Deutsche Bank AG

Update

Key Rating Drivers

Restructuring Completed: Deutsche Bank AG's ratings reflect the completion of the bulk of its restructuring and its more stable, fairly diversified, business model, albeit with a still large contribution from more volatile capital market activities and lack of pricing power in its domestic banking market. The bank's sound risk appetite, asset quality, funding and liquidity also support the ratings.

Profitability has substantially improved over the past four years, but Fitch Ratings expects it to remain below that of higher-rated global trading and universal bank (GTUB) peers in the near term. Weaker organic capital generation and a lower regulatory leverage ratio than the European peer average also result in the bank's capitalisation being only adequate.

More Balanced Business Profile: Deutsche Bank has a fairly diverse business model, focused on four businesses: its corporate bank (CB), investment bank (IB), private bank (PB) and the asset management (AM) business. The revenue contribution and cost/income ratios of the CB and PB have substantially improved and, together with AM, these businesses accounted for 67% of total revenue in 9M23.

Improving Risk Controls: Non-financial risk controls still lag behind those of peers. Large investments and improved anti-financial crime controls since 2019 have reduced litigation costs and regulatory fines, although the bank's business model will remain exposed to these risks. Underwriting standards are conservative. Appetite for market risk is fairly limited despite sizeable trading operations. Interest-rate risk in the banking book is largely hedged.

Resilient Asset Quality: We expect Deutsche Bank's asset quality to deteriorate moderately in the current economic downturn and its impaired loan ratio to rise to about 3% in the next two years, driven by defaults in the bank's commercial real-estate and corporate portfolios. The bank's large exposure to Germany and good record of managing credit risk mitigate lower precautionary loan loss allowances compared with peers. Non-loan assets are generally of good credit quality and are neutral to our asset-quality assessment.

Moderate but Improving Earnings: The bank's operating profit/risk-weighted assets (RWAs) improved to 1.9% in 9M23, as higher net interest income more than offset declining revenue in the IB and higher loan impairment charges (LICs). Net interest margins are likely to decline but the bank should maintain operating profit/RWAs above 1.5% by growing fee income in the next two years. However, the full realisation of the cost-cutting and revenue-growth initiatives remains subject to material execution risk in the increasingly volatile economic environment.

Adequate Capitalisation: Capitalisation is adequate in light of lower risks from the bank's restructuring. They reflect Deutsche Bank's improved, but still modest, internal capital generation relative to GTUB peers. We expect the common equity Tier 1 (CET1) capital ratio and the Basel leverage ratio to remain in line with the bank's targets of about 13% and at least 4.5%, respectively, in the next two years, as capital retention should offset regulatory RWA inflation, and controlled business growth should result in broadly flat leverage exposure.

Diversified Funding; Sound Liquidity: The bank took measures to maintain its solid domestic deposit franchise, limiting its reliance on market funding. The latter is well-diversified but remains more confidence-sensitive than GTUB peers, as evidenced by the sharper fall of Deutsche Bank's bond prices in late March. We expect liquidity to continue declining close to the bank's target as targeted longer-term refinancing operations drawings mature, and expect loan and deposit balances to remain broadly in line with end-September 2023 levels.

Banks Universal Commercial Banks Germany

Ratings	
Foreign Currency	
Long-Term IDR	A-
Short-Term IDR	F2
Derivative Counterparty Rating	A(dcr)
Viability Rating	a-
Government Support Rating	ns
Sovereign Risk (Germany)	
Long-Term Foreign-Currency IDR	AAA
Long-Term Local-Currency IDR	AAA
Country Ceiling	AAA
Outlooks	
Long-Term Foreign-Currency IDR	Stable
Sovereign Long-Term Foreign- Currency IDR	Stable
Sovereign Long-Term Local- Currency IDR	Stable

Applicable Criteria

Bank Rating Criteria (September 2023)

Related Research

Fitch Upgrades Deutsche Bank to 'A-'; Outlook Stable (July 2023) Deutsche Bank AG Rating Report (July 2023) DM100 Banks Tracker (November 2023)

Analysts

Marco Diamantini +49 69 768076 114 marco.diamantini@fitchratings.com

Rafael Quina, CFA +33 1 44 29 91 81 rafael.quina@fitchratings.com

Rating Sensitivities

Factors that Could, Individually or Collectively, Lead to Negative Rating Action/Downgrade

The ratings could come under pressure if the bank fails to at least stabilise its cost-efficiency, or if revenue significantly declines due to market-wide disruptions, or franchise erosion in core businesses relative to its peers, leading to operating profit/RWAs durably below 1.5%. Rating pressure would also arise if a deterioration of credit conditions globally hinders adequate operating profits, for example, by triggering persistently high LICs and durably eroding the CET1 ratio below 13%.

We could also downgrade the ratings if the bank's liquidity metrics fall more than expected, leading to loss of market confidence, without swift recovery prospects or following significantly higher than anticipated operational losses, for example, from civil litigation or regulatory fines.

Factors that Could, Individually or Collectively, Lead to Positive Rating Action/Upgrade

Upgrade potential is limited, given Deutsche Bank's business profile. An upgrade would require an increase of the bank's CET1 ratio to well above 14%, contingent on a substantial improvement of the bank's cost-efficiency along with franchise growth in stable and profitable businesses. This would have to result in a balanced revenue profile, as seen at higher rated peers, and operating profit/RWAs sustainably above 2%. An upgrade would also require clear evidence of lower confidence sensitivity in the bank's funding and liquidity, while maintaining sound risk appetite and asset quality.

Other Debt and Issuer Ratings

	Deutsche	AG, London	Deutsche Bank Trust	Deutsche Bank		Deutsche Bank National Trust
	Bank AG	Branch	Corporation	Securities, Inc.	Americas	Company
IDRs	A-/Stable/F2	A-/Stable/F2	A-/Stable/F2	A-/Stable/F2	A-/Stable/F2	A-/Stable/F2
Viability Rating	a-					
Government Support Rating	ns					
Shareholder Support Rating			a-	a-	a-	a-
Derivative Counterparty Rating	A(dcr)	A(dcr)		A(dcr)		
Deposits	A/F1	A/F1			A/F1	
Senior preferred debt	A/F1	A/F1				
Senior non-preferred debt	A-	A-				
Senior unsecured debt						
Subordinated Tier 2 notes	BBB	BBB				
Hybrid Tier 1 notes	BB+					
State-guaranteed notes	AA-					
Source: Fitch Ratings						

Deutsche Bank's funding and liquidity score of 'a-' constrains the bank's Short-Term IDR at 'F2', the lower of two options mapping to the Long-Term IDR of 'A-'.

Deutsche Bank's Derivative Counterparty Rating (DCR), long-term deposit and senior preferred (SP) debt ratings are one notch above Deutsche Bank's Long-Term IDR, and the senior non-preferred (SNP) debt rating is aligned with the Long-Term IDR. This reflects the protection of preferred creditors by large SNP and junior debt buffers (18.6% of RWAs at end-September 2023). The buffers are underpinned by the bank's subordinated minimum requirement for own funds and eligible liabilities (MREL) of 25.4% of RWAs, which is higher than its total loss-absorbing capacity requirement of 23.1%.

Deutsche Bank's short-term deposit and senior preferred debt ratings of 'F1' are above the bank's Short-Term IDR due to the protection of preferred creditors by large SNP and junior debt buffers.

We rate the Tier 2 notes two notches below the Viability Rating (VR) to reflect the poor recovery prospects of these instruments. We rate Deutsche Bank's additional Tier 1 (AT1) notes and legacy Tier 1 notes issued by Deutsche Postbank Funding Trust I and III four notches below the VR (two notches for poor recovery prospects and two notches

for non-performance risk). The bank had a broadly stable and sufficient buffer of 278bp over the minimum required to pay coupons on its AT1s at end-September 2023.

Senior and Tier 2 bonds issued by DSL Bank are notched up three times from Deutsche Bank's Long-Term IDR, reflecting their outstanding recovery prospects. The German government (AAA/Stable), which guarantees these bonds until maturity, is extremely likely to fully reimburse the grandfathered creditors if Deutsche Bank defaults. However, we see no certainty that a reimbursement would be on a timely basis as the DSL Transformation Act from 1999, on which the state guarantee is based, does not oblige the government to honour the guarantee on first demand.

Significant Changes from Last Review

Corporate and Private Banking Support Solid 9M23 Performance

Deutsche Bank had another solid quarter, leading to an adequate operating profit/RWAs ratio of 1.9% in 9M23. Revenue was up 6% year-on-year (yoy) in 9M23, driven by a strong growth in the CB and PB, due mainly to higher interest rates. This more than compensated the material decline in the IB and AM businesses, putting Deutsche Bank on track to reach the higher end of its revenue guidance of EUR29 billion for 2023.

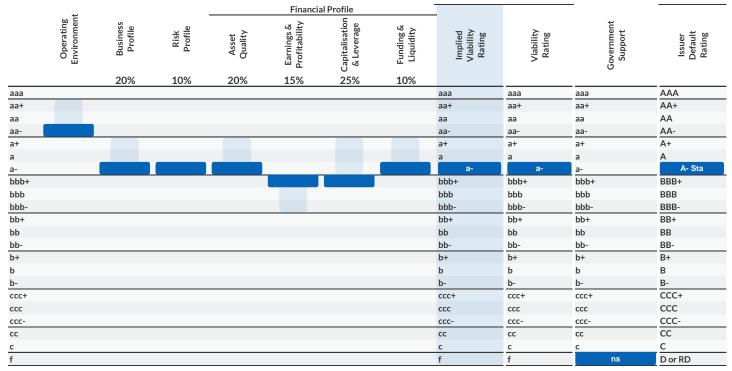
Non-interest expenses increased 7% yoy, nearly at the same pace as revenue (+6% yoy) in 9M23, mainly driven by litigation expenses in 2Q23, and restructuring and severance costs, while recurrent costs were managed tightly. In 4Q23, the impairment of about EUR250 million goodwill related to the acquisition of Numis and the booking of EUR300 million–350 million of restructuring expenses will moderately affect the bank's performance. As a result, 2023 reported costs will likely exceed their 2022 levels.

Similar to 2022, net income in 2023 will likely benefit from one-offs, including a deferred tax asset valuation adjustment and a potential restitution payment from the German resolution fund.

Annualised LICs declined to 20bp in 3Q23 from 33bp in 2Q23, resulting in 28bp for 9M23, which is in line with European average and the bank's guidance of 25bp–30bp for 2023. The quarterly decline resulted from a release of model-driven precautionary provisions, while Stage 3 impairments remained broadly in line with 1H23. We continue to view the bank's EUR40 billion CRE non-recourse exposure as particularly vulnerable to higher interest rates, but Deutsche Bank's impaired loan ratio of 2.6% at end-September 2023 remains fairly low.

The CET1 ratio increased 19bp quarter-on-quarter to 13.9% at end-September 2023 as data improvements and other RWA optimisation measures offset the acquisition of Numis and regulatory-driven model changes. The CET1 ratio is now comfortably above the bank's target of about 13%. The bank has also lowered its estimate of the Basel III endgame rules-driven increase in RWAs by EUR10 billion-15 billion and increased its RWA reduction target from EUR15 billion-20 billion to EUR25 billion-30 billion, therefore increasing the scope for distributions. Deposits increased 3% quarter-on-quarter at end-September 2023, mainly in the CB, after net outflows in 1H23. Liquidity metrics are also resilient, despite the repayment of TLTRO tranches.

Ratings Navigator



The Key Rating Driver (KRD) weightings used to determine the implied VR are shown as percentages at the top. In cases where the implied VR is adjusted upwards or downwards to arrive at the VR, the KRD associated with the adjustment reason is highlighted in red. The shaded areas indicate the benchmark-implied scores for each KRD.

VR - Adjustments to Key Rating Drivers

The capitalisation and leverage score of 'bbb+' is below the 'a' category implied score, due to the following adjustment reason: internal capital generation and growth (negative).

Financials

Financial Statements

	30 September 2023		31 December 2022	31 December 2021	31 December 2020
	9 months - 3rd	9 months - 3rd			
	quarter	quarter	Year end	Year end	Year end
	(USDm)	(EURm)	(EURm)	(EURm)	(EURm)
	Unaudited	Unaudited	- Audited unqualified	- Audited unqualified	- Audited ungualified
Summary income statement	onduited	Onducted	unquantea	unquunneu	unquannea
Net interest and dividend income	10,994	10,378	13,650	11,155	11,526
Net fees and commissions	7,447	7,029	9,838	10,934	9,424
Other operating income	5,099	4,813	3,534	3,322	3,079
Total operating income	23,540	22,220	27,022	25,411	24,029
Operating costs	17,187	16,223	20,439	21,523	21,247
Pre-impairment operating profit	6,353	5,997	6,583	3,888	2,782
Loan and other impairment charges	1,077	1,017	1,226	493	1,761
Operating profit	5,276	4,980	5,357	3,395	1,021
Other non-operating items (net)	0	0	237	-5	0
Тах	1,608	1,518	-65	880	397
Net income	3,668	3,462	5,659	2,510	624
Other comprehensive income	-195	-184	-267	1,334	-1,386
Fitch comprehensive income	3,473	3,278	5,392	3,844	-762
Summary balance sheet			·		
Assets					
Gross loans	513,554	484,760	493,764	476,074	431,803
- Of which impaired	13,289	12,544	11,713	11,925	11,848
Loan loss allowances	5,347	5,047	4,790	4,754	4,808
Net loans	508,208	479,713	488,974	471,320	426,995
Interbank	6,578	6,209	7,195	7,342	9,130
Derivatives	304,680	287,597	301,103	299,732	343,455
Other securities and earning assets	264,531	249,699	221,692	230,001	249,755
Total earning assets	1,083,997	1,023,218	1,018,964	1,008,395	1,029,335
Cash and due from banks	179,757	169,678	178,896	192,021	166,208
Other assets	175,199	165,376	138,928	123,577	129,716
Total assets	1,438,953	1,358,272	1,336,788	1,323,993	1,325,259
Liabilities					
Customer deposits	647,616ª	611,305ª	536,403	519,435	492,599
Interbank and other short-term funding	13,036	12,305	139,278	142,484	124,643
Other long-term funding	213,180	201,227	138,112	150,149	154,634
Trading liabilities and derivatives	337,857	318,914	333,756	341,826	372,091
Total funding and derivatives	1,211,689	1,143,751	1,147,549	1,153,894	1,143,967
Other liabilities	148,439	140,116	116,411	101,541	117,775
Preference shares and hybrid capital	9,629	9,089	9,078	8,833	7,145
Total equity	69,196	65,316	63,750	59,725	56,372
Total liabilities and equity	1,438,953	1,358,272	1,336,788	1,323,993	1,325,259
Exchange rate		USD1 = EUR0.943931	USD1 = EUR0.937559	USD1 = EUR0.884173	USD1 = EUR0.821963

^a Include deposits from banks, not disclosed separately in interim reports Source: Fitch Ratings, Fitch Solutions, Deutsche Bank

Key Ratios

	30 September 2023	31 December 2022	31 December 2021	31 December 2020
Ratios (%; annualised as appropriate)				
Profitability				
Operating profit/risk-weighted assets	1.9	1.5	1.0	0.3
Net interest income/average earning assets	1.4	1.3	1.1	1.1
Non-interest expense/gross revenue	73.0	76.1	85.0	88.9
Net income/average equity	7.2	9.2	4.3	1.1
Asset quality				
Impaired loans ratio	2.6	2.4	2.5	2.7
Growth in gross loans	-1.8	3.7	10.3	1.0
Loan loss allowances/impaired loans	40.2	40.9	39.9	40.6
Loan impairment charges/average gross loans	0.3	0.2	0.1	0.4
Capitalisation				
Common equity Tier 1 ratio	13.9	13.4	13.2	13.6
Tangible common equity/tangible assets	3.8	4.0	3.9	3.7
Basel leverage ratio	4.7	4.6	4.9	4.8
Net impaired loans/common equity Tier 1 capital	15.2	14.4	15.4	15.8
Funding and liquidity				
Gross loans/customer deposits	79.3ª	92.1	91.7	87.7
Liquidity coverage ratio	137.0	135.0	133.1	144.8
Customer deposits/total non-equity funding	69.4ª	61.4	59.3	59.8
Net stable funding ratio	121.0	120.0	121.0	n.a.

^a Include deposits from banks, not disclosed separately in interim reports Source: Fitch Ratings, Fitch Solutions, Deutsche Bank

Support Assessment

a+ to a-
DC
115
ns
A/ Stable
legative
Neutral
Positive
legative
legative
Neutral
Neutral
Neutral

The colours indicate the weighting of each KRD in the assessment.

Higher influence 📃 Moderate influence 📃 Lower influence

Deutsche Bank's Government Support Rating (GSR) of 'no support' reflects our view that, due to German resolution legislation, senior creditors cannot rely on receiving full extraordinary state support if the bank becomes non-viable.

Subsidiaries and Affiliates

Deutsche Bank AG, London Branch's ratings are equalised with Deutsche Bank's as they refer to the same legal entity.

The IDRs of Deutsche Bank's US subsidiaries Deutsche Bank Securities, Inc., Deutsche Bank Trust Corporation, Deutsche Bank Trust Company Americas (DBTCA), and Deutsche Bank National Trust Company are based on their Shareholder Support Ratings (SSRs), which are aligned with Deutsche Bank's Long-Term IDR. This reflects the subsidiaries' high integration and core roles in supporting the group's capital-market activities.

The DCR of Deutsche Bank Securities Inc. and the deposit ratings of DBTCA also reflect the protection that could accrue to derivative counterparties from the bail-in debt and equity buffers at the level of the intermediate holding company DB USA Corporation, and that the depositor preference in the US would result in good recovery prospects.

The ratings of the above entities are primarily sensitive to Deutsche Bank's IDRs, from which they are derived. The subsidiaries' ratings are also sensitive to a perceived decline in their strategic importance to the group.



Environmental (E) Relevance Scores

Environmental, Social and Governance Considerations

FitchRatingsDeutsche Bank AG

Banks
Ratings Navigator
ESG Relevance to

Credit-Relevant ESG Derivation						
Deutsche Bank AG has 5 ESG potential rating drivers Deutsche Bank AG has exposure to compliance risks including fair lending practices, mis-selling, repossession/foreclosure practices, consumer data protection (data	key driver 0 issues			5		
 security) but this has very low impact on the rating. Governance is minimally relevant to the rating and is not currently a driver. 		0	issues	4		
	potential driver	5	issues	3		
	not a rating driver	4	issues	2		
	not a rating times	5	issues	1		

Sector-Specific Issues E Rele General Issues Reference E Score How to Read This Page ESG relevance scores range from 1 to 5 based on a 15-level color gradation. Red (5) is most relevant to the credit rating and green (1) is least relevant. GHG Emissions & Air Quality 1 5 n.a The Environmental (E), Social (S) and Governance (G) tables break out the ESG general issues and the sector-specific issues that are most relevant to each industry group. Relevance scores are assigned to each sector-specific issues to the issuer's overall credit relevance of the sector-specific issues to the issuer's overall credit rating. The Criteria Reference column highlights the factor(s) within which the corresponding ESG issues are captured in Fitch's credit analysis. The vertical color hars are visualizations of the frequency of occurrence of the highest constituent relevance scores. They do 4 Energy Management 1 n.a Water & Wastewater Management 1 3 n.a not represent an aggregate of the relevance scores or aggregate ESG credit relevance. Waste & Hazardous Materials 1 n.a. 2 ment; Ecological Impacts The Credit-Relevant ESG Derivation table's far right column is a visualization of the frequency of occurrence of the highest ESG relevance scores across the combined E, S and G categories. The three columns to the left of ESG Relevance to Credit Rating summarize rating relevance and impact to credit from ESG issues. Impact of extreme weather events on assets and/or Business Profile (incl. Management & governance); Risk Profile; Exposure to Environmental Impacts 2 operations and corresponding risk appetite & management; catastrophe risk; credit concentrations 1 Asset Quality The box on the far left identifies any ESG Relevance Sub-factor issues that are drivers or potential drivers of the issuer's credit Social (S) Relevance Scores rating (corresponding with scores of 3, 4 or 5) and provides a brief explanation for the relevance score. All scores of '4' and '5' are S Relevance General Issues S Score Sector-Specific Issues Reference assumed to result in a negative impact unless indicated with a '+' sign for positive impact.h scores of 3, 4 or 5) and provides a brief Services for underbanked and underserved communities: SME and community development programs; financial literacy programs Human Rights, Community Relations, Access & Affordability 2 5 explanation for the score. Classification of ESG issues has been developed from Fitch's sector ratings criteria. The General Issues and Sector-Specific Issues draw on the classification standards published by the United Nations Principles for Responsible Investing (PRI), the Sustainability Accounting Standards Board (SASB), and the World Bank. Compliance risks including fair lending practices, mis-selling, repossesion/foreclosure practices, consumer data protection (data security) Customer Welfare - Fair Messaging, 3 4 rivacy & Data Security Impact of labor negotiations, including board/employee compensation and composition Labor Relations & Practices 2 Business Profile (incl. Management & governance) 3 Employee Wellbeing 1 n.a ۱a 2 Shift in social or consumer preferences as a result of an Exposure to Social Impacts 2 Business Profile (incl. Management & governance); Financial Profile 1 institution's social positions, or social and/or political disapproval of core banking practices ernance (G) Relevance Scores CREDIT-RELEVANT ESG SCALE

Governance (G) Relevance Scores						UNEDIT NEELEVANT LOO OOALL		
General Issues	G Score	e Sector-Specific Issues	Reference	G Rel	evance			evant are E, S and G issues to the overall credit rating?
Management Strategy	3	Operational implementation of strategy	Business Profile (incl. Management & governance)	5		5		Highly relevant, a key rating driver that has a significant impact on the rating on an individual basis. Equivalent to "higher" relative importance within Navigator.
Governance Structure	3		Business Profile (incl. Management & governance); Earnings & Profitability; Capitalisation & Leverage	4		4		Relevant to rating, not a key rating driver but has an impact on the rating in combination with other factors. Equivalent to "moderate" relative importance within Navigator.
Group Structure	3	Organizational structure; appropriateness relative to business model; opacity; intra-group dynamics; ownership	Business Profile (incl. Management & governance)	3		3		Minimally relevant to rating, either very low impact or actively managed in a way that results in no impact on the entity rating. Equivalent to "lower" relative importance within Navigator.
Financial Transparency	3	Quality and frequency of financial reporting and auditing processes	Business Profile (incl. Management & governance)	2		2		Irrelevant to the entity rating but relevant to the sector.
				1		1		Irrelevant to the entity rating and irrelevant to the sector.

The highest level of ESG credit relevance is a score of '3', unless otherwise disclosed in this section. A score of '3' means ESG issues are credit-neutral or have only a minimal credit impact on the entity, either due to their nature or the way in which they are being managed by the entity. Fitch's ESG Relevance Scores are not inputs in the rating process; they are an observation on the relevance and materiality of ESG factors in the rating decision. For more information on Fitch's ESG Relevance Scores, visit https://www.fitchratings.com/topics/esg/products#esg-relevance-scores.

SOLICITATION & PARTICIPATION STATUS

For information on the solicitation status of the ratings included within this report, please refer to the solicitation status shown in the relevant entity's summary page of the Fitch Ratings website.

For information on the participation status in the rating process of an issuer listed in this report, please refer to the most recent rating action commentary for the relevant issuer, available on the Fitch Ratings website.

DISCLAIMER & DISCLOSURES

All Fitch Ratings (Fitch) credit ratings are subject to certain limitations and disclaimers. Please read these limitations and disclaimers by following this link: https://www.fitchratings.com/understandingcreditratings. In addition, the following https://www.fitchratings.com/rating-definitions-document details Fitch's rating definitions for each rating scale and rating categories, including definitions relating to default. Published ratings, criteria, and methodologies are available from this site at all times. Fitch's code of conduct, confidentiality, conflicts of interest, affiliate firewall, compliance, and other relevant policies and procedures are also available from the Code of Conduct section of this site. Directors and shareholders' relevant interests are available at https://www.fitchratings.com/site/regulatory. Fitch may have provided another permissible or ancillary service to the rated entity or its related third parties. Details of permissible or ancillary service(s) for which the lead analyst is based in an ESMA-or FCA-registered Fitch Ratings company (or branch of such a company) can be found on the entity summary page for this issuer on the Fitch Ratings website.

In issuing and maintaining its ratings and in making other reports (including forecast information), Fitch relies on factual information it receives from issuers and underwriters and from other sources. Fitch believes to be credible. Fitch conducts a reasonable investigation of the factual information relied upon by it in accordance with its ratings methodology, and obtains reasonable verification of that information from independent sources, to the extent such sources are available for a given security or in a given jurisdiction. The manner of Fitch's factual investigation and the scope of the third-party verification it obtains will vary depending on the nature of the rated security and its issuer, the requirements and practices in the jurisdiction in which the rated security is offered and sold and/or the issuer is located, the availability and nature of relevant public information, access to the management of the issuer and its advisers, the availability of pre-existing third-party verifications such as addit reports, agreed-upon procedures letters, appraisals, actural reports, engineering reports, legal opinions and other reports provided by third parties, the availability of independent and competent third-party verification sources with respect to the particular security or in the particular jurisdiction of the issuer, and a variety of other factors. Users of Fitch's ratings and reports should understand that neither an enhanced factual investigation nor any third-party verification can ensure that all of the information fitch relies on in connection with a rating or a report will be accurate and complete. Ultimately, the issuer are responsible for the accuracy of the information frey provide to Fitch and to the market in offering documents and other reports. In issuing its ratings and its reports, Fitch must rely on the work of experts, including independent auditors with respect to legal and tax matters. Further, ratings and forecasts of financial and other information are inherently forward-looking an

The information in this report is provided "as is" without any representation or warranty of any kind, and Fitch does not represent or warrant that the report or any of its contents will meet any of the requirements of a recipient of the report. A Fitch rating is an opinion as to the creditworthiness of a security. This opinion and reports made by Fitch are based on established criteria and methodologies that Fitch is continuously evaluating and updating. Therefore, ratings and reports are the collective work product of Fitch and no individuals, is solely responsible for a rating or a report. The rating does not address the risk of loss due to risks other than credit risk, unless such risk is specifically mentioned. Fitch is not engaged in the offer or sale of any security. All Fitch reports have shared authorship. Individuals identified in a Fitch report were involved in, but are not solely responsible for, the opinions stated therein. The individuals are named for contact purposes only. A report providing a Fitch rating is neither a prospectus or a substitute for the information assembled, verified and presented to investors by the issuer and its agents in connection with the sale of the securities. Ratings may be changed or withdrawn at any time for any reason in the sole discretion of Fitch. Fitch does not provide investment advice of any sort. Ratings are not a recommendation to buy, sell, or hold any security. Ratings do not comment on the adequacy of market price, the suitability of any security for a particular investor, or the tax-exempt nature or taxability of payments made in respect to any security. Fitch receives fees from issues, insurers, guarantors, other obligors, and underwriters for rating securities. Such fees generally vary from US\$10,000 to US\$15,000,000 (or the applicable currency equivalent) per issue. In certain cases, Fitch will rate all or a number of issues issued by a particular issuer, or a single annual fee. Such fees are expected to vary from US\$10,000 to US\$1,500,000 (or the app

For Australia, New Zealand, Taiwan and South Korea only: Fitch Australia Pty Ltd holds an Australian financial services license (AFS license no. 337123) which authorizes it to provide credit ratings to wholesale clients only. Credit ratings information published by Fitch is not intended to be used by persons who are retail clients within the meaning of the Corporations Act 2001.

Fitch Ratings, Inc. is registered with the U.S. Securities and Exchange Commission as a Nationally Recognized Statistical Rating Organization (the "NRSRO"). While certain of the NRSRO's credit rating subsidiaries are listed on Item 3 of Form NRSRO and as such are authorized to issue credit ratings on behalf of the NRSRO (see https://www.fitchratings.com/site/regulatory), other credit rating subsidiaries are not listed on Form NRSRO (the "non-NRSRO") and therefore credit rating subsidiaries are not issued by those subsidiaries are not issued on behalf of the NRSRO. However, non-NRSRO personnel may participate in determining credit ratings issued by or on behalf of the NRSRO.

Copyright © 2023 by Fitch Ratings, Inc., Fitch Ratings Ltd. and its subsidiaries. 33 Whitehall Street, NY, NY 10004. Telephone: 1-800-753-4824, (212) 908-0500. Fax: (212) 480-4435. Reproduction or retransmission in whole or in part is prohibited except by permission. All rights reserved.