

Investing in Aircraft Leasing: A Post-Pandemic Perspective From HK

Ishka Investing in Aviation Finance: Japan
2023.09





Contents

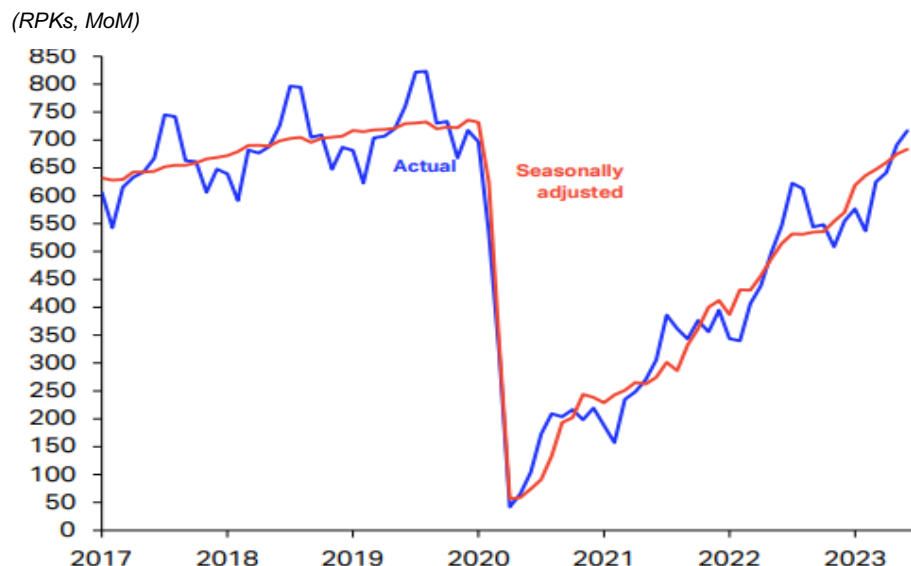
01 / Global & Asia market recovery

02 / CALC in Japan market

03 / CALC gets all for Japanese partners

- In 1H2023, total global air traffic (measured in revenue passenger kilometers or RPKs) increased by **47.2%** yoy. Passenger traffic in June 2023 rose **31.0%** compared to June 2022. Globally, traffic is now at **94.2%** of pre-COVID levels.
- In June 2023, domestic traffic increased by 27.2% YoY, **outpacing pre-COVID levels** with a **5.1%** increase, driven by the robust performance of major domestic markets.
- In 1H2023, Asia Pacific airlines experienced robust recovery, with passenger traffic surged by **125.6%** as compared to 2022 levels.
- According to ICAO, global aviation demand will increase at an average rate of 4.3% per annum over the next 20 years.
- IATA had recently announced an expected strengthening of airline industry profitability in an upgrade of its outlook for 2023, by which the industry's net profits were expected to reach US\$9.8 billion in 2023, more than **DOUBLE** its previous forecast.

Recovery in global aviation market demand



Source: IATA Analysis of Air Transport Market, June 2023

	June 2023 (% yoy)		Jun 2023 (% change vs the same month in 2019)	
	RPK	ASK	RPK	ASK
Total Market	31.0%	28.8%	-5.8%	-5.5%
International	33.7%	31.7%	-11.8%	-13.2%
Domestic	27.2%	24.7%	5.1%	8.7%
Asia Pacific	90.1%	73.3%	-12.4%	-10.4%
Africa	31.8%	40.5%	-9.8%	-6.9%
European	13.0%	11.5%	-4.9%	-5.3%
Latin America	18.7%	17.1%	2.6%	3.6%
Middle East	28.3%	24.5%	-4.5%	-8.1%
North America	12.9%	13.8%	0.6%	0.8%

1.2 Strong demand recovery manifests narrowbody shortage

Global air passenger demand continued its strong recovery

High-fuel-price environment highlights economic benefits of fuel-efficient aircraft

Global wave of carbon neutrality urges airlines to speed up upgrading their fleets to new generation fuel-efficient aircraft

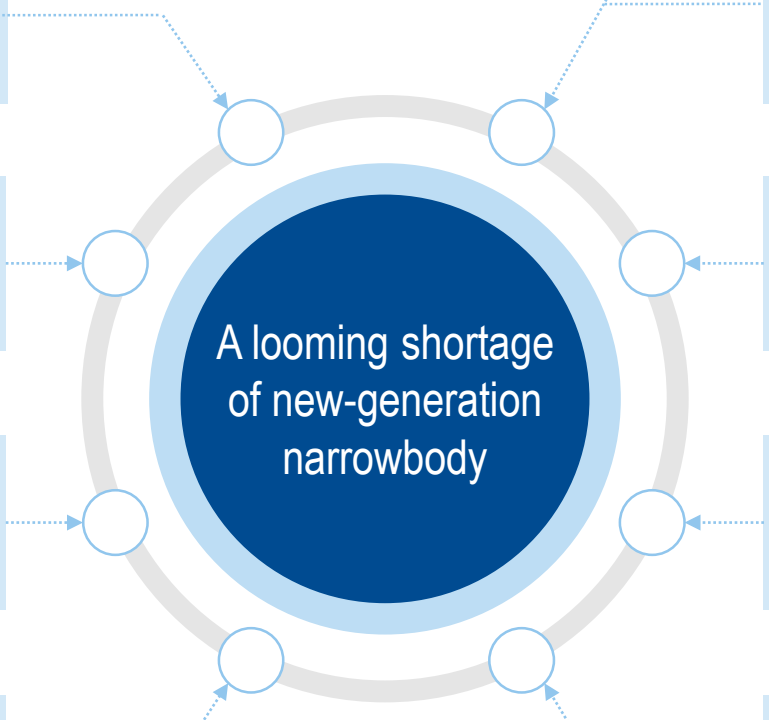
Airlines need more aircraft to pace up with market recovery

Narrowbody aircraft have recovered better than twin-aisle aircraft

Narrowbody aircraft expected to take increasing share, accounting for over 75% of global aircraft demand in 2023- 2042¹

Supply chain snags persists, hindering OEM productions

Lessors' market share reached 53%² and shall continue to rise



A looming shortage of new-generation narrowbody

Source: 1. Boeing Commercial Market Outlook 2023-2042, Airbus Global Market Forecast 2023
2. Cirium

1.3 Aircraft value and lease rate trend up continuously

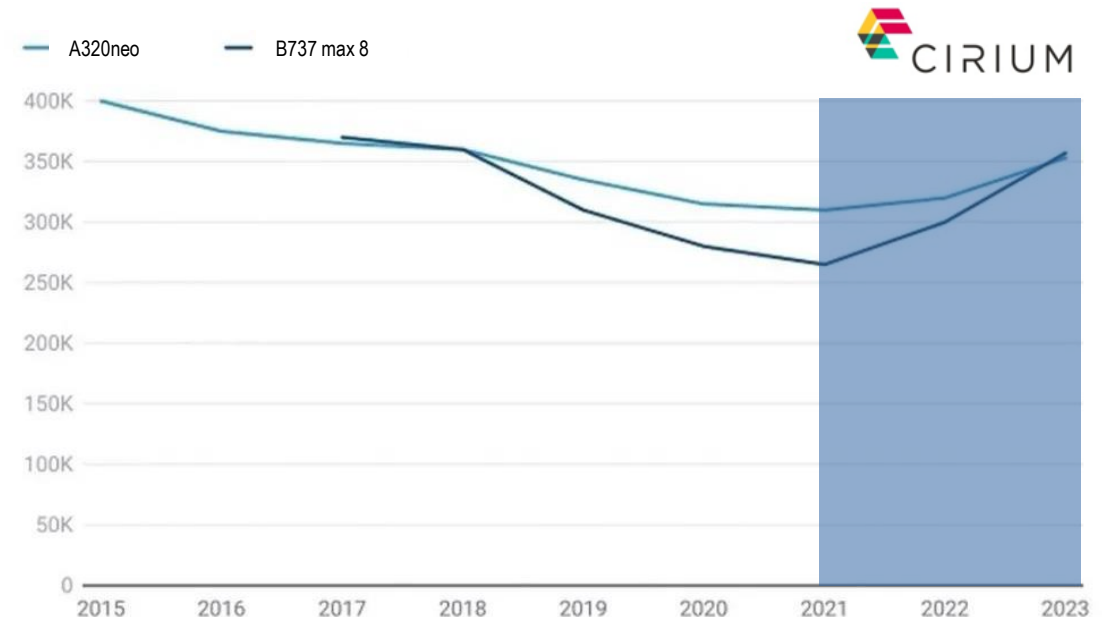
- The rapid growth of air travel amid ongoing supply chain issues, coupled with high inflation and interest rates, had been and is expected to **continue pushing up lease rates**. It is generally expected that the narrow-body shortage would likely persist for a couple of years, contributing to **high market value and lease rates**.
- According to Cirium, the recovery in passenger traffic and constrained supply of new aircraft seemed to shift pricing power from airlines to lessors.

Fleet weighted average market to base value ratio (Passenger)



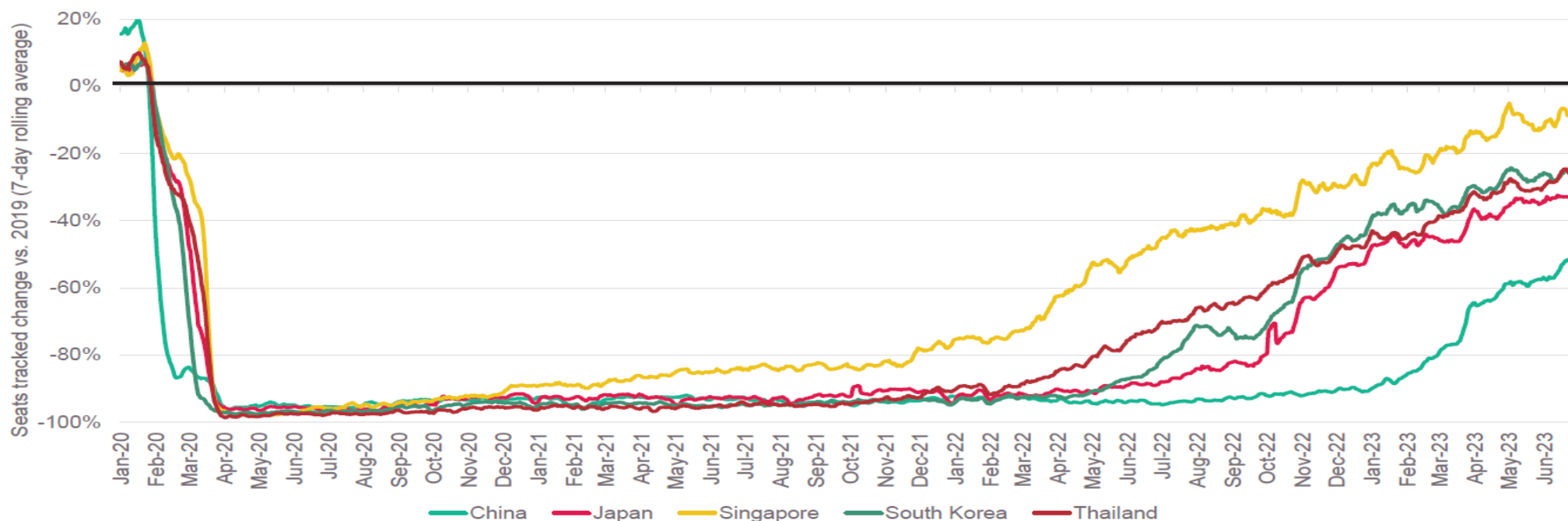
Source: Cirium.

Monthly rent change for new generation narrowbody (in US\$)



1.4 Asia aviation market continues recovery momentum

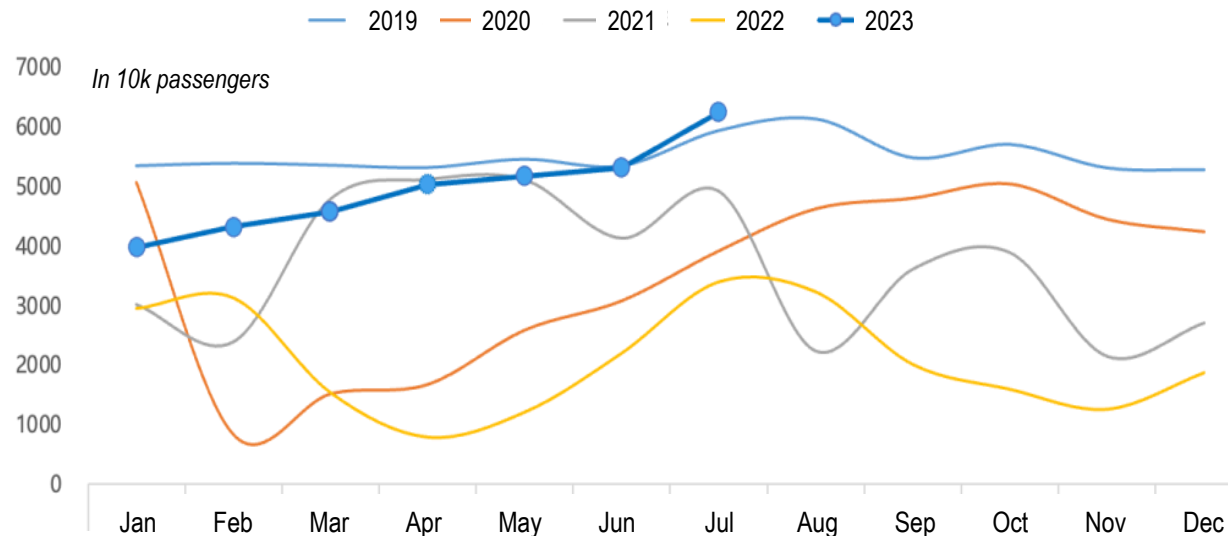
- According to latest Air Passenger Market Analysis released by IATA, Japan experienced a remarkable **33.8%** annual growth in domestic RPKs in June 2023 and continued to trend above 2019 levels by **3.9%**.
- International departing flights seats tracked by Cirium also showed strong recovery trend in Japan.
- Airbus predicts trips per capita in Japan will increase from 1.2 (2019 data) to **2.2** by 2024 in its “Global Market Forecast 2023.



1.5 Air traffic speed up pace of recovery in China YTD

- CAAC data showed that in 1H2023, total air transport turnover, passenger number, cargo and mail volume reached 53.13 billion ton-kilometres, 284 million persons, 3.276 million tons, respectively, representing 84.6%, 88.2%, and 93.1% of their corresponding 2019 levels. Industry performance had in general **returned to the level of the same period in 2019**.
- Robust demand in summer season started from July had driven continuous growth in aviation sector with a total transport turnover of 11.37 billion ton-kilometers, a 67.1% increase yoy, **exceeding pre-pandemic level for the first time** after 8-consecutive-month growth. The passenger volume reached 62.428 million, an 83.7% increase yoy, and up 5.3% compared to the same month in 2019, which was also **a historical monthly record high**.
- Domestic flights carried 59.075 million passengers, an increase of 16.8% compared to the previous month and 74.6% yoy, surpassing its 2019 level by 12.1%. The international flights was on the way of recovery, with a total passenger volume of 3.353 million, a month-on-month increase of 32.6%.

2019-2023 monthly air passenger volume



Source: CAAC, DAST.

Recovery of international routes expected to speed up

138 ⁺⁷⁸ countries

Outbound group tour destinations from China

24 ^{~ Doubled} flights/week

Chinese passenger flights allowed to US

- China on 10 Aug announced a third round of resumption of outbound group tour services to countries and regions including the US, Japan, South Korea, Australia, India and most European countries, expanding the scope from 60 to 138 countries and regions.
- On 11 Aug, the U.S. Transportation Department said it would will increase the number of Chinese passenger flights allowed to fly to the U.S. to 18 weekly round-trips on Sept. 1 and increase that to 24 per week starting Oct. 29 , up from the current 12.

China to be the world's largest aviation market — according to Airbus and Boeing

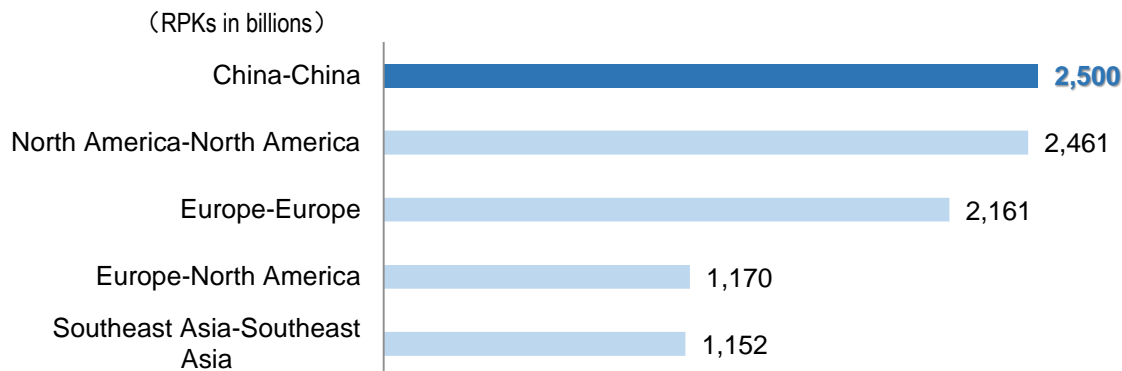
The 14th Five-Year Plan for Civil Aviation: Year 2023-2025 would be a “growth and release” period

- During the 14th Five-Year Plan period, total transport turnover and passenger numbers handled were expected to grow at an average annual rate of **17%**, reaching 175bn ton-kilometres and 930mn by 2025, respectively. Major targets include the strategic goal of China becoming a multi-field civil aviation power with world-leading airlines instead of only an air traffic leader.

Domestic PRC to have the world's largest traffic flow

- Both Airbus and Boeing predict that the world's largest traffic flow in the years from 2019 to 2042 will be in domestic PRC market, with CAGR of **5%**. By 2042, trips per capita in China would increase from 0.5 in 2019 to **1.7**.

Top 5 traffic flows in 2042

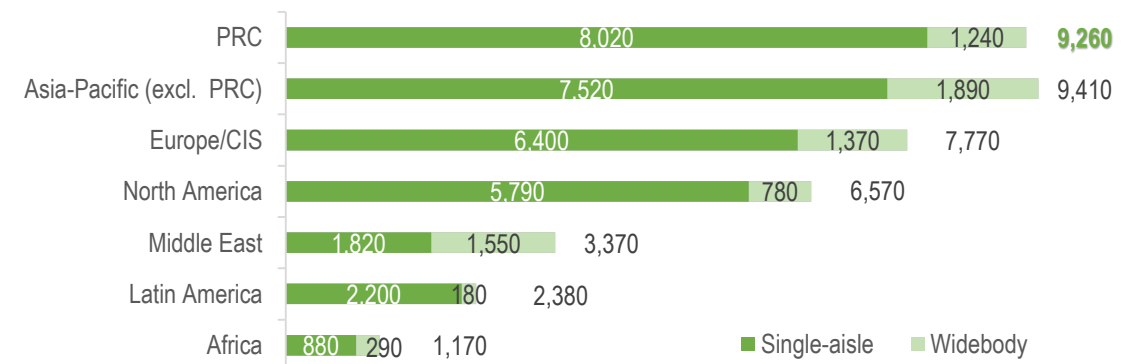


Source: Boeing "Commercial Market Outlook 2023-2042",

Huge demand for passenger aircraft and freighters expected along with the rapid growth of China's civil aviation

- China's 14th Five-Year Plan for Civil Aviation showed that its fleet size was expected to reach 5125 aircraft by 2025. It would need over **1700** new aircraft during the five-year period including 1300 for growth. Of these, around half or **850** would be leased fleet.
- Airbus predicted that **9,260** new passenger aircraft would be delivered to the PRC market in the next 20 years, accounting for 23% of global new deliveries of passenger aircraft between 2023 and 2042, marking **China the single largest country for new deliveries**.
- With fast growth in e-commerce and logistics, growth and replacement in freighters in China would reach 660 units, of which **180** from new-built and the rest **480** from conversion, with the latter accounts for over **30%** of global freighter conversions.

China will be the single largest country for new aircraft deliveries



Source: Airbus "Global Market Forecast 2023".

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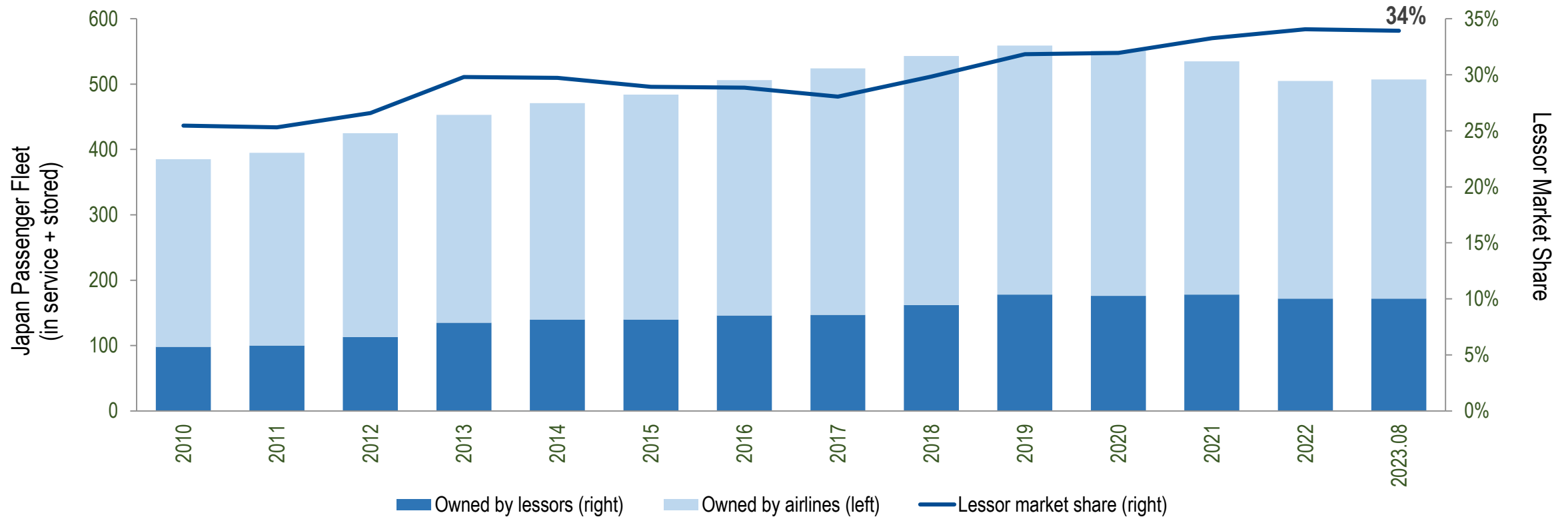


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2.1 Growing lessor market share in Japan

- Passenger fleet in Japan shrank in size during Covid-19 but seemed bottomed out at around **500 aircraft** by the end of 2022.
- On the other hand, leased passenger fleet remained relatively stable even during the pandemic, resulting in an increasing lessor market share.



Source: Cirium Fleet Analyzer, based on analysis of passenger aircraft operated by Japan carriers with more than 100 seats (Seats number>100, Primary usage: Passenger).

2.2 JOL/JOLCO market expected to regain vitality

Upward trend since FY2021

- Latest report by Ankh Partners suggested
 - In FY2022, aircraft JOL remained strong, recovering to the pre-pandemic level, and JOLCO + JOL overall share kept increasing
 - In FY2023, aircraft account for around 65% of the JOLCO market, with estimated market size of 234 billion yen.

Positive outlook for JOL/JOLCO market

- Earlier in 2023, Japanese leasing houses expressed their view as **cautiously optimistic** about the Japanese operating lease (JOL) and Japanese operating lease with call option (JOLCO) market despite headwinds from high borrowing costs and uncertainty in the USD/yen exchange rate.
- Typically, Japanese investors are profitable small- and medium-size enterprises in Japan. There are approximately one million SMEs in Japan that could be targeted to purchase equity in JOL or JOLCO structures. As **Japan's GDP grew much faster than expected** in Q2 2023 by an annualized 6%, the near-term outlook for Japanese companies appears to be very positive, resulting in higher corporate taxes payables requiring more tax shelter, which might further drive growing interests in investing JOL/JOLCO products



アंकパートナーズ推計

※出資金販売額で集計

※2022年度は 2022 年 4 月～2023 年 3 月の間に迎えた決算期の数値で集計

2.3 Track record in Japan

CALC

14 aircraft & **US\$ 550⁺** mn

Debt Financing

JOLCO

Capital Markets

Aircraft Placement

Aircraft Portfolio
Trading

- Financed for total **6 aircraft** by one of the largest banking institutions in Japan
- CALC's First-ever JOLCO financing related to **two** new Airbus A320
- Extending partnership with **two more** JOLCO investors
- Collaborate with Japan's leading investment banking to explore equity investment opportunities
- **Two aircraft** leased to Japan's operators
- Purchased **two aircraft** from Japanese lessor



Asset Brok Air



SMBC AVIATION CAPITAL

2.4 CALC is well-positioned to tap into the thriving Japanese market

One of few aircraft lessors who can provide one-stop tailor-made fleet renewal solutions for airlines

- Maintains a considerable order book of new-generation fuel-efficient aircraft popular in the market.
- In-house capabilities to provide professional and sustainable solutions for mid- to end-of-life aircraft.
- Commitment to a sustainable growth of the aviation industry.

Active player in portfolio trade and asset management

- Existing fleet mainly comprised of in-demand narrowbody aircraft leased to well-known, creditworthy airlines.
- High quality assets of both new and used aircraft catering for different investor appetite.
- Proven track record in portfolio trading with diversified channels.

Broad cooperation with financiers to explore innovation in aviation finance

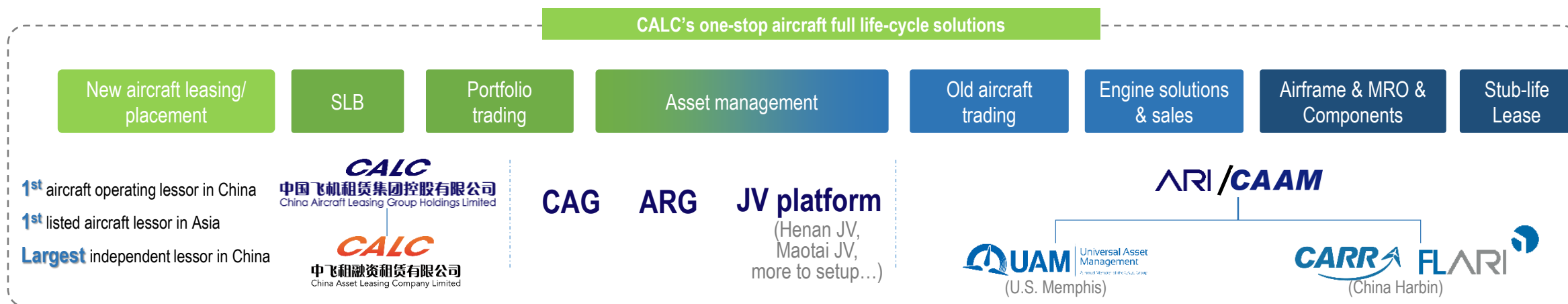
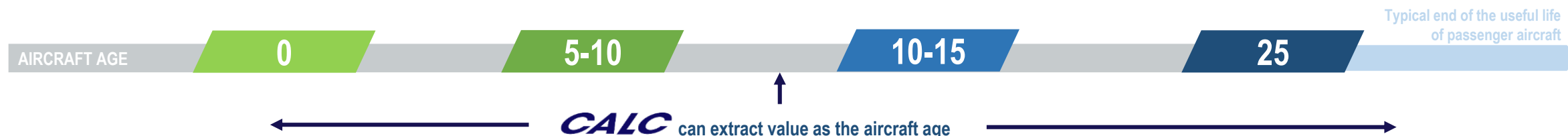
- Long established diversified financing channels including aircraft financing and refinancing, PDP syndicated loan, working capital facilities, long-term borrowings, RMB Bonds & medium term notes, USD bonds, Green financing, Perpetual bonds, ABS, alternative financing, forfaiting, JOLCO etc.
- Open to explore new products and cooperations.



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3.1 CALC: Full value chain that covers the entire aircraft life cycle



3.2 CALC at a glance

CALC

As at 31 August 2023

190 aircraft



Fleet size

163 owned + 27 managed
(including 2 aircraft for Russian carries)

147 aircraft



On backlog

US\$ **8** bn



Total Assets

90%



Narrowbody-dominant fleet

(owned fleet)

100%



Best fleet utilization

(owned fleet)
(excluding the 2 aircraft written down)

100.6%



Rent collection ratio²

(up 7 pp. YoY)
(1H2023)

5.8 yrs

6.7 yrs



Avg. age

(New aircraft leased fleet¹)

Avg. remaining lease term

As at 30 June 2023

43

Airline clients

20



Countries & regions

387+



Aircraft Dissembled³

102



Engines Transacted³

450,050+

**Parts/Components
transacted³**

Note : 1. CALC is a one-stop aircraft full-life-cycle solution provider. Its business covers new aircraft and middle-to-aged aircraft. The new aircraft leased fleet refers to the aircraft under the age of 12 in its owned fleet.
2. represented by the cash received over the amount of invoice billing

Note: 3. Accumulated total over the years by ARI/CAAM units.

3.3 Fleet management

CALC

1H2023

13 aircraft
New deliveries

1 aircraft
Portfolio trade

26 aircraft
Signed LOI for leasing

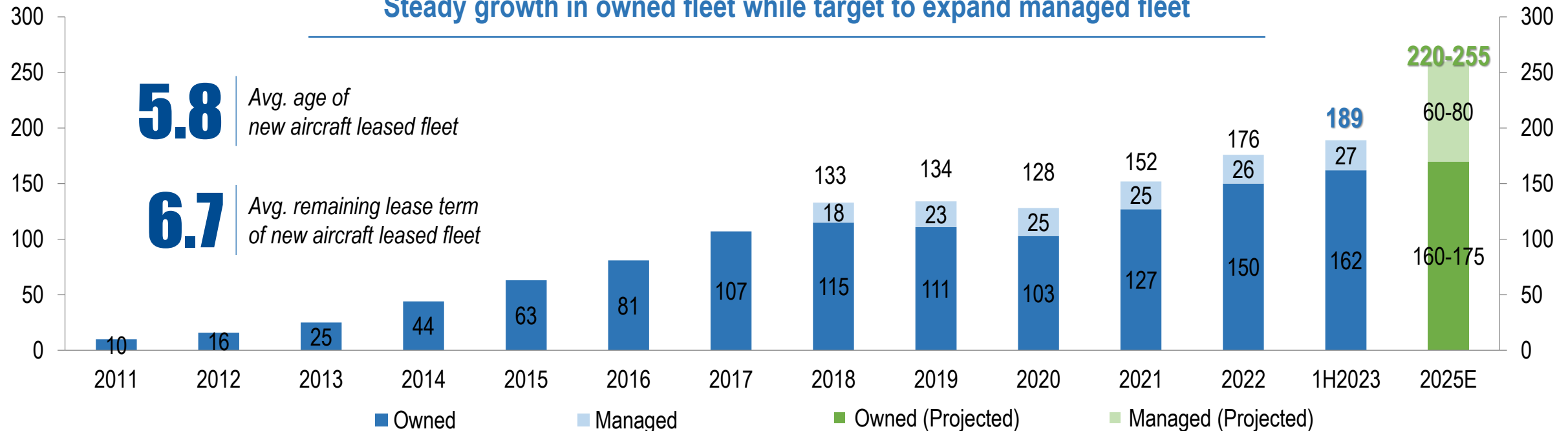
2H2023

8 aircraft
Scheduled deliveries

10 aircraft
Projected disposals

21 aircraft
LOI or LA signed/in progress for P-trade

Steady growth in owned fleet while target to expand managed fleet



Notes: CALC is a one-stop aircraft full-life-cycle solution provider. Its business covers new aircraft and middle-to-aged aircraft. The new aircraft leased fleet refers to the aircraft under the age of 12 in its owned fleet.

3.4 Narrowbody-dominated fleet

(as of 31 August 2023)

OEMs	Series	Type	Owned ¹	Managed	Orderbook
Airbus	A320 CEO family	NB	84	17	-
	A320 NEO family	NB	39	6	118
	A330 CEO family	WB	13	1	-
Boeing	B737 NG family	NB	23	2	-
	B737 Max family	NB	1	-	1
	B787 family	WB	1	1	-
COMAC	ARJ21	Reginal Jet	2	-	28
Total			163	27	147

Quality & sustainable growth

Long-standing partnership with OEMs to support more flexible fleet strategy

Large orderbook dominated by new-generation fuel-efficient aircraft from Airbus to help global airline clients upgrade their fleet while reduce carbon emissions.

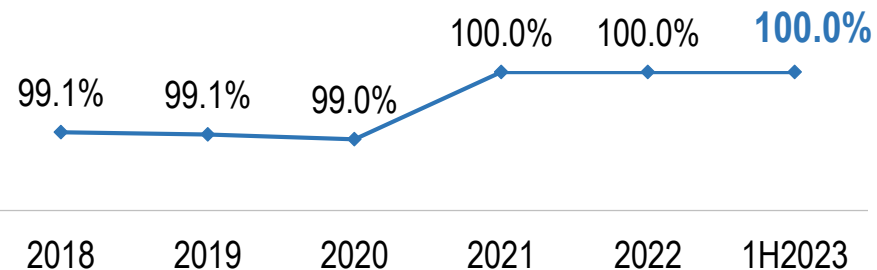
Continuous cooperation in existing Boeing fleet
Remain active in Boeing's products
Continue to join hands and explore various opportunities

Strengthen cooperation with COMAC across the aviation industry chain to grasp opportunities associated with overseas commercial operation of China-made aircraft

Notes: 1. Including 1 A320 series and 1 B737 series aircraft that involving Russian airlines.

3.5 Steady operations outperforming peers

Best utilization rate¹

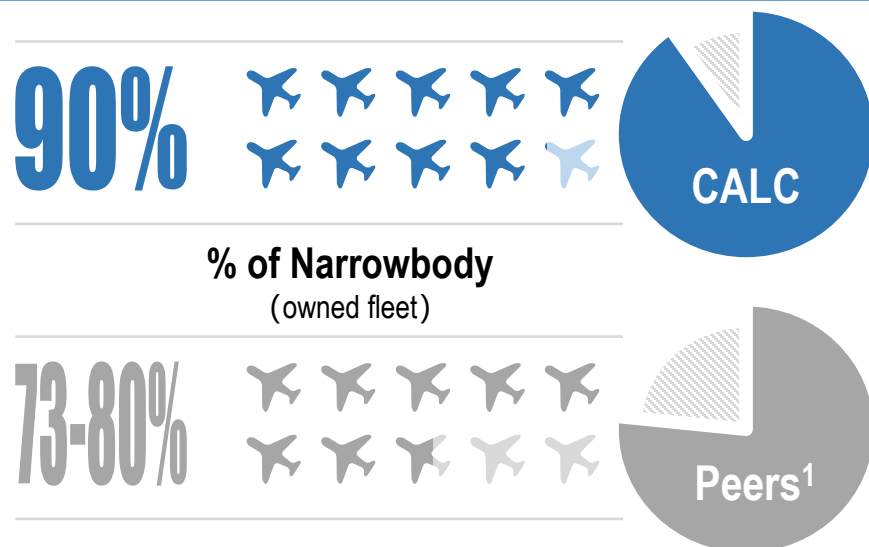


Double-digit rental yield and good rent collection

11.8%
Adj. rental yield²

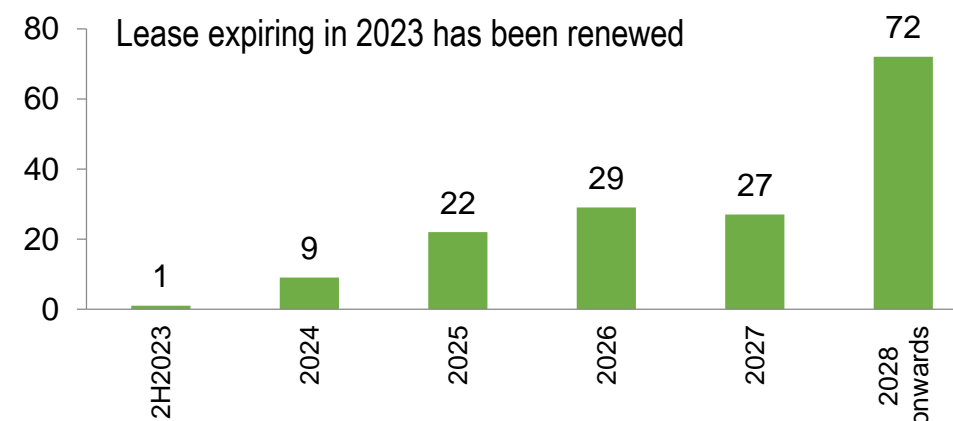
100.6%
Rent collection ratio³

Highly liquid narrowbody-dominant fleet with stable value



Note: 1. Only includes listed lessors with a fleet of more than 100 aircraft, i.e. Air Lease, AerCap and BOCA.

Lease expiries



Note: 2. Adjusted average rental yield is a weighted average calculated as the sum of expected annualized gross lease receipt and government grants divided by the net book value of aircraft

3. represented by the cash received over the amount of invoice billing

3.6 Global footprint with quality clientele

- China is our home market
- We would continue to actively expand our global footprint with top-tier clients in the future.
- Repossessed aircraft have been remarketing to flag carriers/top-tier airlines such as Royal Jordanian, LATAM, etc.
- Over 60% of the new aircraft scheduled for deliveries in 2H2023 and 2024 have been mandated[#] for lease to flag carriers/top-tier airlines including United Airlines, Frontier, Air India, LATAM, etc.

CALC

43 airlines **20** countries & regions

(as of 31 August 2023)

Well-known names in our client list

 **中國東方航空**
CHINA EASTERN

ANA

 **AIR CHINA**
中國國際航空公司

peach

 **中国南方航空**
CHINA SOUTHERN

Jetstar

 **中華航空**
CHINA AIRLINES

UNITED

IBERIA

FRONTIER
AIRLINES

PEGASUS
AIRLINES

spirit

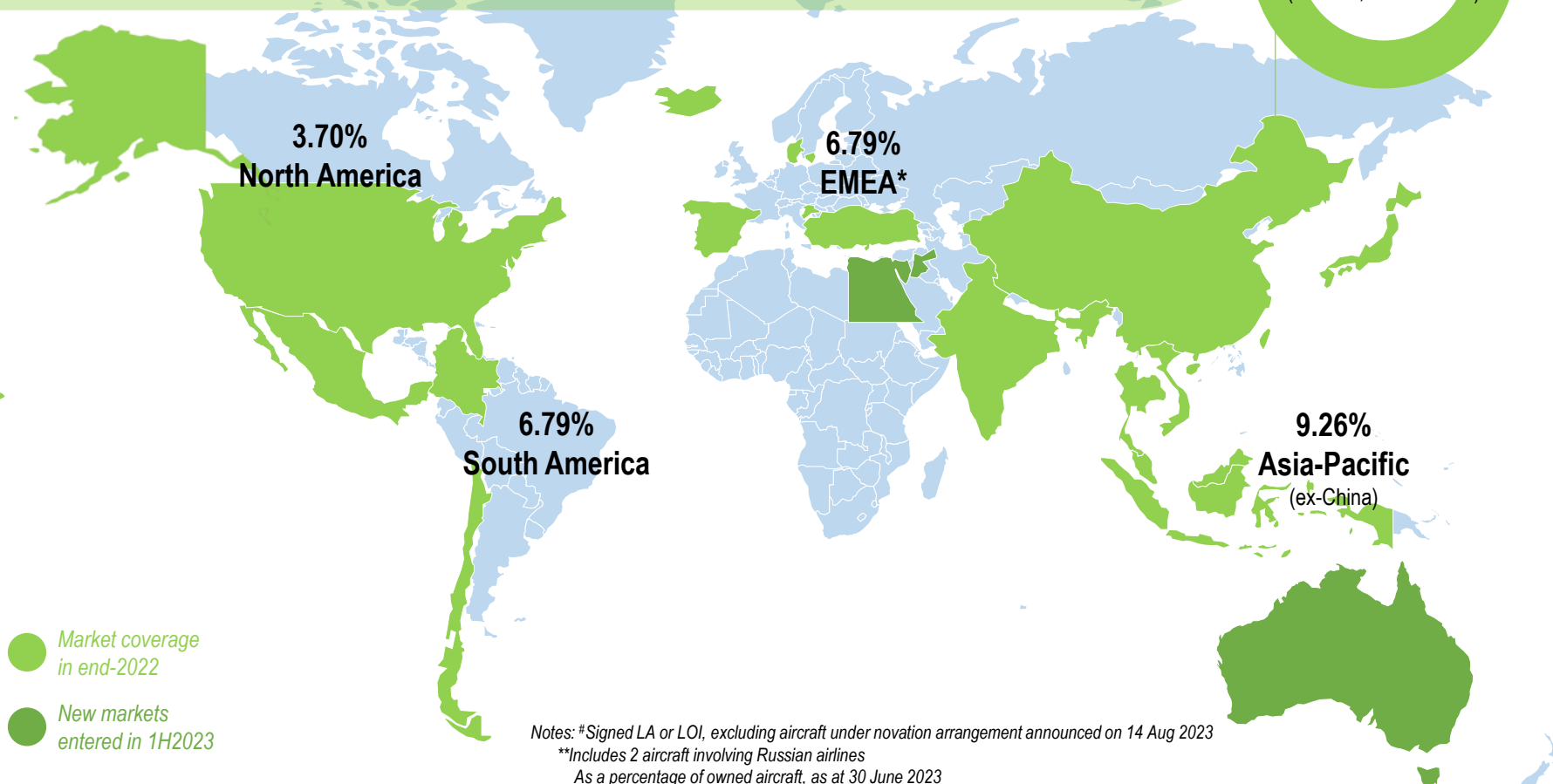
 **الملكة للجزيرة**
ROYAL JORDANIAN

 **HAWAIIAN**
AIRLINES

 **एअर इंडिया**
AIR INDIA

 **LATAM**

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3.7 Proven track record — portfolio trading

CALC

Active player in portfolio trade

Unencumbered aircraft sales

Lease-attached
Portfolio sales

40 ~
aircraft

Total trading number

(Accumulated total since listing)
(as of 30 June 2023)

US\$ **1.7** bn

Total trading volume

Aircraft portfolio trading benefits

- Provide additional revenue source
- Opening up more business opportunities with customers
- Improved capital efficiency, higher ROE and lower leverage
- Optimize fleet portfolio

Well-known names in portfolio trade partners



SMBC AVIATION CAPITAL



standard
chartered



Wings Capital Partners



中航资本
AVIC CAPITAL



农银金融租赁有限公司
ABC FINANCIAL LEASING CO.,LTD.



交银租赁
Bocomm Leasing



中银金租
BOC Leasing



光大金融租赁
EVERBRIGHT FINANCIAL LEASING



浦银金租
SPDB FINANCIAL LEASING



中国信达资产管理股份有限公司
CHINA CINDA ASSET MANAGEMENT CO., LTD.

3.8 Proven track record — asset management



- Established in 2018, CAG is an overseas platform focusing on newish aircraft investment. 25 aircraft have been injected (2 already sold) and CAG 2 in preparation.
 - ARG focuses on old aircraft portfolios and trading of parts and components.
- JV with Jinshi leasing in 2016
 - JV with Henan Civil Aviation Development and Investment Company established in 2019
 - JV with Moutai Financial Leasing established in 2020
 - More to setup



3.9 Proven track record — ABS

Active player in ABS

45⁺
aircraft

Total trading number

(Accumulated total since listing)
(as of 30 June 2023)

US\$ **2.3**⁺
bn

Total trading volume

Pioneer in PRC markets

- China's 1st aircraft lease receivables realization
- China's 1st aircraft lease receivable ABS (Also 1st listed ABS denominated and settled in foreign currency)
- China's 1st ABS programme for aircraft leasing that allows multiple issuances with a single approval

Well-known names in ABS



3.10 Proven track record — debt financing

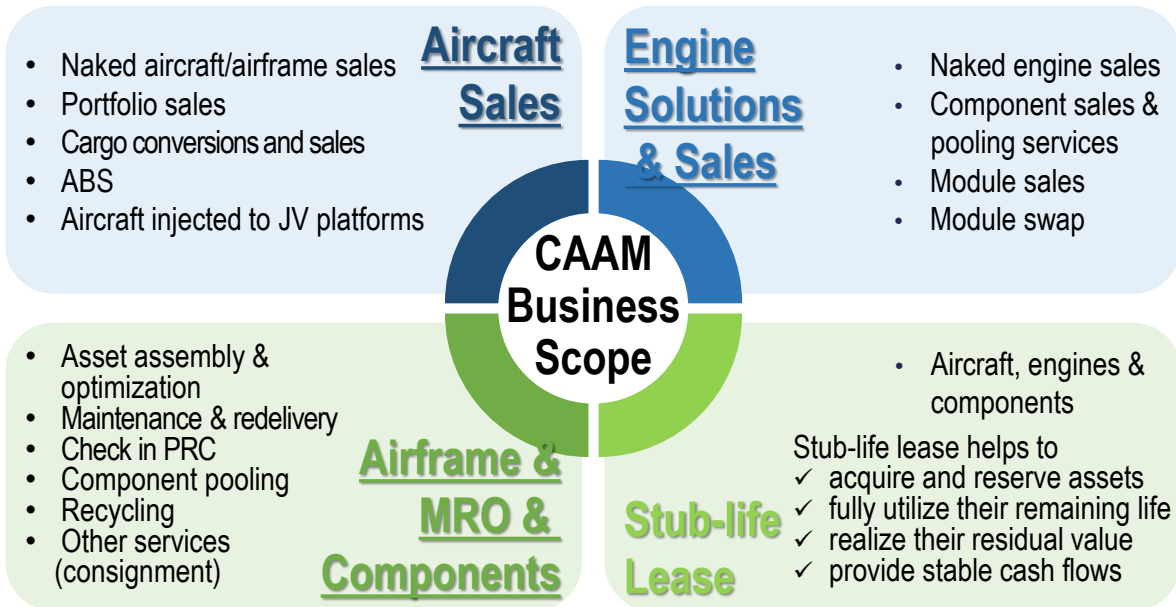
Obtained over **US\$2.5⁺ bn** new and renewed facilities per year from global financiers



Chinese Banks: 40+

3.11 RARE FEW to provide one-stop old aircraft sustainability solutions

One-stop old aircraft sustainability solutions provider



Signature deal

CAAM completed the comprehensive solutions in 1H2023 to the 5 old B737NG aircraft acquired from Air China Limited to assist the airline's fleet retirement plan. CAAM successfully maximized the residual value of the assets through a series of complex sustainability solutions including parts swap, P2F conversions, portfolio trading, aircraft disassembly, component repair and sales.

Fully licensed

- Our MRO joint venture FLARI obtained the base maintenance license by CAAC for 3C-check (36000FH/24000FC/108MO) of A320 series aircraft in June, improving its maintenance and overhaul capabilities further.

Business	PRC licenses	International licenses
Aircraft disassembly	<ul style="list-style-type: none">CCAR-145 aircraft disassembly MRO license (the first aircraft disassembler to obtain this certification)	<ul style="list-style-type: none">FAA's FAR 145 Maintenance ApprovalMember of AFRAFirst organization accredited Diamond Status of AFRA Airframe Disassembly KPI Recognition Program
MRO	<ul style="list-style-type: none">CCAR-145-R3 license for 3C-checks of A320 series (A320neo&A320ceo) and base maintenance approval for B737NG series aircraft	<ul style="list-style-type: none">FAA 145 Certified UnitEU EASA Part 145, Part M, Part 21, Part 147 Maintenance Certifications
Component sales	<ul style="list-style-type: none">CAMAC's aircraft component distributor license	<ul style="list-style-type: none">Member of ASAMember of ISTAT

3.12 Continuous efforts towards green aviation

Global aviation community is determined to combat climate change

- ✓ **ICAO: Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)**
CORSIA was launched in 2016, aiming to stabilize net CO2 emissions from international aviation from 2021. Up to date, total number of participating States reaches 118.
- ✓ **IATA: Fly Net Zero by 2050**
In Oct 2021, IATA 77th Annual General Meeting approved a resolution for the global air transport industry to achieve net-zero carbon emissions by 2050.
- ✓ **ALI: “Aviation Sustainability: Our Future”**
Industry-first Sustainability Charter was signed by more than 30 members in Oct 2022, which sets out the basis for aircraft lessors to take a united position on sustainability.
- ✓ **CALC: committed to mutually beneficial green aviation**
CALC is a council member of the Aircraft Leasing Association of Ireland (ALI) and is a lessor signatory to ALI Sustainability Charter. By taking the initiative, CALC strives to make a positive contribution and influence to a sustainable aviation future together with industry peers.

Fleet upgrade: a win-win solution

CALC's fleet upgrade solutions	Benefits for airlines	Benefits for CALC	Aviation sustainability
Purchase and Leaseback (PLB) or Direct purchase of old aircraft	<ul style="list-style-type: none"> Retire old aircraft Relieve liquidity pressure 	<ul style="list-style-type: none"> Fleet expansion Broaden income sources Build pipeline for CAAM Deepen client relationships 	<ul style="list-style-type: none"> New technology and fuel-efficient global fleet to reduce emission and save energy Sustainable development and low carbon economy with “Diamond Status” aircraft recycling services “NET ZERO” by 2050
Deliver retiring aircraft to CAAM		<ul style="list-style-type: none"> Income from aircraft disposal Share of profit as CAAM expands businesses 	
Large orderbook to provide fuel-efficient models	<ul style="list-style-type: none"> Fulfill capacity needs Reduce fuel costs Green fleet Lower carbon tax/other costs to comply with regulatory requirements 	<ul style="list-style-type: none"> Fleet expansion Lease income growth 	

China's civil aviation sets out roadmap for green development

Early this year, the Civil Aviation Administration of China issued the first roadmap on green development for China's civil aviation sector during the 14th Five-Year Plan period (2021-2025), stressing efforts to make civil aviation smarter, low-carbon and resource-efficient to achieve green transformation:

- ✓ By 2035, the green and low-carbon development system of civil aviation will have been optimized and airport carbon dioxide emissions will have peaked.
- ✓ By 2025, the carbon emission intensity of China's civil aviation will continue to decline, the proportion of low-carbon energy consumption will continue to rise and the utilization efficiency of civil aviation resources will improve.
- ✓ It also puts forward eight quantitative predictive indicators for airlines and airports.

KPIs for Airlines and Airports in China by 2025

Source: “14th Five-Year Plan for the Green Development of Civil Aviation”

0.293 kg
Fuel consumption
per ton-kilometer

0.43 kg
CO₂ emissions per
passenger unit

60 L
Water consumption
per passenger unit

0.886 kg
CO₂ emissions per
ton-kilometer



0.853 kg std coal
Energy consumption
per passenger unit

50000 ton
Sustainable aviation
fuel consumption

25%
Share of electric
vehicles in airports

5%
Share of renewable
energy consumption



THANKS

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