acquisitions.

Factors that could lead to upgrade

- » An explicit guarantee from the company's owners
- » Continued expansion and enhancement of the real estate portfolio, while maintaining Moody's-adjusted gross debt/assets well below 45% and adhering to financial policies that support low leverage
- » Sustained coverage ratio remains above 3.0x
- » Maintenance of excellent liquidity, including a high share of unencumbered asset and a lengthened debt maturity profile

Factors that could lead to downgrade

- » Reduced expectation of support from AP4 and AMF, including potential ownership changes or regulatory shifts that lessen Rikshem's strategic importance
- » Sustained effective leverage above 50% and EBITDA fixed-charge coverage trending toward 2.5x. This will be accessed in the context of its GRI status
- » Net debt/EBITDA consistently above 16x
- » Significant deterioration in operating performance or asset quality

This publication does not announce a credit rating action. For any credit ratings referenced in this publication, please see the issuer/deal page on https://ratings.moodys.com for the most updated credit rating action information and rating history.

» Weakened liquidity, including adverse changes to shareholder subscription agreements

Key indicators

Exhibit 2 Rikshem AB

(in SEK billions)	2020	2021	2022	2023	2024	LTM Jun-25	2025F	2026F
Gross Assets	55.3	62.4	64.9	60.9	61.7	59.5	60.9	63.8
Debt / Gross Assets	47.9%	43.4%	45.0%	48.6%	47.4%	45.1%	45.0%	45.7%
Net Debt / EBITDA	15.2x	16.0x	17.7x	15.9x	13.8x	13.2x	12.9x	12.4x
EBITDA / Interest Expense	3.6x	3.5x	3.5x	2.6x	2.6x	2.7x	2.7x	2.6x

All data based on adjusted financial data, which follow our Financial Statement Adjustments in the Analysis of Nonfinancial Corporations methodology. LTM = Last 12 months. Moody's forecasts are Moody's opinion and do not represent the views of the issuer.

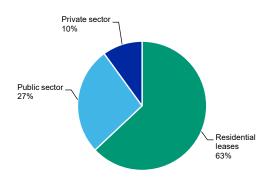
Sources: Moody's Financial Metrics™ and Moody's Ratings forecasts

Profile

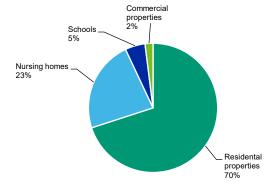
Rikshem AB is one of Sweden's largest private residential property owners and among the top three providers of public-use properties by market value. As of June 2025, it owns around 29,000 rental units (SEK 39 billion), 128 nursing and assisted-living facilities with 4,100 beds (SEK 13 billion), and 41 schools (SEK 2.7 billion), bringing the total portfolio value to SEK 56 billion including development projects.

The portfolio is of good quality, located in cities with strong demographics and macroeconomic fundamentals. About 40% of the residential assets are in Greater Stockholm (including Uppsala), with the rest in cities like Helsingborg (11%), Norrköping (12%), and Östersund (6%). For public-use properties, around 63% by value are in Greater Stockholm, Knivsta, Södertälje, and Uppsala.

Portfolio split by rental income (LTM Jun-25)



Portfolio split by properties fair value



LTM = Last 12 months.

Source: Company data

As of 30 June 2025. Source: Company data

The company's ownership is split equally between the AP4 and AMF. AP4 is one of five buffer funds in the Swedish pension system. The AP funds, which are deemed government agencies under Swedish law, manage assets within the national income pension system. Their purpose is to contribute to the pension system and cover deficits in years when pension disbursements exceed contributions from the working population. AMF is one of Sweden's leading pension companies. Its ownership is split equally between the Swedish Trade Union Confederation and the Confederation of Swedish Enterprise.

Detailed credit considerations

Focus on Sweden's regulated rental housing ensure stable cash flow

Sweden's residential sector is among the most stable in Europe—highly regulated, in persistent undersupply, and supported by steady demand. There is currently no indication of tighter regulations or a shift to market-based rents. This underpins stable rents and values, making new construction less attractive. Rikshem's 29,000-unit portfolio (1.6 million sqm) generates granular, stable income with low vacancy.

In Sweden, apartment rents are based on utility value—reflecting size, location, and quality—set by local rent boards part of the Swedish courts. Rents are renegotiated annually with tenant associations and rose by 5.0% in 2025. While not CPI-linked, rents generally track inflation over time. Refurbished units require a new utility value outside the annual process. To manage cost-risk, Rikshem pre-negotiates rents for new developments with tenant associations. Rikshem has effectively negotiated annual rent increases above the national average, including uplifts from renovations and higher rents for parking and commercial spaces—reflecting the quality and prime locations of its properties.

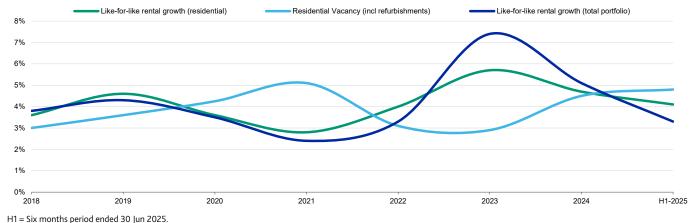
Rikshem's residential contracts are not CPI-linked, which limits short-term inflation pass-through. However, rents have historically tracked inflation through annual negotiations with tenant associations with rent increases of 1-2%. During the high inflationary environment in 2023 the company was able to increase rents by 4–5%. Moody's expects above-average increases over the next 12–18 months, converging with inflation from 2026 onward. Refurbished units allow for higher rent adjustments, partially offsetting inflation exposure. About 30% of the portfolio is CPI-linked, and social infrastructure leases offer rent adjustment opportunities upon renewal or termination.

High asset quality, reflected low vacancy rate and above-average rent

Rikshem's residential properties are typically located within 10–15 minutes' walk of city centers, supporting strong rental demand and a low vacancy rate of 4.8%. New developments are usually let within three months. Like-for-like rental growth in the existing portfolio has outperformed peers, driven by strategic refurbishments. Development projects, which allow for higher rent levels beyond annual renegotiations, have also supported income growth. Rikshem's consistently high capital spending ensures a well-maintained portfolio. These low-risk assets remain attractive to investors, as reflected in their 4.5% yield.

Exhibit 5

LFL rental growth has increased in 2024 following the inflationary environment, but lower than for commercial real estate



Source: Company data

Stable, tax-funded income from public-service properties, with limited risk from the small share of private tenants due to Sweden's welfare system

Rikshem, Sweden's third-largest private owner of social infrastructure assets, holds a portfolio where 28% of market value is tied to properties serving tax-financed public services like nursing homes, schools, and preschools. These assets offer stable rental income and low vacancy rates, with rents influenced by property age, investments, and tenant modifications. The company's focus on public-use properties aligns with rising demand for care facilities and education.

As of June 2025, the portfolio was valued at SEK 15.8 billion, with 63% located in Greater Stockholm (including Uppsala). The company's urban focus allows flexibility, such as converting nursing homes into residential units. Long-term contracts (average lease length: 6.8 years) mitigate risks tied to secondary use.

Public-sector tenants account for 88% of Rikshem's contracted rent in the social infrastructure segment, compared to 12% for private operators, resulting in very low credit risk. Even if a private tenant fails or goes bankrupt, municipalities—legally obligated to provide elderly care—typically take over operations or appoint a new provider. Rikshem's exposure to private operators is limited, representing just 12% of elderly care revenue, which is ultimately municipally funded. With an average lease length of 6.8 years and a 2.6% vacancy rate as of Q2 2025, this segment ensures stable and predictable cash flow.

Sweden's demographic trends support steady demand for elderly care and education, reinforcing the segment's fundamentals. Tenant concentration is low: the top 10 tenants contribute 75% of public-service rental income, with Uppsala municipality alone accounting for 18%. The six largest private operators add 13% to total public-service rental income.

Rikshem's education segment carries low risk. Swedish schools have few pupil vacancies, and public education is fully tax-funded. Public schools receive uniform student vouchers nationwide, regardless of whether they are publicly or privately run. As of Q2 2025, private schools—where pupils pay—made up 13.5% of Rikshem's school rental value.

Low-risk development activities

Between 2013 and 2019, Rikshem invested approximately SEK 9 billion in acquisitions and development, while divesting assets deemed suboptimal in quality or location. During the first six months, the company divested approximately SEK 1.7 billion, followed by SEK 1.1 billion in 2024 and SEK 527 million in 2023. It is expected to remain a net acquirer, gradually shifting toward social infrastructure assets and shedding less attractive properties.

Vacancy risk remains low. Residential projects typically achieve near-zero vacancy within 1–3 months post-completion due to strong demand and prime locations. For public-use properties, Rikshem enters into long-term leases (10–15 years) in advance with municipalities or private operators when major refurbishments are carried out in connection with new lease agreements.

These assets are tailor-made and delivered turnkey at fixed prices. The company also upgrades and leases back properties acquired from municipalities, with capital spending and rent terms pre-agreed.



Exhibit 6
Portfolio evolution of investment properties

LTM = Last 12 months.

Source: Company data

Elevated net debt/EBITDA reflects Rikshem's investment in lower-yielding, high-quality assets.

Rikshem targets a maximum loan-to-value ratio of 55%, with Moody's-adjusted gross debt/total assets at 45% as of June 2025—adequate for its rating. This ratio is expected to be 45-47% over the next 12–18 months. Moody's-adjusted net debt/EBITDA stood at 13.2x, reflecting high-quality assets with lower yields and past development activity. The ratio is projected to stay within 12-13x,

supported by rising EBITDA from rent increases on refurbished units and new builds. The residential portfolio is expected to drive most of the rental growth.

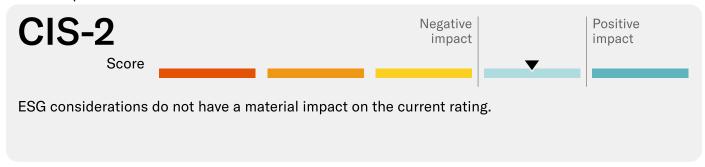
Interest coverage is somewhat weak due to high interest rates

As of June 2025, Rikshem's Moody's-adjusted fixed charge coverage was 2.7x. Interest coverage has weakened due to structurally higher interest rates and refinancing needs, but expected to be 2.6-2.7x over the next two years. The company aims to maintain EBITDA/interest coverage above 2.5x. Its average borrowing cost was 2.8%.

ESG considerations

Rikshem AB's ESG credit impact score is CIS-2

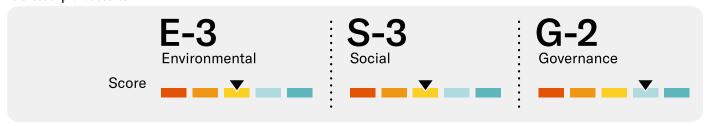
Exhibit 7
ESG credit impact score



Source: Moody's Ratings

ESG factors have a neutral to low impact on Rikshem's rating (CIS-2), though future influence may grow. This reflects the company's moderate financial policies which enables it to manage exposure towards environmental and social risk. It also reflects the regulated residential market where increasing interest rates and inflation can affect households' affordability and consequently Rikshem's ability to increase rents based on increasing inflation. The G-2 reflects Rikshem's GRI status and the owner's support beyond the GRI model.

Exhibit 8
ESG issuer profile scores



Source: Moody's Ratings

Environmental

E-3: Rikshem's carbon transition risk is moderate and comparable to Nordic real estate peers. Like others in the sector, it faces significant investment needs to improve building energy performance due to regulatory, investor, and tenant pressures. Its development pipeline enables the company to gradually improve and upgrade the energy performance. The company targets to achieve climate neutral operations by 2030 for property management and with all of the other operations following suit by 2045.

Social

S-3: Credit exposure to social risks is moderately negative. The score reflects the sectors exposure to social risks arising from affordable living requirements. It affects rental growth potential for companies in the sector and interferes with investment requirements due to environmental regulation. Companies in the sector are also exposed to moderate customer relationship risk through the handling of sensitive private individual data.

Governance

G-2 reflects its GRI status and the owners' commitment to support a conservative financial risk management of Rikshem as well as to provide extraordinary support in case of need via equity injections and subscription commitment. While concentrated ownership is reflected in a score of 3 for Board Structure and Policies, its GRI status and broader assumption of support influences the rating positively. These positives more than balance the risks from concentrated ownership. The **G-2** also benefits from strong Management Credibility and Track Record of managing one of the largest Swedish residential property portfolios.

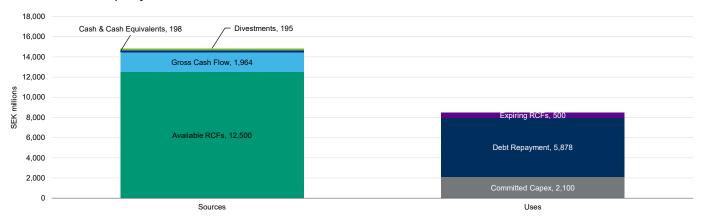
ESG Issuer Profile Scores and Credit Impact Scores for the rated entity/transaction are available on Moodys.com. In order to view the latest scores, please click here to go to the landing page for the entity/transaction on MDC and view the ESG Scores section.

Liquidity analysis

Good liquidity and a high amount of unencumbered assets

Rikshem's liquidity is excellent, supported by stable cash flow, staggered short-term debt maturities, and substantial unused committed credit lines. Its strongest liquidity feature is a SEK 10 billion cash facility from its owners, with a two-year evergreen maturity, covering 35% of total debt if needed. High levels of unencumbered assets further enhance liquidity, as they can be sold or pledged for financing.

Exhibit 9
Sources and uses of liquidity over the next 18 months



As of 30 June 2025.

Moody's forecasts are Moody's opinion and do not represent the views of the issuer. Sources: Company data and Moody's Ratings forecasts

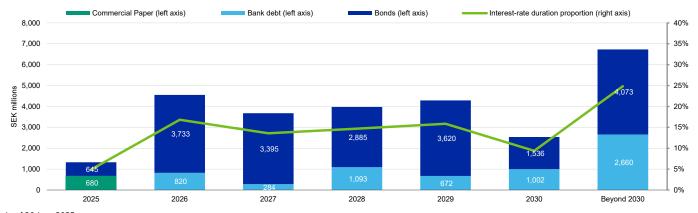
Access to capital

Rikshem will rely on external funding over the next three years, as planned investments exceed internal cash flow and potential divestment proceeds. The company has strong access to multiple bond markets (SEK, NOK, EUR, AUD, JPY), diversified banking relationships, and a liquid housing portfolio. AP4 and AMF are committed to supporting Rikshem by providing capital injections or waiving dividends to help the company meet newly established credit metrics. They have previously injected cash on four occasions to support Rikshem's growth strategy. Since all revenue is in Swedish kronor, the company typically hedges its foreign-currency bonds into SEK.

Financial policies include maintaining an average debt duration of at least 3.5 years and interest-rate duration between 3–6 years; as of June 2025, these stood at 4.4 and 4.2 years, respectively.

Exhibit 10

Debt maturities by debt type and interest rate duration



As of 30 June 2025. Source: Company data

8

Structural considerations

Rikshem secures part of its borrowing with property mortgage deeds and shares in property-owning subsidiaries. It also maintains a high share of unsecured debt, providing a buffer for unsecured bondholders.

Rikshem receives a one-notch uplift in its GRI status due to AP4's 50% ownership

Rikshem is 50% owned by AP4, a government agency tasked with managing capital for Sweden's national income pension system. Supervised by the Ministry of Finance under the Swedish National Pension Funds Act (2000:192), AP4 is a government agency and operates independently, governed by law rather than directive, and is not consolidated into the government's accounts. AP Funds 1–4 are mandated to maximize benefits for income-based pensions, and their contracts are binding on the Swedish state. If needed, they can borrow from the Swedish National Debt Office to meet commitments.

We apply the Joint Default Analysis (JDA) under our Government-Related Issuers Methodology to assess the credit link between Rikshem and its supporting owner, AP4. Our approach considers Rikshem's standalone credit profile (BCA), Sweden's Aaa rating, the default correlation between the entities, and the likelihood of extraordinary government support.

Given the very high default dependence and strong expectation of extraordinary support from Rikshem's owners, the company receives an uplift from its adjusted BCA of baa1.

Exhibit 11

A very high level of overall default dependence

Dependence	Low	Moderate	High	Very High
(1) Operational and Financial Linkages				
» Direct and Indirect Government Transfers as a % of GRI Revenue	✓			
» Government Purchases as a % of GRI Revenue				✓
» GRI Payments (Dividends) as a % of Government Revenue	✓			
(2) Reliance on Overlapping Revenue Base				
» Percentage of income derived from within the government's territory				✓
(3) Exposure to Common Credit Risks				
» Foreign Exchange Risk in Debt Structure	✓			
» Shared Industry Exposure	✓			
» Political Event Risks	✓			
Overall Guidance Dependence Level				./

Source: Moody's Ratings

As outlined in Exhibit 11, our view on the very high level of default dependence is driven by our assessment of the following factors:

- 1. Operational and financial links between Rikshem and the Swedish government are very strong, mainly due to public-sector rent payments making up about 27% of revenue. Direct and indirect government transfers are less of a link, as are planned dividend payments from Rikshem.
- 2. While direct transfers and dividends are less significant, the company's full revenue is generated in Sweden, creating high overlap with government income sources.
- 3. Both Rikshem and the government have low exposure to common credit risks

Exhibit 12

A low overall likelihood of extraordinary support

Support	Low	Moderate	Strong	High	Very High
(1) Guarantees					
» Explicit Guarantees	✓				
» Verbal Guarantees and/or Comfort Letters			✓		
» Special Legal Status	✓				
(2) Ownership					
» Ownership Level		✓			
» Privatization Plans	✓				
(3) Barriers to Support	✓				
(4) Level of Government Intervention					
» History of State Bailouts	✓				
» Ideological and Political Inclinations	✓				
» Government Direction of GRI	✓				
» Business Planning	✓				
(5) Political Linkages					
» Increased borrowing costs	✓				
» Political Embarrassment		✓			
(6) Economic Importance	✓				
Overall Guidance Support Range		✓			

Source: Moody's Ratings

As outlined in Exhibit 12, our overall view on the low level of government support is driven by our assessment of the following six factors:

- 1. While Rikshem does not have a special legal status nor enjoy any form of explicit guarantee or comfort letter provided directly by the Swedish government, the company does benefit from contractual agreements entered into between itself and its owner, AP4, as well as between the owners themselves.
 - a. Rikshem's owners have committed to a SEK 10 billion cash facility with a two-year evergreen maturity, available upon request to cover liquidity shortfalls.
 - b. Dividend policy and payments are subject to meeting stricter financial targets: minimum equity ratio of 35%, loan-to-value of 55%, EBITDA interest coverage of 2.5x, and net debt/EBITDA of 16x. If targets are met, up to 50% of prior-year operating cash flow may be distributed as dividends.
- 2. Rikshem is 50% owned by AP4, which considers its stake strategic due to the scale of Rikshem's portfolio, the operational effort behind it, and the difficulty of replicating its asset class exposure. AP4 has no plans to reduce its ownership.
- 3. There are legal and policy barriers to government aid in the form of European Union (EU) rules prohibiting preferential support to commercial entities, which Sweden is likely to follow.
- 4. Government intervention in Rikshem's operations is low. The Swedish government can influence strategy mainly by appointing board members and auditors at AP4, Rikshem's owner, or by amending the law governing AP Funds. AP4's board, like AMF's, appoints a representative to Rikshem's board.
- 5. The reputational and political risk for the Swedish government if Rikshem fails and cannot meet its obligations is considered moderate.

6. Rikshem's small size, presence of competitors, non-essential services, and lack of ties to national security suggest a low likelihood of government support based solely on economic importance.

Rating methodology and scorecard factors

The principal methodology used in these ratings was the REITs and Other Commercial Real Estate Firms Methodology.

The adjusted BCA of "baa1" is in line with the scorecard-indicated outcome under our forward view. The final rating outcome of A3 reflects the one-notch uplift under the Government-Related Issuers Methodology.

Exhibit 13
Rating factors
Rikshem AB

s and Other Commercial Real Estate Firms Industry Scorecard LTM Jui			Moody's 12-18 mo	nth forward view
Factor 1 : SCALE (5%)	Measure	Score	Measure	Score
a) Gross Assets (\$ billions)	6.2	Baa	6.5-6.8	Baa
Factor 2 : BUSINESS PROFILE (25%)				
a) Asset Quality	Aa	Aa	Aa	Aa
b) Market Characteristics	Α	Α	A	Α
Factor 3 : ACCESS TO CAPITAL (20%)	·			
a) Access to Capital	Α	A	Α	Α
b) Asset Encumbrance	Baa	Baa	Baa	Baa
Factor 4 : LEVERAGE AND COVERAGE (35%)	·			
a) Debt / Gross Assets	45.1%	Baa	45-46%	Baa
b) Net Debt / EBITDA	13.2x	Ca	12-13x	Caa
c) EBITDA / Interest Expense	2.7x	Baa	2.6-2.7x	Baa
Factor 5 : FINANCIAL POLICY (15%)				
a) Financial Policy	Α	Α	Α	А
Rating:	·			
(a) Scorecard-Indicated Outcome	·	Baa1		Baa1
(b) Actual Rating Assigned				A3
Government-Related Issuer	Factor			
a) Baseline Credit Assessment	baa1			
b) Government Local Currency Rating	Aaa			
c) Default Dependence	Very High			
d) Support	Moderate			
e) Actual Rating Assigned	A3			

All data based on adjusted financial data, which follow our Financial Statement Adjustments in the Analysis of Nonfinancial Corporations methodology. LTM = Last 12 months. Moody's forecasts are Moody's opinion and do not represent the views of the issuer.

Sources: Moody's Financial MetricsTM and Moody's Ratings forecasts

Ratings

Exhibit 14

Category	Moody's Rating		
RIKSHEM AB			
Outlook	Stable		
Issuer Rating -Dom Curr	A3		
Senior Unsecured	A3		
Source: Moody's Ratinas			

© 2025 Moody's Corporation, Moody's Investors Service, Inc., Moody's Analytics, Inc. and/or their licensors and affiliates (collectively, "MOODY'S"). All rights reserved. CREDIT RATINGS ISSUED BY MOODY'S CREDIT RATINGS AFFILIATES ARE THEIR CURRENT OPINIONS OF THE RELATIVE FUTURE CREDIT RISK OF ENTITIES, CREDIT COMMITMENTS, OR DEBT OR DEBT-LIKE SECURITIES, AND MATERIALS, PRODUCTS, SERVICES AND INFORMATION PUBLISHED OR OTHERWISE MADE AVAILABLE BY MOODY'S (COLLECTIVELY, "MATERIALS") MAY INCLUDE SUCH CURRENT OPINIONS. MOODY'S DEFINES CREDIT RISK AS THE RISK THAT AN ENTITY MAY NOT MEET ITS CONTRACTUAL FINANCIAL OBLIGATIONS AS THEY COME DUE AND ANY ESTIMATED FINANCIAL LOSS IN THE EVENT OF DEFAULT OR IMPAIRMENT. SEE APPLICABLE MOODY'S RATING SYMBOLS AND DEFINITIONS PUBLICATION FOR INFORMATION ON THE TYPES OF CONTRACTUAL FINANCIAL OBLIGATIONS ADDRESSED BY MOODY'S CREDIT RATINGS. CREDIT RATINGS DO NOT ADDRESS ANY OTHER RISK, INCLUDING BUT NOT LIMITED TO: LIQUIDITY RISK, MARKET VALUE RISK, OR PRICE VOLATILITY. CREDIT RATINGS, NON-CREDIT ASSESSMENTS ("ASSESSMENTS"), AND OTHER OPINIONS INCLUDED IN MOODY'S MATERIALS ARE NOT STATEMENTS OF CURRENT OR HISTORICAL FACT. MOODY'S MATERIALS MAY ALSO INCLUDE QUANTITATIVE MODEL-BASED ESTIMATES OF CREDIT RISK AND RELATED OPINIONS OR COMMENTARY PUBLISHED BY MOODY'S ANALYTICS, INC. AND/OR ITS AFFILIATES. MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND MATERIALS DO NOT CONSTITUTE OR PROVIDE INVESTMENT OR FINANCIAL ADVICE, AND MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND MATERIALS ARE NOT AND DO NOT PROVIDE RECOMMENDATIONS TO PURCHASE, SELL, OR HOLD PARTICULAR SECURITIES. MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND MATERIALS DO NOT COMMENT ON THE SUITABILITY OF AN INVESTMENT FOR ANY PARTICULAR INVESTOR. MOODY'S ISSUES ITS CREDIT RATINGS, ASSESSMENTS AND OTHER OPINIONS AND PUBLISHES OR OTHERWISE MAKES AVAILABLE ITS MATERIALS WITH THE EXPECTATION AND UNDERSTANDING THAT EACH INVESTOR WILL, WITH DUE CARE, MAKE ITS OWN STUDY AND EVALUATION OF EACH SECURITY THAT IS UNDER CONSIDERATION FOR PURCHASE, HOLDING, OR SALE.

MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS, AND MATERIALS ARE NOT INTENDED FOR USE BY RETAIL INVESTORS AND IT WOULD BE RECKLESS AND INAPPROPRIATE FOR RETAIL INVESTORS TO USE MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS OR MATERIALS WHEN MAKING AN INVESTMENT DECISION. IF IN DOUBT YOU SHOULD CONTACT YOUR FINANCIAL OR OTHER PROFESSIONAL ADVISER.

ALL INFORMATION CONTAINED HEREIN IS PROTECTED BY LAW, INCLUDING BUT NOT LIMITED TO, COPYRIGHT LAW, AND NONE OF SUCH INFORMATION MAY BE COPIED OR OTHERWISE REPRODUCED, REPACKAGED, FURTHER TRANSMITTED, TRANSFERRED, DISSEMINATED, REDISTRIBUTED OR RESOLD, OR STORED FOR SUBSEQUENT USE FOR ANY SUCH PURPOSE, IN WHOLE OR IN PART, IN ANY FORM OR MANNER OR BY ANY MEANS WHATSOEVER, BY ANY PERSON WITHOUT MOODY'S PRIOR WRITTEN CONSENT. FOR CLARITY, NO INFORMATION CONTAINED HEREIN MAY BE USED TO DEVELOP, IMPROVE, TRAIN OR RETRAIN ANY SOFTWARE PROGRAM OR DATABASE, INCLUDING, BUT NOT LIMITED TO, FOR ANY ARTIFICIAL INTELLIGENCE, MACHINE LEARNING OR NATURAL LANGUAGE PROCESSING SOFTWARE, ALGORITHM, METHODOLOGY AND/OR MODEL.

MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND MATERIALS ARE NOT INTENDED FOR USE BY ANY PERSON AS A BENCHMARK AS THAT TERM IS DEFINED FOR REGULATORY PURPOSES AND MUST NOT BE USED IN ANY WAY THAT COULD RESULT IN THEM BEING CONSIDERED A BENCHMARK.

All information contained herein is obtained by MOODY'S from sources believed by it to be accurate and reliable. Because of the possibility of human or mechanical error as well as other factors, however, all information contained herein is provided "AS IS" without warranty of any kind. MOODY'S adopts all necessary measures so that the information it uses in assigning a credit rating is of sufficient quality and from sources MOODY'S considers to be reliable including, when appropriate, independent third-party sources. However, MOODY'S is not an auditor and cannot in every instance independently verify or validate information received in the credit rating process or in preparing its Materials.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability to any person or entity for any indirect, special, consequential, or incidental losses or damages whatsoever arising from or in connection with the information contained herein or the use of or inability to use any such information, even if MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers is advised in advance of the possibility of such losses or damages, including but not limited to: (a) any loss of present or prospective profits or (b) any loss or damage arising where the relevant financial instrument is not the subject of a particular credit rating assigned by MOODY'S.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability for any direct or compensatory losses or damages caused to any person or entity, including but not limited to by any negligence (but excluding fraud, willful misconduct or any other type of liability that, for the avoidance of doubt, by law cannot be excluded) on the part of, or any contingency within or beyond the control of, MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers, arising from or in connection with the information contained herein or the use of or inability to use any such information.

NO WARRANTY, EXPRESS OR IMPLIED, AS TO THE ACCURACY, TIMELINESS, COMPLETENESS, MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OF ANY CREDIT RATING, ASSESSMENT, OTHER OPINION OR INFORMATION IS GIVEN OR MADE BY MOODY'S IN ANY FORM OR MANNER WHATSOEVER.

Moody's Investors Service, Inc., a wholly-owned credit rating agency subsidiary of Moody's Corporation ("MCO"), hereby discloses that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by Moody's Investors Service, Inc. have, prior to assignment of any credit rating, agreed to pay Moody's Investors Service, Inc. for credit ratings opinions and services rendered by it. MCO and all MCO entities that issue ratings under the "Moody's Ratings" brand name ("Moody's Ratings"), also maintain policies and procedures to address the independence of Moody's Ratings' credit ratings and credit rating processes. Information regarding crudian affiliations that may exist between directors of MCO and rated entities, and between entities who hold credit ratings from Moody's Investors Service, Inc. and have also publicly reported to the SEC an ownership interest in MCO of more than 5%, is posted annually at ir.moodys.com under the heading "Investor Relations — Corporate Governance — Charter and Governance Documents - Director and Shareholder Affiliation Policy."

Moody's SF Japan K.K., Moody's Local AR Agente de Calificación de Riesgo S.A., Moody's Local BR Agência de Classificação de Risco LTDA, Moody's Local MX S.A. de C.V, I.C.V., Moody's Local PE Clasificadora de Riesgo S.A., and Moody's Local PA Calificadora de Riesgo S.A. (collectively, the "Moody's Non-NRSRO CRAs") are all indirectly wholly-owned credit rating agency subsidiaries of MCO. None of the Moody's Non-NRSRO CRAs is a Nationally Recognized Statistical Rating Organization.

Additional terms for Australia only: Any publication into Australia of this document is pursuant to the Australian Financial Services License of MOODY'S affiliate, Moody's Investors Service Pty Limited ABN 61 003 399 657AFSL 336969 and/or Moody's Analytics Australia Pty Ltd ABN 94 105 136 972 AFSL 383569 (as applicable). This document is intended to be provided only to "wholesale clients" within the meaning of section 761G of the Corporations Act 2001. By continuing to access this document from within Australia, you represent to MOODY'S that you are, or are accessing the document as a representative of, a "wholesale client" and that neither you nor the entity you represent will directly or indirectly disseminate this document or its contents to "retail clients" within the meaning of section 761G of the Corporations Act 2001. MOODY'S credit rating is an opinion as to the creditworthiness of a debt obligation of the issuer, not on the equity securities of the issuer or any form of security that is available to retail investors.

Additional terms for India only: Moody's credit ratings, Assessments, other opinions and Materials are not intended to be and shall not be relied upon or used by any users located in India in relation to securities listed or proposed to be listed on Indian stock exchanges.

Additional terms with respect to Second Party Opinions and Net Zero Assessments (as defined in Moody's Ratings Rating Symbols and Definitions): Please note that neither a Second Party Opinion ("SPO") nor a Net Zero Assessment ("NZA") is a "credit rating". The issuance of SPOs and NZAs is not a regulated activity in many jurisdictions, including Singapore. JAPAN: In Japan, development and provision of SPOs and NZAs fall under the category of "Ancillary Businesses", not "Credit Rating Business", and are not subject to the regulations applicable to "Credit Rating Business" under the Financial Instruments and Exchange Act of Japan and its relevant regulation. PRC: Any SPO: (1) does not constitute a PRC Green Bond Assessment as defined under any relevant PRC laws or regulations; (2) cannot be included in any registration statement, offering circular, prospectus or any other documents submitted to the PRC regulatory authorities or otherwise used to satisfy any PRC regulatory disclosure requirement; and (3) cannot be used within the PRC for any regulatory purpose or for any other purpose which is not permitted under relevant PRC laws or regulations. For the purposes of this disclaimer, "PRC" refers to the mainland of the People's Republic of China, excluding Hong Kong, Macau and Taiwan.

REPORT NUMBER

1459347

13

CLIENT SERVICES

14

 Americas
 1-212-553-1653

 Asia Pacific
 852-3551-3077

 Japan
 81-3-5408-4100

 EMEA
 44-20-7772-5454