

July 09, 2024

This report does not constitute a rating action

Key Takeaways

- U.S. aircraft asset-backed securities (ABS) exhibited generally strong performance in 2023 and first-quarter 2024 as global air traffic surpassed 2019 levels for the first time in February 2024.
- Strong base and utilization rents, along with opportunistic disposition activities, improved the rated notes' paydown pace in 2023. Half-life appraisal values stabilized compared with the 2022 valuations and improved in the first part of 2024—a trend we expect to continue this year.
- Leases are increasingly extended and, in some cases, for a longer duration than usual and at a higher base rent than the prior lease.
- In March 2024, we raised eight ratings and affirmed one rating that were placed on CreditWatch positive in December 2023.

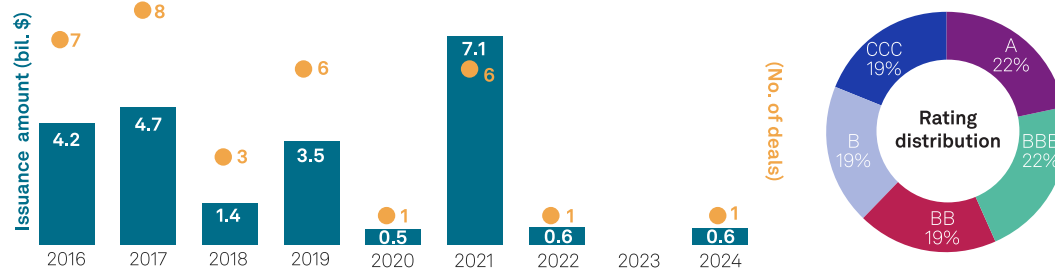
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29 Deal count

\$10.5 bil. Outstanding balance

New issuance



Rating activity YTD 2024

Rating category as of March 2024	Downgrades (notches)			Affirmations	Upgrades (notches)			Grand total
	Three and above	Two	One		One	Two	Three and above	
AA								
A					1			1
BBB					1	2	1	4
BB							1	1
B					1		1	2
CCC				1				1
Grand total				1	3	2	3	9

Data as of the April 2024 determination date. Source: S&P Global Ratings.

Aircraft ABS Overview

Aircraft and aircraft engine lease securitizations are typically backed by a diversified pool of assets generating lease rental payments and residual value at the end of their useful life. A typical portfolio consists of 10 or more aircraft or aircraft engines, which are leased to airlines globally.

This report covers 29 transactions rated by S&P Global Ratings, including securitizations of aircraft loans and business jets: 23 post-2008 aircraft lease ABS, three business jet ABS, two engine lease ABS, and one aircraft loan ABS. The transactions had 86 ratings outstanding as of May 31, 2024.

Year-To-Date (YTD) 2024 Sector And Ratings Review

In February 2024, global air traffic surpassed 2019 traffic levels for the first time since the COVID-19 pandemic, after remaining stable throughout 2023. Demand for existing aircraft (older ones, in many cases) with engine green-time increased significantly since 2023 due to delivery delays from manufacturers on new orders, unexpected shop visits due to issues with the PW1100G-JM (GTF) engines that power the A320neo, and longer maintenance shop visit wait times. Based on observed data and feedback from lessors, there has been a significant increase in the number of lease extensions at favorable rates relative to the age of the aircraft. Still, despite this strong recovery and demand, aircraft ABS issuance remained subdued in 2023, given the high interest rate environment. As interest rates are expected to begin falling in 2024 because inflation has softened, we have seen two new issuances so far in 2024--the first ones rated by S&P Global Ratings since May 2022.

Notable changes to our rated aircraft ABS portfolio since our last newsletter in November 2023:

- On June 17, 2024, we rated AASET 2024-1 Trust's class A-1 notes, which is backed by 12 predominantly new technology aircraft. However, the transaction is excluded from all statistics in this report as it was issued after first-quarter 2024.
- On April 15, 2024, we rated Business Jet Securities 2024-1 LLC's (BJETS 2024-1) fixed-rate notes, which is backed by loans and leases related to 31 business jets.
- In March 2024, we raised eight ratings and affirmed one rating that were placed on CreditWatch with positive implications in December 2023.
- Two transactions, Blade Engine Securitization Ltd. and Raspro Trust 2005, were redeemed in full in first-quarter 2024. BJETS 2020-1 LLC was also redeemed and refinanced with the BJETS 2024-1 issuance cited above.

Portfolio performance

Table 1 provides a summary of base and utilization rent collections in first-quarter 2024 and in 2023, as well as the total assets (aircraft, airframes, and engines) in the aircraft lease portfolio.

Table 1

Summary of rent collections

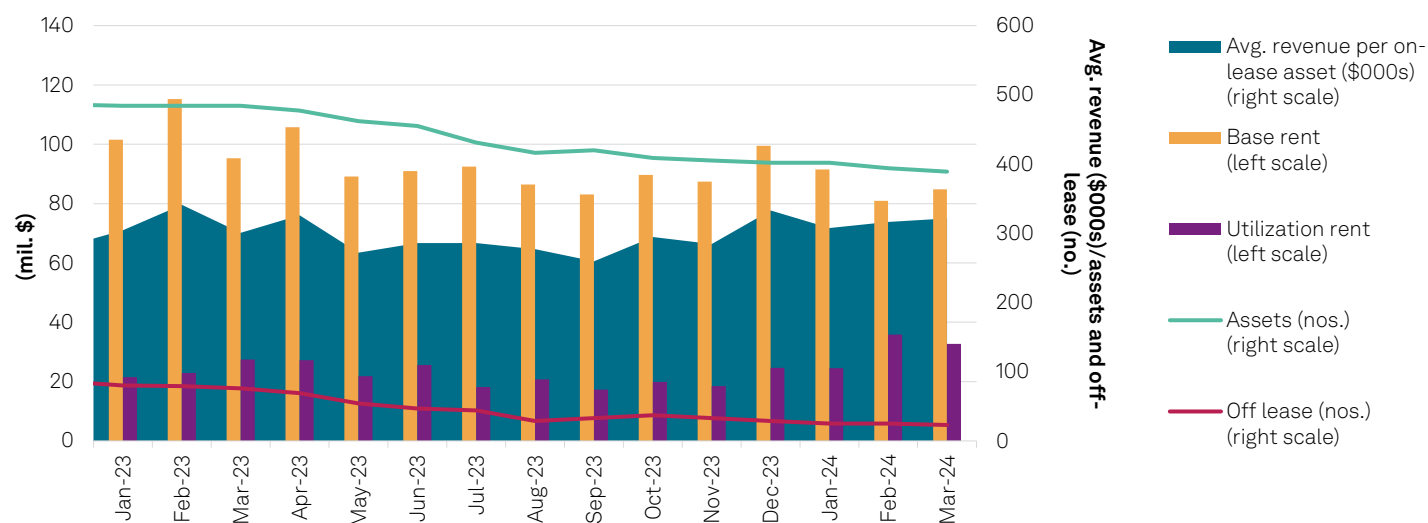
	Base rent (mil. \$)	Utilization rent (mil. \$)	Avg. on-lease assets (no.)
Jan - Mar 2024	223.32	65.74	346.00
Jan - Mar 2023	259.25	57.93	382.00
Jan - Dec 2023	1023.49	314.73	370.00
Jan - Mar 2024 (as a % of Jan - Mar 2023)	86.14	113.48	90.66
Jan - Mar 2024 (as a % of Jan - Dec 2023)	21.82	20.89	93.56

Source: S&P Global Ratings.

Chart 1 shows the monthly trend in base and utilization rent collections since January 2023, along with the total assets (aircraft, airframes, and engines) in the portfolio. There has been a significant decline in the number of off-lease aircraft. We believe the supply-demand imbalance and increasing rate of lease extensions, re-leasing, and dispositions, especially of older aircraft, have contributed to this decline. The average revenue per on-lease asset were robust in first-quarter 2024 and in 2023.

Chart 1

Monthly trends since January 2023



Source: S&P Global Ratings.

Rating actions

In March 2024, we raised eight ratings and affirmed one rating that were placed on CreditWatch positive in December 2023. The upgrades primarily reflect the significant increase in the respective notes' credit enhancement due to principal repayments backed by strong collateral collections (base rent, maintenance reserves, end-of-lease payment, and sale of aircraft) and sustained stable portfolio performance since our last review. The affirmation reflects our view that there has been no significant change in performance and the credit enhancement is sufficient at the current rating level.

Market Insights: Aircraft Index Report

Table 2 provides a ratings transition matrix from September 2023 to March 2024. Three classes from BJETS 2020-1 LLC were redeemed in full in April 2024 and, therefore, not included in the table.

Table 2

Ratings transition

		Ratings as of March 31, 2024															
Ratings as of September 2023	AA	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC+	CCC	CCC-	Total
AA																	
A+		6															6
A		1	6														7
A-				1													1
BBB+			1		9												10
BBB				1		5											6
BBB-		1				1	2										4
BB+								5									5
BB									9								9
BB-						1				1							2
B+											7						7
B												5					5
B-										1		1	3				5
CCC+														10			10
CCC															5		5
CCC-																1	1
Total	0	8	7	2	10	6	2	5	9	2	7	6	3	10	5	1	83

Note: Green represents upgrades and gray represents affirmations. Source: S&P Global Ratings.

Table 3 shows the rating and note paydown trends observed since our last newsletter in November 2023. Three classes from BJETS 2020-1 LLC were redeemed in full in April 2024 and, therefore, not included in the table. The pace of note paydowns has been consistent since our last report; and the class B notes from most of the transactions have received some principal repayments, indicating that the corresponding class A notes are in line with their targeted scheduled principal payments.

Market Insights: Aircraft Index Report

Table 3

Transaction details

Transaction	Class	Balance as of			Ratings as of		Rating notch change
		March 2024 (mil. \$)	September 2023 (mil. \$)	Amount paid in past six mos. (mil. \$)	March 2024	September 2023	
AASET 2021-1 Trust	A	436.24	464.10	27.86	A+	A+	↔
	B	86.12	102.92	16.80	BBB	BBB	↔
	C	72.17	70.11	(2.07)	B+	B+	↔
Blackbird Capital Aircraft Lease Securitization Ltd. 2016-1	A	229.78	339.60	109.82	A+	A	▲
	B	31.86	41.63	9.77	A-	BBB	▲▲
Business Jet Securities 2021-1 LLC	A	234.74	272.85	38.11	A	A	↔
	B	40.57	45.31	4.74	BBB+	BBB+	↔
	C	15.71	19.51	3.81	BBB-	BBB-	↔
Business Jet Securities 2022-1 LLC	A	381.87	411.42	29.55	A	A	↔
	B	44.93	48.40	3.48	BBB	BBB	↔
	C	21.55	24.78	3.23	BB	BB	↔
Castlelake Aircraft Structured Trust 2017-1R	A	83.68	125.01	41.33	BBB-	BBB-	↔
	B	38.30	52.62	14.32	B-	B-	↔
	C	43.79	42.40	(1.40)	CCC+	CCC+	↔
DCAL Aviation Finance Ltd.	A-1	158.04	172.69	14.66	B-	B-	↔
	B-1	38.22	38.22	0.00	CCC+	CCC+	↔
	C-1	13.18	12.81	(0.36)	CCC	CCC	↔
ECAFI LTD.	A-1	44.70	51.25	6.55	CCC+	CCC+	↔
	A-2	337.26	384.06	46.80	CCC+	CCC+	↔
	B-1	80.22	80.22	0.00	CCC-	CCC-	↔
Falcon Aerospace Ltd.	A	38.69	45.17	6.48	A	A	↔
	B	12.38	18.33	5.95	BBB	BBB	↔
	C	10.71	10.26	(0.44)	BB	BB	↔
Harbour Aircraft Investments Ltd.	A	105.96	151.84	45.88	BB	BB	↔
	B	23.79	28.83	5.04	B	B	↔
	C	51.55	49.53	(2.01)	CCC	CCC	↔
JOL Air 2019-1	A	291.68	307.96	16.28	A-	A-	↔
	B	59.92	64.21	4.28	BBB+	BBB+	↔
KDAC Aviation Finance (Cayman) Ltd.	A	235.03	239.02	3.99	B+	B+	↔
	B	73.90	73.90	0.00	CCC+	CCC+	↔
	C	53.85	51.90	(1.95)	CCC	CCC	↔
Labrador Aviation Finance Ltd.	A	343.14	354.94	11.80	BB+	BB+	↔
	B	81.76	81.76	0.00	B	B	↔
MAPS 2018-1 Ltd.	A	71.30	163.61	92.31	A	A	↔
	B	8.74	29.32	20.58	BBB+	BBB+	↔
	C	33.49	32.44	(1.05)	BB	BB	↔
MAPS 2019-1 Ltd	A	87.27	120.43	33.16	A+	BBB-	▲▲▲▲▲
	B	63.70	64.38	0.68	BB-	B-	▲▲▲

Market Insights: Aircraft Index Report

	C	32.78	31.59	(1.18)	CCC+	CCC+	↔
MAPS 2021-1 Trust	A	184.66	228.08	43.42	A+	A+	↔
	B	27.65	50.56	22.91	BBB+	BBB+	↔
	C	43.70	42.53	(1.17)	BB	BB	↔
Merlin Aviation Holdings DAC	A	24.79	52.60	27.81	BBB	BBB	↔
	B	6.32	7.73	1.41	BB	BB	↔
	C	8.26	7.92	(0.34)	B	B	↔
PK Air 1 LP	A-E	57.61	82.41	24.80	A+	A+	↔
	A-F	565.89	962.22	396.33	A+	A+	↔
	A-R	473.68	805.43	331.75	A+	A+	↔
	B1-F	525.00	525.00	0.00	A	A	↔
	B2-F	458.00	458.00	0.00	BBB+	BBB+	↔
	B-E	22.00	22.00	0.00	BBB+	BBB+	↔
	C-E	62.00	62.00	0.00	BB+	BB+	↔
	C-F	270.00	270.00	0.00	BB	BB	↔
	D1-F	46.00	46.00	0.00	B+	B+	↔
Raptor Aircraft Finance I Limited	D-E	84.50	84.50	0.00	B+	B+	↔
	A	351.74	362.41	10.67	B+	B+	↔
	B	90.57	90.57	0.00	CCC+	CCC+	↔
Rotor Engines Securitization Ltd.	C	56.51	54.60	(1.91)	CCC	CCC	↔
	A	23.88	43.61	19.73	CCC+	CCC+	↔
Shenton Aircraft Investment I Ltd	B	3.72	5.54	1.81	CCC	CCC	↔
	A	239.55	261.26	21.71	BBB+	BBB+	↔
Sprite 2021-1 Ltd.	B	24.93	26.40	1.47	BB+	BB+	↔
	A	340.19	377.10	36.91	A	A	↔
	B	62.11	68.40	6.29	BBB	BBB	↔
START Ltd.	C	44.70	46.32	1.62	B+	B+	↔
	A	190.50	202.16	11.66	A	BBB+	▲▲
	B	56.71	67.01	10.30	BBB	BB-	▲▲▲▲
Tailwind 2019-1 Limited	C	32.18	31.09	(1.09)	B	B-	▲
	A	261.38	274.36	12.99	BBB+	BBB+	↔
	B	46.79	50.04	3.25	BB+	BB+	↔
Thunderbolt Aircraft Lease Ltd.	C	43.92	42.41	(1.51)	B-	B-	↔
	A	84.50	96.26	11.76	A+	A+	↔
	B	41.04	41.21	0.17	BB	BB	↔
Turbine Engines Securitization Ltd.	C	10.72	12.05	1.33	B+	B+	↔
	2013-1A	97.38	114.02	16.63	BB-	BB-	↔
WAVE 2017-1 LLC	2013-1B	12.15	13.28	1.13	B	B	↔
	A	191.00	204.77	13.77	BB	BB	↔
	B	45.99	45.99	0.00	B	B	↔
WAVE 2019-1 LLC	C	24.37	23.57	(0.80)	CCC+	CCC+	↔
	A	382.59	399.93	17.35	BBB+	BBB+	↔

Market Insights: Aircraft Index Report

	B	78.29	78.29	0.00	BB+	BB+	↔
	C	49.46	47.90	(1.56)	CCC+	CCC+	↔
Zephyrus Capital Aviation Partners 2018-1 Ltd	A	79.78	105.11	25.33	BBB	BBB-	▲

Note: Negative amounts reflect the deferral of interest and capitalization into the principal balance of the notes. Source: S&P Global Ratings.

Anticipated Repayment Dates (ARDs)

In first-quarter 2024, two transactions reached their ARDs: Falcon Aerospace Ltd. and Labrador Aviation Finance Ltd. The following five transactions have upcoming ARDs in 2024:

- Blackbird Capital Aircraft Lease Securitization Ltd. 2016-1,
- Harbour Aircraft Investments Ltd.,
- KDAC Aviation Finance (Cayman) Ltd.,
- Thunderbolt Aircraft Lease Ltd., and
- WAVE 2017-1 LLC.

After an ARD, the classes may be repaid sequentially until they are fully paid off, and there typically will be a step-up in interest rate on the ABS notes that is paid at a subordinated step in the payment priority (nonpayment of this step-up interest is not an event of default, and unpaid step-up interest typically accrues). In most transactions, the ARD-related turbo payment step in the payment priority is subordinated to scheduled principal payments. As transactions remain behind on their scheduled principal payments, there may be a lag before the classes benefit from the turbo payments. Our ratings on the notes address the timely payment of interest and ultimate payment of principal by their legal final maturity and do not address payment of the step-up interest.

Portfolio Statistics

In the following sections, we track some of the key portfolio metrics for the outstanding aircraft lease ABS transactions issued post-2008. The data is as of the March 2024 payment date report. It does not include any engines that remain in the portfolio after the associated airframe was sold. It does, however, include any airframe that remains in the portfolio after the engines were sold.

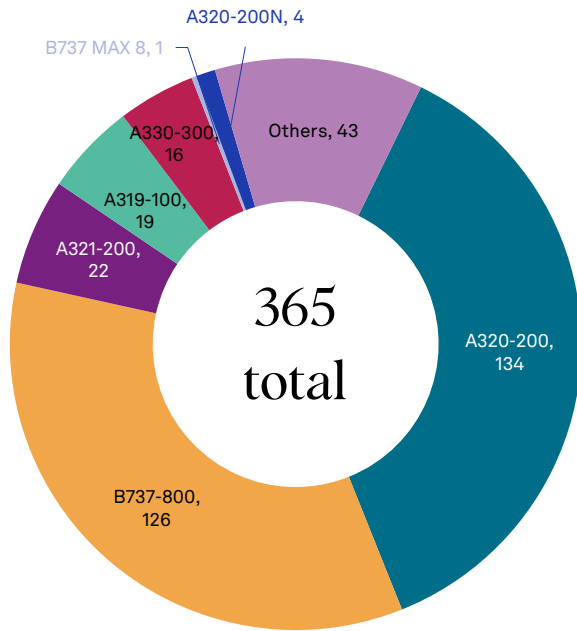
Aircraft types

Single-aisle aircraft, also referred to as narrowbody aircraft, represent the largest share of the global aircraft fleet. According to Boeing's Commercial Market Outlook 2023-2042, single-aisle aircraft will represent 70% of the fleet in 2042, up from 66% currently. The report also states that single-aisle aircraft are expected to account for 76% of new deliveries between now and 2042. These aircraft are generally easier to re-lease, given the lower transition costs and large number of airline operators compared to twin-aisle widebody aircraft.

Charts 2 and 3 below depict the current aircraft composition of the rated portfolio. Narrowbody accounts for approximately 88% (by count) of aircraft in the outstanding transactions, and approximately 70% (by count) of those are either A320-200s (36%) or B737-800s (34%).

Chart 2

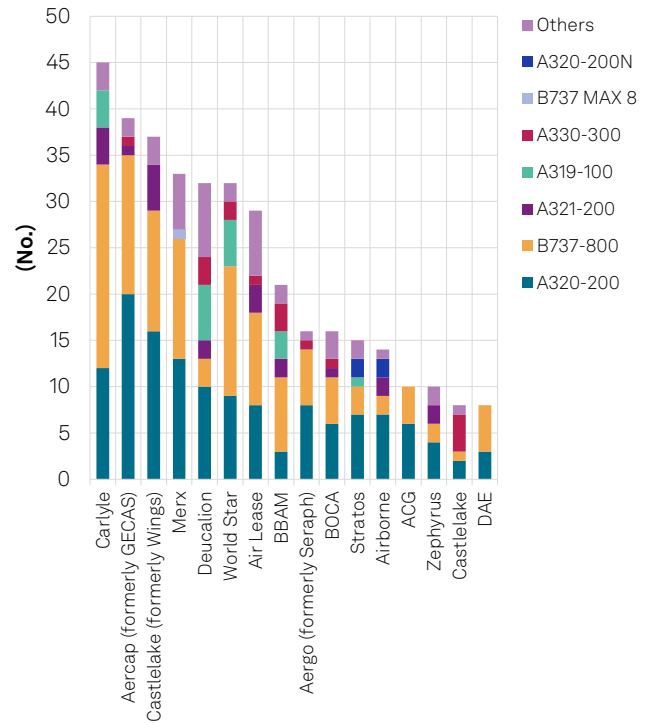
Major aircraft types (no.)



Source: S&P Global Ratings.

Chart 3

Distribution of aircraft types across servicers



DAE--Dubai Aerospace Enterprise. GECAS--GE Capital Aviation Services Ltd. Source: S&P Global Ratings.

Aircraft age

The average aircraft age in the rated transactions is approximately 16 years as of March 31, 2024, and it ranges between eight and 21 years.

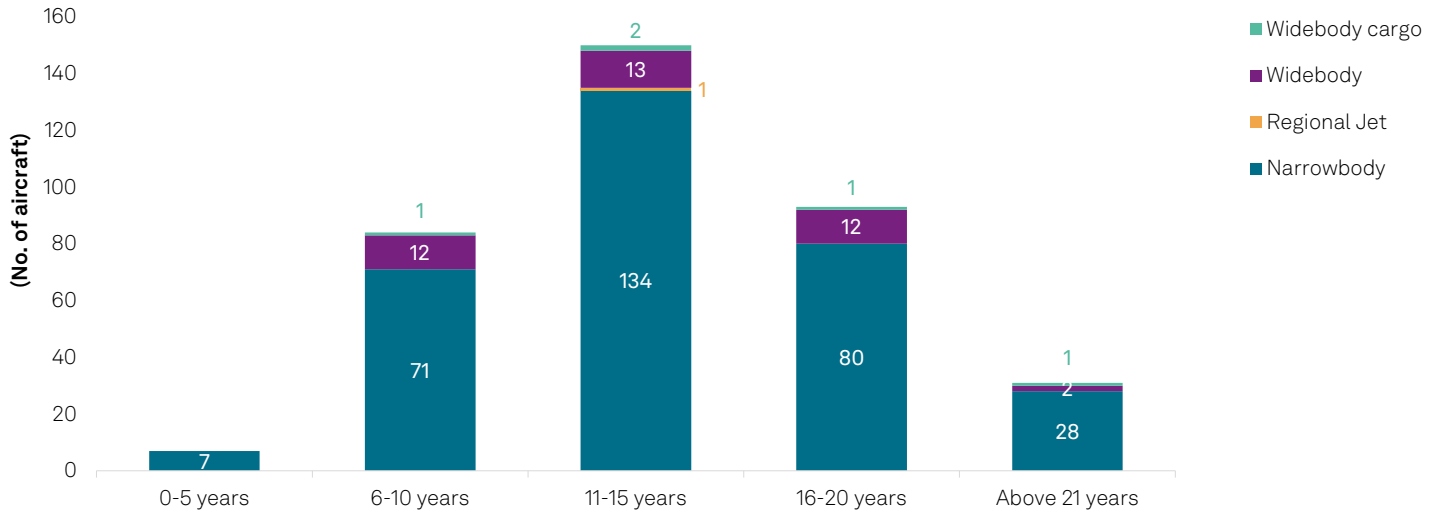
Prior to the COVID-19 pandemic, the transactions rated by S&P Global Ratings were typically backed by pools of mid- to end-of-life aircraft. More recent transactions have generally consisted of younger aircraft on lease to airlines with a stronger credit profile. Historically, airlines that lease aging aircraft or aircraft engines tend to be of lower credit quality and located in lower-rated jurisdictions.

Chart 4 provides a breakdown of each airframe type by age, and chart 5 shows the weighted average age of each commercial aircraft lease ABS portfolio we rate.

Market Insights: Aircraft Index Report

Chart 4

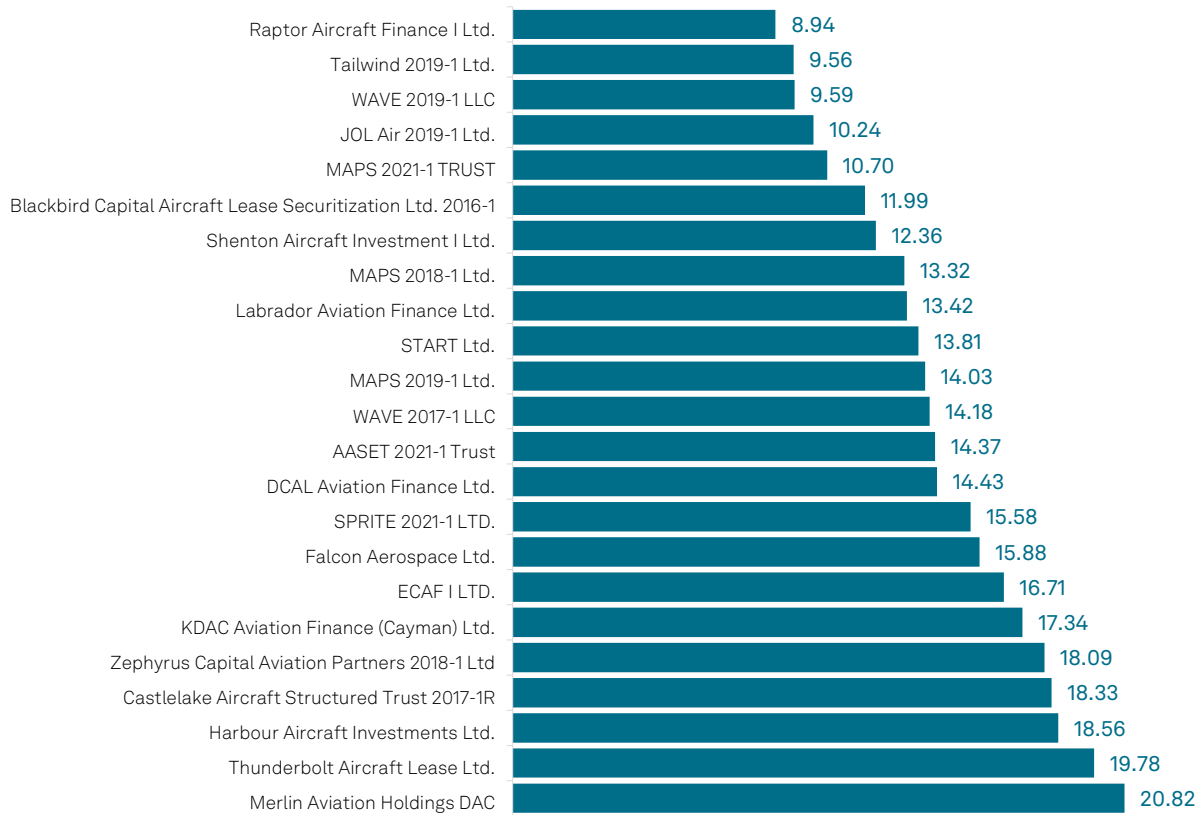
Portfolio age by airframe type



Age calculated as of March 31, 2024. Source: S&P Global Ratings.

Chart 5

Average portfolio age by issuer (%)



Age calculated as of March 31, 2024, as a simple average age of all the aircraft (excluding any component engines but including airframe) in a portfolio. Source: S&P Global Ratings.

Lease expiry

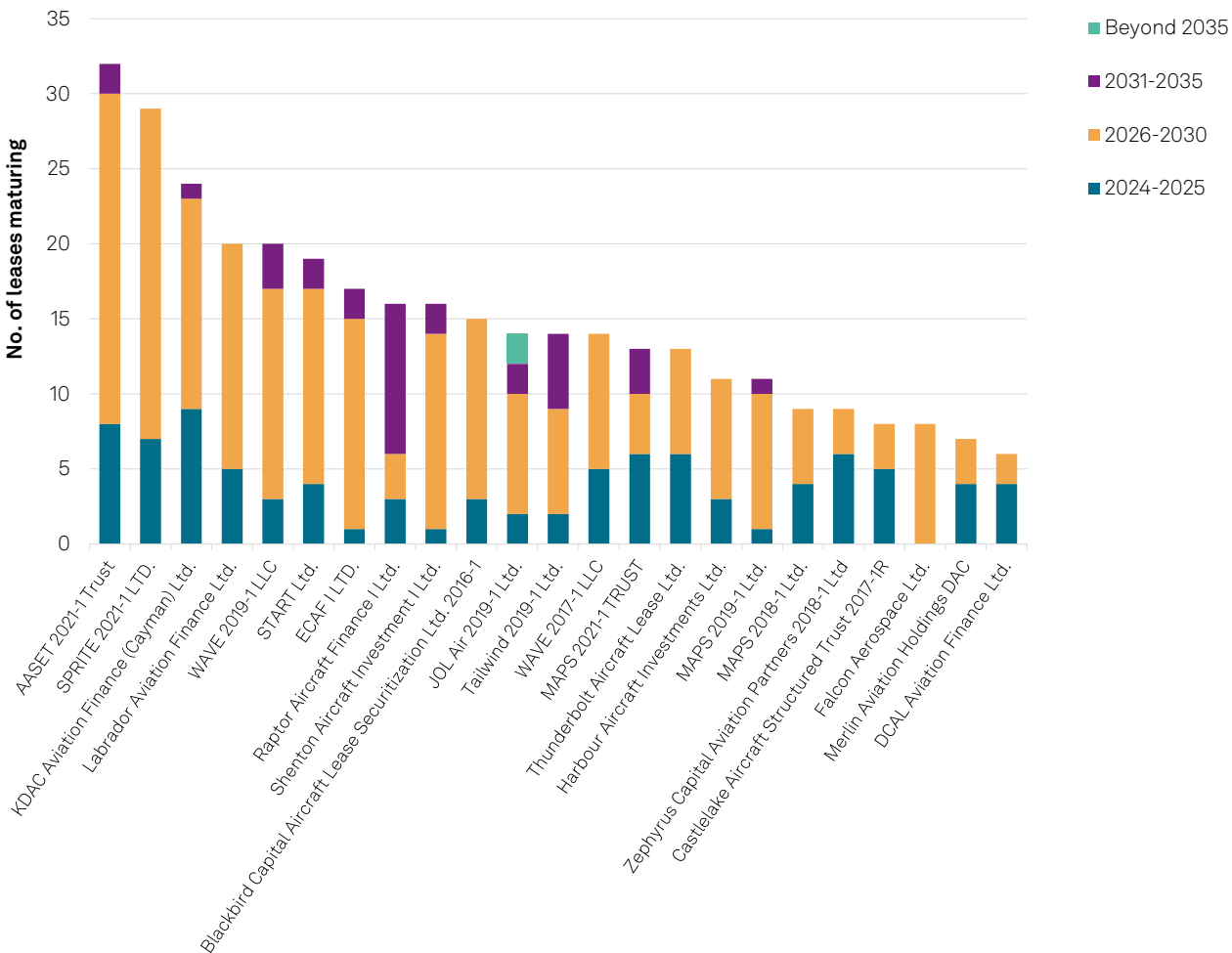
A concentration of lease maturities in a short time frame may expose a transaction to potential re-leasing and remarketing risk. For example, transaction cash flows may be significantly reduced if the re-leasing event occurs during an industry downturn when lessors typically have less bargaining power. Most servicers of S&P Global Ratings-rated transactions have indicated that they typically begin planning for re-leasing events 12-24 months in advance of the lease maturity.

In the current market, which is dominated by a shortage of narrowbody aircraft and, increasingly, widebody aircraft as well, many lessees have decided to extend existing leases—often at a higher rent—because they want to hold on to their capacity. Various engine-related issues in the industry have also significantly increased the number of aircraft that are temporarily grounded while their engines are serviced.

Chart 6 shows lease expirations in the outstanding transactions we rate.

Chart 6

Lease expiry distribution by issuer

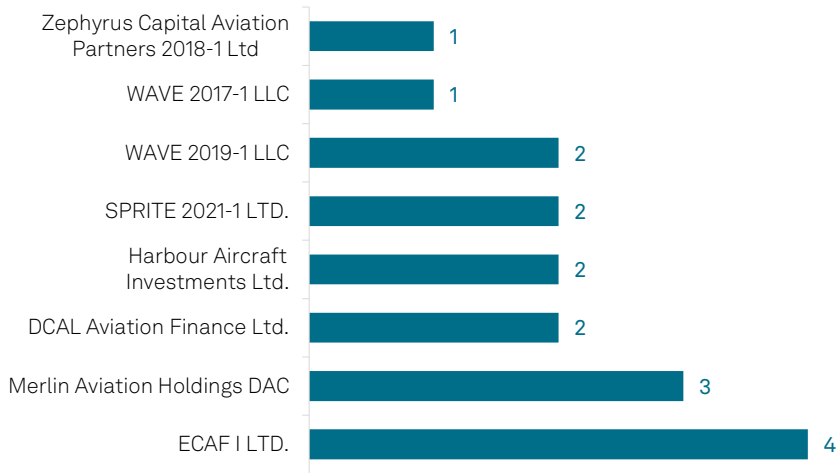


Source: S&P Global Ratings.

Chart 7 lists the number of off-lease aircraft for relevant transactions. The data does not include off-lease engines after the associated airframe was sold. However, it does include any off-lease airframe.

Chart 7

Distribution of off-lease aircraft across issuers



Source: S&P Global Ratings.

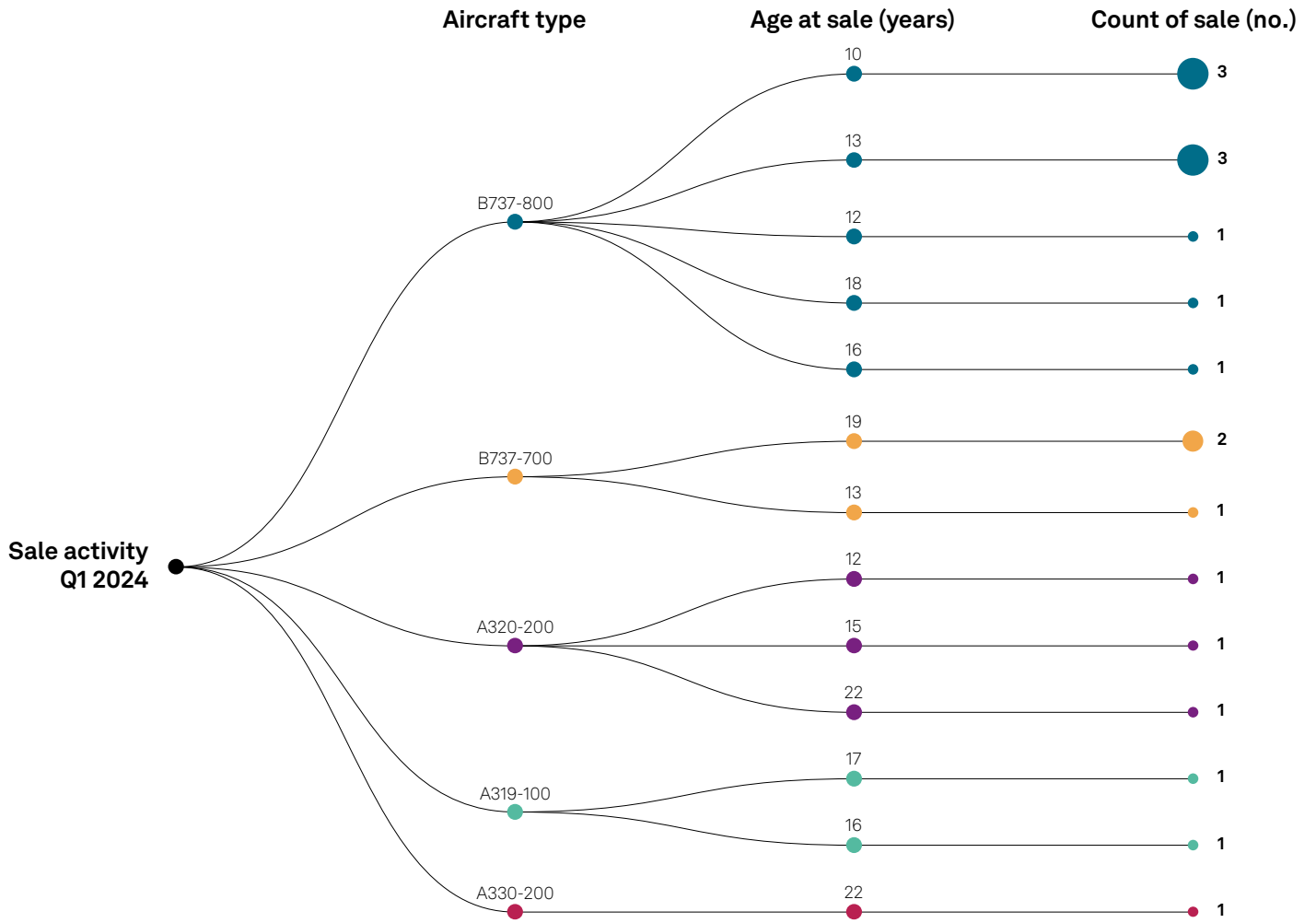
Sales Activity: First-Quarter 2024

Most aircraft in the ABS pools are generally sold toward the end of their useful life. In the current market, where there is a general shortage of engines, the airframe of an older aircraft is often sold and the engine re-leased. This generally occurs when there is sufficient green time left in the engines. Older B737-800 aircraft are frequently purchased as part of a freighter conversion strategy by the new owner. Lessors may also consider selling an aircraft at the end of a lease to avoid making investments to upgrade the cabin and inflight entertainment required for a new lessee, or to avoid a major and expensive maintenance event. Recently, we also see more opportunistic sales of newer aircraft with a long-term lease attached that are driven by an attractive sale price compared to book value.

Chart 8 provides details on all aircraft disposition activities observed in first-quarter 2024 by aircraft type and age at the time of disposition. The age is determined based on the month in which the aircraft was sold.

Chart 8

Aircraft sales by age



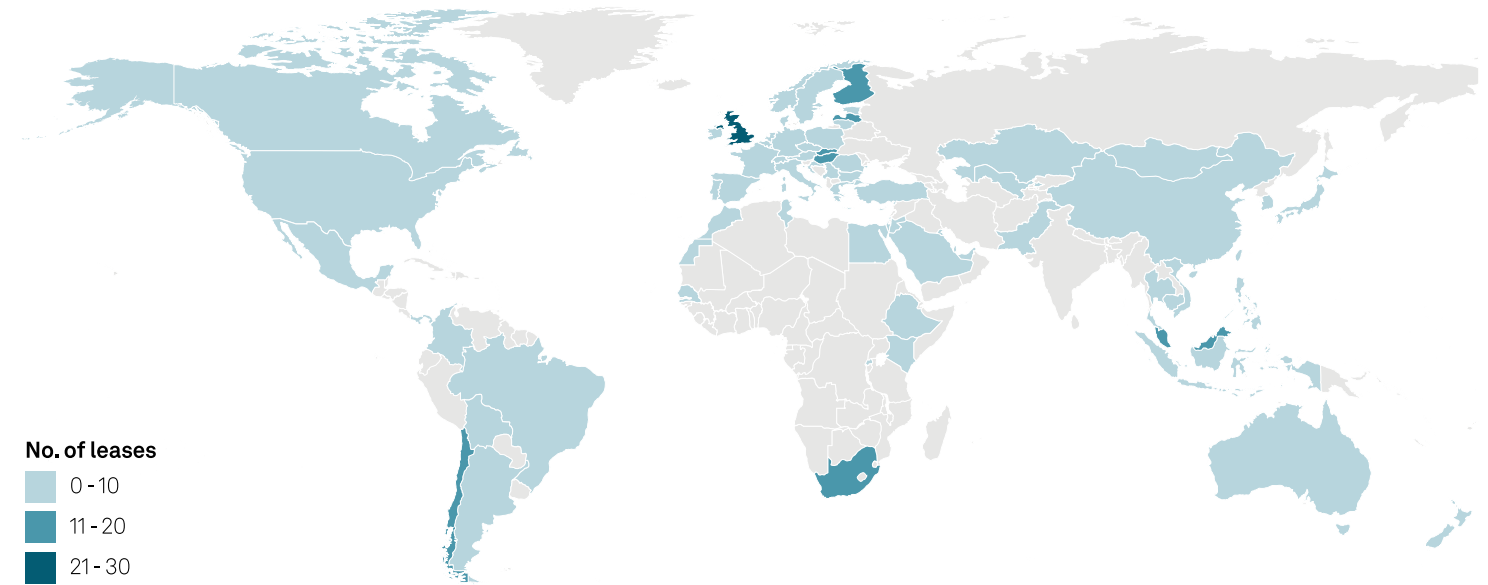
Source: S&P Global Ratings.

Lessee geographic concentration

Chart 9 shows the lessee concentration by country in our rated portfolio.

Chart 9

Lease count by country



Source: S&P Global Ratings.

Related Research

Date	Title
Jun-06/2024	Presale: AASET 2024-1 Trust (Class A-2)
Apr-03-2024	Presale: Business Jet Securities 2024-1 LLC
Mar-22-2024	Various Rating Actions Taken On Nine Classes From Four Aircraft ABS Transactions
Feb-07-2024	Scenario Analysis: Performance Of Aircraft ABS Transactions At ARD And Final Maturity Date Under Three Hypothetical Scenarios

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