

CREDIT OPINION

20 December 2017

Update

Rate this Research



RATINGS

Landesbank Hessen-Thueringen GZ

Domicile	Frankfurt am Main, Germany
Long Term Debt	A1
Туре	Senior Unsecured - Dom Curr
Outlook	Negative
Long Term Deposit	Aa3
Туре	LT Bank Deposits - Fgn 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.

Analyst Contacts

Andrea Wehmeier 49-69-70730-782 VP-Senior Analyst andrea.wehmeier@moodys.com

Alexander Hendricks, 49-69-70730-779

Associate Managing Director - Banking

alexander.hendricks@moodys.com

Carola Schuler 49-69-70730-766

Managing Director -

Banking

carola.schuler@moodys.com

CLIENT SERVICES

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

Landesbank Hessen-Thueringen GZ

Update following affirmation of senior unsecured ratings, outlook change to negative

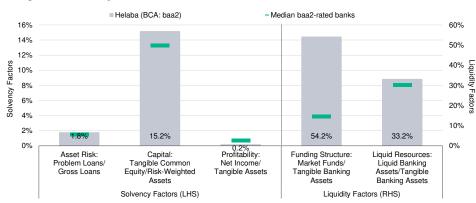
Summary

On 12 December 2017, we affirmed the A1 senior unsecured and issuer ratings of <u>Landesbank Hessen-Thueringen GZ</u> (Helaba) and changed the outlook on this debt class to negative. The rating action did not affect Helaba's other ratings, including its Aa3/P-1 deposit ratings, its baa2 Baseline Credit Assessment (BCA) and Adjusted BCA, and its Aa3(cr)/P-1(cr) Counterparty Risk (CR) Assessment.

The ratings reflect (1) the bank's baa2 BCA; (2) its baa1 Adjusted BCA, incorporating one notch of rating uplift based on affiliate support from <u>Sparkassen-Finanzgruppe</u> (S-Group, Aa2 stable, a2¹); (3) the result of our Advanced Loss Given Failure (LGF) analysis, taking into account the loss severity faced by the different liability classes in resolution, which provides three notches of rating uplift for deposits and two notches for senior debt; and (4) a moderate likelihood of government support, resulting in one notch of rating uplift.

The baa2 BCA reflects Helaba's (1) sound capitalisation and leverage ratios, (2) moderate asset-risk profile, and (3) comfortable liquid resources. Further, the BCA reflects the bank's substantial exposure to international commercial real estate (CRE) markets; its modest, though stable, profitability; and a funding structure that relies on significant market funding access.

Exhibit 1
Rating Scorecard - Key financial ratios



Source: Moody's Banking Financial Metrics

Credit strengths

- » Sound risk management, with an established track record
- » Solid and improved capitalisation, which has improved the bank's ability to withstand a certain degree of adverse environment
- » Good access to sector funds, which supports the bank's liquidity profile

Credit challenges

- » High sector concentrations in the cyclical CRE business, which remain a tail risk for asset quality
- » Stable, but low level of risk-weighted profitability, which is providing a limited buffer in case of an adverse development
- » Dependence on confidence-sensitive market funding, which remains significant despite access to sector funds

Outlook

» The outlook on the bank's deposit rating is stable, reflecting our view of a broadly stable liability structure over the 12-18-month outlook horizon, as well as an only moderately changing financial profile and unchanged sector relationships, leading to unchanged high affiliate support from S-Group. On 12 December, we changed the outlook on Helaba's senior unsecured debt and the issuer ratings to negative from stable, reflecting our view that once pending BRRD amendments are transposed in to German law, unsecured bonds that meet the definition of article 46f of the German banking act (§46f KWG) could rank pari passu with future junior senior bonds. This may call into question the moderate probability of government support we currently consider warranted for senior unsecured debt instruments and therefore also for the bank's issuer rating, as the issuer rating is derived from the senior unsecured debt ratings.

Factors that could lead to an upgrade

- » An upgrade of Helaba's ratings would be likely in the event of an upgrade of the bank's BCA. Helaba's debt ratings could also experience upward rating pressure if the volume of the bank's subordinated instruments increases meaningfully relative to the bank's tangible banking assets, which could result in one additional notch of uplift from our LGF analysis. The deposit and senior-senior ratings already benefit from the maximum possible rating uplift from the LGF analysis.
- » Upward pressure on Helaba's baa2 BCA could arise from a sustainably improved Macro Profile, or a combination of (1) a significant reduction in the bank's concentration risk, specifically with regard to CRE exposures; (2) a significant and sustained improvement in capitalisation; and (3) a further reduction in Helaba's dependence on debt capital markets as a result of more funds being available from, and cooperation with, a larger number of savings banks.

Factors that could lead to a downgrade

- » A downgrade of Helaba's ratings could be triggered following (1) a double-notch downgrade of the bank's BCA; (2) a change in the bank's ownership structure, as well as a deterioration in the implied creditworthiness of S-Group; (3) weakening cross-sector support assumptions; or (4) a reduction in rating uplift as a result of our LGF analysis.
- » Downward pressure on the bank's BCA could arise because of (1) a deterioration in the bank's financial strength, especially if followed by an unexpected and sustained weakening in its capital adequacy metrics; (2) a material deterioration in the bank's asset quality; or (3) a decline in liquidity reserves.

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

» We may downgrade by one notch the senior unsecured debt instrument ratings that currently incorporate one notch of government support if German legislative changes rank outstanding senior unsecured debt instruments pari-passu with future issuance of junior senior debt. For additional information, please refer to 'Rating Action: Moody's affirms 22 German banks' senior unsecured debt ratings; changes 16 outlooks to negative and to our publication FAQ on credit impact of changes to EU insolvency hierarchy on German bank debt.

Key indicators

Exhibit 2

LANDESBANK HESSEN-THUERINGEN GZ (Consolidated Financials) [1]

	6-17 ²	12-16 ²	12-15 ²	12-14 ²	12-13 ³	CAGR/Avg.4
Total Assets (EUR billion)	158	157	163	170	171	-2.1 ⁵
Total Assets (USD billion)	181	165	177	205	235	-7.2 ⁵
Tangible Common Equity (EUR billion)	7.6	7.5	7.3	7	7	2.5 ⁵
Tangible Common Equity (USD billion)	8.7	7.9	8	8.4	9.6	-2.9 ⁵
Problem Loans / Gross Loans (%)	1.6	1.3	1.8	2.2	3.2	2.0 ⁶
Tangible Common Equity / Risk Weighted Assets (%)	15.2	14.2	13.4	12.9	12.9	13.9 ⁷
Problem Loans / (Tangible Common Equity + Loan Loss Reserve) (%)	18.3	14.2	20.4	25.6	36.1	22.9 ⁶
Net Interest Margin (%)	0.7	0.8	0.8	0.8	0.7	0.76
PPI / Average RWA (%)	1.0	1.5	1.7	1.4	1.5	1.4 ⁷
Net Income / Tangible Assets (%)	0.2	0.2	0.3	0.2	0.2	0.26
Cost / Income Ratio (%)	76.1	64.8	60.1	65.4	63.0	65.9 ⁶
Market Funds / Tangible Banking Assets (%)	52.6	54.2	55.3	58.5	61.2	56.4 ⁶
Liquid Banking Assets / Tangible Banking Assets (%)	34.9	33.2	36.5	39.1	41.5	37.0 ⁶
Gross Loans / Due to Customers (%)	185.3	198.8	195.3	201.0	207.3	197.5 ⁶

[1] All figures and ratios are adjusted using Moody's standard adjustments [2] Basel III - fully-loaded or transitional phase-in; IFRS [3] Basel II; IFRS [4] May include rounding differences due to scale of reported amounts [5] Compound Annual Growth Rate (%) based on time period presented for the latest accounting regime [6] Simple average of periods presented for the latest accounting regime. [7] Simple average of Basel III periods presented Source: Moody's Financial Metrics

Profile

Landesbank Hessen-Thueringen GZ (Helaba) is a German universal bank, with a regional focus on its core centres in the German federal states of Hesse, Thuringia, North Rhine-Westphalia and Brandenburg. The bank operates as a central bank for 159 savings banks in the aforementioned four federal states.

Helaba provides a range of wholesale and retail banking services to corporate and private clients, institutional customers, and central, regional and local public authorities, as well as municipal corporations. The bank distributes its products and services from its twin head offices in Frankfurt am Main and Erfurt; branch offices in Germany, France, the UK and the US; and representative offices in Spain, Sweden, Russia, China and Singapore. In Switzerland (Zurich), Helaba is represented through its subsidiary Frankfurter Bankgesellschaft (Schweiz) AG².

Detailed credit considerations

Sound risk management partially mitigates high exposure to cyclical CRE risks

The bank reported an improved problem loan ratio of 1.3% as of year-end 2016 (1.8% as of year-end 2015), and its risk-related charges declined further to very low levels, reflecting a benign point in the credit cycle. Helaba's total loan exposure to the CRE sector amounted to €33.0 billion as of year-end 2016 (€32.6 billion as of half-year 2017), resulting in considerable concentration risk, especially compared with the group's reported Common Equity Tier 1 (CET1) capital of €7.5 billion as of 2016. We take into consideration the related risks, as well as the bank's exposure to market risk, by adjusting our Asset Risk score down to baa1.

Despite this adjustment for the bank's sizeable concentration risks, Helaba's CRE portfolio has a sound history of low credit losses compared with its peers. These low credit losses are because of Helaba's focus on (1) prime locations; and (2) properties with a high level of pre-arranged rental agreements, combined with limited ticket sizes, which provide risk diversification. The group's corporate finance loan book is well diversified and includes (1) equal-sized lending activities with multinational corporates, (2) asset-based lending focused on aircraft and (to a limited degree) ship finance, and (3) structured and project finance, and leasing.

Helaba is predominantly active in Germany. The very high economic, institutional and governmental financial strengths, as well as the very low susceptibility to event risk, support the bank's BCA. However, operating conditions for the German banking system are constrained by high fragmentation in an over-saturated market, low fee income generation and intensifying competition for domestic business. Helaba's Strong+ Macro Profile also captures exposures to international corporate and CRE lending activities in countries with

weaker Macro Profiles than Germany. An improvement in the bank's Macro Profile may strengthen its financial profile, all other things being equal.

Capitalisation is on an upward trend, providing a solid loss-absorption buffer

The bank benefits from sound capitalisation, as reflected in our a2 assigned Capital score and further displayed by its fully loaded Basel III CET1 and total capital ratios of 15.1% and 21.9%, respectively, as of September 2017 (year-end 2016: 13.8% and 20.5%, respectively). Drivers of the upward trend, that is, providing an increasing buffer to investors, are both profit retention and measures to contain risk-weighted assets, as reflected in a significant reduction in trading activities in recent years.

The bank's CET1 ratio is significantly above the required CET1 ratio of 7.43%, which the regulator determined following the Supervisory Review and Evaluation Process. We additionally take into consideration the bank's balance-sheet leverage ratio (4.7% as of half-year 2017, stable versus as of year-end 2016), as well as our expectations regarding upcoming challenges for capitalisation from upcoming regulatory changes.

Level of risk-weighted profitability is low, yet stable

We expect Helaba to continue to show fairly stable operating performance and profitability because of positive effects from the integration of Verbundbank (central bank business of former WestLB for savings banks in North Rhine-Westphalia and Brandenburg), despite exposure to market volatility. However, regulation-related expenses will continue to burden Helaba's operating costs, while the low-yield environment strains the bank's interest income. Helaba's performance metrics will remain modest (as a result of the group's statutory obligation to perform promotional banking activities, which are run on a cost-coverage basis rather than on return targets), but will provide a stable revenue source. A one-notch upward adjustment to ba3 has been assigned to the bank's Profitability score based on Helaba's resilient, stable and relatively high-quality earnings over the past several years.

For the first nine months of 2017, Helaba reported a pre-tax profit of €381 million (IFRS), down 8.6% from the same period a year earlier. Driven by the low interest rate environment, net interest income declined by a significant 10.7% to €815 million. However, the benign risk situation, with loan-loss provisions of €19 million (€140 million in the same period in 2016), provided a stabilising factor, along with higher fee and commission income (slightly up at €263 million). More volatile profit contributors such as fair-value changes on financial instruments and derivatives (-€87 million compared with a positive contribution of €63 million in the previous year) further strained the results, while customer-driven trading income was higher (€227 million compared with €79 million for the first nine months of 2016).

Strong liquidity and funding from savings banks mitigate wholesale funding dependence

Helaba partially depends on confidence-sensitive wholesale funding for a part of its lending business and is presently a net lender in the interbank market. Balancing factors are the bank's proven and recurring access to the considerable excess liquidity of the regional savings banks and good access to debt capital markets, even in times of stress.

Notably, funding requirements are likely to remain stable over the foreseeable future, given the bank's broadly matched funding profile for its medium- and long-term lending business. The bank typically issues around €12 billion-€15 billion in medium- and long-term debt instruments per year (2016: €17.2 billion), placed with a broad and diversified investor base. Covered bonds will account for €6 billion of the planned issuance in 2017, with senior unsecured bonds accounting for €9 billion. A growing portion of Helaba's unsecured wholesale debt issued has been placed with savings banks and their retail clients. To capture these benefits, we have positively adjusted our Funding Structure score to ba2.

The bank's liquid resources consisted of €18.3 billion in cash as of year-end 2016, a €25.5 billion securities portfolio and €8.2 billion in liquid trading assets. Our considerations regarding asset encumbrance, intragroup restrictions and the quality of liquid assets are reflected in our assigned Liquid Resources score of a3.

Support and structural considerations

Affiliate support

Helaba benefits from cross-sector support from S-Group, which reduces the probability of default. As such, support would be available to stabilise a distressed member bank and not just to compensate for losses in resolution. The unchanged high support assumption assigned to Helaba reflects its prominent service function for the sector, its majority ownership by S-Group members and the bank's

cross-liability scheme. As a result, cross-sector support provides one notch of rating uplift to Helaba's debt, senior-senior deposit and subordinated instrument ratings.

Loss Given Failure analysis

Helaba is subject to the German Bank Recovery and Resolution Directive, which we consider an operational resolution regime. We, therefore, apply our Advanced LGF analysis, considering the risks faced by the different debt and deposit classes across the liability structure at failure. We revised this analysis to reflect changes in protection resulting from the subordination of certain senior unsecured debt obligations relative to other senior liabilities, including deposits. In line with the new German insolvency legislation that will effectively subordinate senior unsecured bonds and notes to deposits and senior-senior debt in resolution from January 2017, we base our calculation on the assumption that deposits and senior-senior unsecured bonds are preferred to senior unsecured bonds. We continue to assume residual tangible common equity of 3% and losses post-failure of 8% of tangible banking assets, a 25% run-off in junior wholesale deposits, a 5% run-off in preferred deposits and, following the legislative changes, a 100% probability of certain deposits being preferred to senior unsecured debt, according to our EU Full Deposit Preference waterfall.

For Helaba, our LGF analysis indicates an extremely low loss given failure for deposits and a very low loss given failure for senior unsecured debt, leading us to position their ratings three and two notches above the Adjusted BCA, respectively. For senior-senior unsecured debt, our LGF analysis indicates an extremely low loss given failure, leading us to position its rating three notches above the Adjusted BCA.

Our LGF analysis indicates a high loss given failure for subordinated debt classes, leading us to position the instrument's ratings one notch below the bank's baa1 Adjusted BCA. Subordinated debt instruments do not benefit from any government support.

Helaba's silent participations (non-cumulative preferred securities) issued by Main Capital Funding Limited Partnership and Main Capital Funding II Limited Partnership are rated Ba1(hyb), three notches below the bank's Adjusted BCA, reflective of the instruments' net loss triggers.

Government support considerations

Given its size on a consolidated basis, we consider S-Group to be domestically systemically relevant. We, therefore, attribute a moderate likelihood of German government support for all members of the sector, in line with support assumptions for other systemically relevant banking groups in Europe. For Helaba, this results in one notch of additional government support uplift for its senior debt and deposit ratings.

Counterparty Risk (CR) Assessment

CR Assessments are opinions of how counterparty obligations are likely to be treated if a bank fails and are distinct from debt and deposit ratings in that they (1) consider only the risk of default rather than both the likelihood of default and the expected financial loss suffered in the event of default, and (2) apply to counterparty obligations and contractual commitments rather than debt or deposit instruments. The CR Assessment is an opinion of the counterparty risk related to a bank's covered bonds, contractual performance obligations (servicing), derivatives (for example, swaps), letters of credit, guarantees and liquidity facilities.

Helaba's CR Assessment is positioned at Aa3(cr)/Prime-1(cr)

For Helaba, our LGF analysis indicates an extremely low loss given failure for the CR Assessment, leading us to position its Preliminary Rating Assessment three notches above the Adjusted BCA.

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 3

LANDESBANK HESSEN-THUERINGEN GZ

Macro Factors								
Weighted Macro Profile	Strong +	100%						

Factor	Historic Ratio	Macro Adjusted Score	Credit Trend	Assigned Score	Key driver #1	Key driver #2
Solvency						
Asset Risk						
Problem Loans / Gross Loans	1.8%	a1	\downarrow	baa1	Sector concentration	Market risk
Capital						
TCE / RWA	15.2%	aa3	\leftarrow \rightarrow	a2	Nominal leverage	Expected trend
Profitability						
Net Income / Tangible Assets	0.2%	b1	\leftarrow \rightarrow	ba3	Earnings quality	Expected trend
Combined Solvency Score		a3		baa1		
Liquidity						
Funding Structure						
Market Funds / Tangible Banking Assets	54.2%	b3	$\leftarrow \rightarrow$	ba2	Market funding quality	Expected trend
Liquid Resources					01 7	
Liquid Banking Assets / Tangible Banking Assets	33.2%	a2	$\leftarrow \rightarrow$	a3	Quality of liquid assets	Asset encumbrance
Combined Liquidity Score		ba2		baa3	•	
Financial Profile				baa2		
Business Diversification				0		
Opacity and Complexity				0		
Corporate Behavior				0		
Total Qualitative Adjustments				0		
Sovereign or Affiliate constraint:			<u>-</u>	Aaa	·	
Scorecard Calculated BCA range				baa1-baa3		
Assigned BCA				baa2		
Affiliate Support notching				1		
Adjusted BCA				baa1		

Balance Sheet is not applicable.

Debt class	De Jure waterfall		De Facto waterfall		Notching		LGF	Assigned	Additional Preliminary	
	Instrument volume + or subordination	dinatio	Instrument on volume + o subordination	rdination	•	De Facto	Notching Guidance vs. Adjusted BCA	LGF	notching	Rating Assessment
Counterparty Risk Assessment								3	0	a1 (cr)
Senior senior unsecured bank debt								3	0	a1
Deposits								3	0	a1
Senior unsecured bank debt								2	0	a2
Dated subordinated bank debt								-1	0	baa2

Instrument class	Loss Given	Loss Given Additional Prelim		Government	Local Currency	Foreign
	Failure notching	Notching	Assessment	Support notching	Rating	Currency Rating
Counterparty Risk Assessment	3	0	a1 (cr)	1	Aa3 (cr)	
Senior senior unsecured bank debt	3	0	a1	1	Aa3	
Deposits	3	0	a1	1	Aa3	Aa3
Senior unsecured bank debt	2	0	a2	1	A1	
Dated subordinated bank debt	-1	0	baa2	0	Baa2	

Source: Moody's Financial Metrics

Ratings

Exhibit 4

Extract 1	
Category	Moody's Rating
LANDESBANK HESSEN-THUERINGEN GZ	
Outlook	Stable(m)
Bank Deposits	Aa3/P-1
Baseline Credit Assessment	baa2
Adjusted Baseline Credit Assessment	baa1
Counterparty Risk Assessment	Aa3(cr)/P-1(cr)
Issuer Rating -Dom Curr	A1
Senior Unsecured -Dom Curr	A1
Subordinate -Dom Curr	Baa2
Commercial Paper -Dom Curr	P-1
MAIN CAPITAL FUNDING II LIMITED PARTNERSHIP	
Pref. Stock Non-cumulative	Ba1 (hyb)
MAIN CAPITAL FUNDING LIMITED PARTNERSHIP	
Pref. Stock Non-cumulative	Ba1 (hyb)
Source: Moody's Investors Service	

Endnotes

- 1 The rating shown is S-Group's corporate family rating and outlook, and its BCA.
- 2 For further details, please refer to Helaba's Company profile and the German Banking System Profile.

© 2017 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 INVESTORS SERVICE, INC. AND ITS RATINGS AFFILIATES ("MIS") ARE MOODY'S CURRENT OPINIONS OF THE RELATIVE FUTURE CREDIT RISK OF ENTITIES, CREDIT COMMITMENTS, OR DEBT-LIKE SECURITIES, AND MOODY'S PUBLICATIONS MAY INCLUDE MOODY'S CURRENT OPINIONS OF THE RELATIVE FUTURE CREDIT RISK OF ENTITIES, CREDIT COMMITMENTS, OR DEBT OR DEBT-LIKE SECURITIES. 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. CREDIT RATINGS DO NOT ADDRESS ANY OTHER RISK, INCLUDING BUT NOT LIMITED TO: LIQUIDITY RISK, MARKET VALUE RISK, OR PRICE VOLATILITY. CREDIT RATINGS AND MOODY'S 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. CREDIT RATINGS AND MOODY'S PUBLICATIONS AND MOODY'S PUBLICATIONS ARE NOT AND DO NOT PROVIDE RECOMMENDATIONS TO PURCHASE, SELL, OR HOLD PARTICULAR SECURITIES. NEITHER CREDIT RATINGS NOR MOODY'S PUBLICATIONS COMMENT ON THE SUITABILITY OF AN INVESTMENT FOR ANY PARTICULAR INVESTOR. MOODY'S ISSUES ITS CREDIT RATINGS AND PUBLISHES MOODY'S 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 SALF.

MOODY'S CREDIT RATINGS AND MOODY'S 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 OR MOODY'S 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.

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 the Moody's 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 SUCH RATING OR 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 rating, agreed to pay to Moody's Investors Service, Inc. for appraisal and rating services rendered by it fees ranging from \$1,500 to approximately \$2,500,000. MCO and MIS also maintain policies and procedures to address the independence of MIS's ratings and rating processes. Information regarding certain affiliations that may exist between directors of MCO and rated entities, and between entities who hold ratings from MIS and have also publicly reported to the SEC an ownership interest in MCO of more than 5%, is posted annually at www.moodys.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 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. It would be reckless and inappropriate for retail investors to use MOODY'S credit ratings or publications when making an investment decision. If in doubt you should contact your financial or other professional adviser.

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 rating, agreed to pay to MJKK or MSFJ (as applicable) for appraisal and rating services rendered by it fees ranging from JPY200,000 to approximately JPY350,000,000.

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

REPORT NUMBER

1101460

Contacts

Andrea WehmeierMaryna HarbalVP-Senior AnalystAssociate Analyst

CLIENT SERVICES

 Americas
 1-212-553-1653

 Asia Pacific
 852-3551-3077

 Japan
 81-3-5408-4100

 EMEA
 44-20-7772-5454

