May/June 2023

AIRFINANCE JOURNAL

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Man on a mission

CDB Aviation will continue expanding at home and overseas under its new CEO Jie Chen

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Top-up time

Expect incremental orders with long horizons.

Avolon's 40-unit Boeing 737 Max order that was confirmed in April is a likely harbinger of lessor activity at this year's Paris air show, which will be held this June for the first time since 2019.

The 2021 edition was cancelled because of uncertainty over the coronavirus pandemic.

Despite the ongoing recovery in the aviation market, the industry faces a shortage of new aircraft as manufacturers struggle to meet delivery schedules. Concerns over the availability of skilled labour and parts, as well as inflation and production slips, show little sign of abating.

"Airbus and Boeing are oversold on single-aisle aircraft and cannot raise production levels to satisfy their existing orders," Air Lease executive chairman of the board, Steven Udvar-Hazy, tells *Airfinance Journal*. "All 737 and [Airbus] A321 new delivery streams are delayed indefinitely," he adds.

As such, leasing companies will likely engage in top-ups for their existing orderbooks instead of placing large aircraft commitments.

Lessors are also keen to demonstrate their environmental responsibility to ESG-savvy investors through more fuel-efficient aircraft as the industry seeks to reach net zero emissions by 2050.

Several lessors will opt to build out their forward Max inventories, with top-ups possible from SMBC Aviation Capital, DAE Capital, Air Lease, Aercap and Aviation Capital Group (ACG), say sources.

Beyond Avolon's order, which is scheduled for delivery from 2027 to 2030, about 100 to 150 Max and 200 A320neo-family commitments could materialise from lessors at the air show or in the second quarter, according to sources.

A320-family top-ups could come from lessors ACG, DAE Capital and Jackson Square Aviation. A few orders could also come from Chinese lessors, such as ICBC Leasing and CDB Leasing, as worsening relations between China and the USA have essentially locked Boeing out of the world's second-largest economy.

Airbus has just a "few" open slots starting in 2029 with eight years of backlog, excluding options, indicate lessors. And despite criticism from engine makers and lessors, its more aggressive production rate of 75 a month is set to begin in 2025.

At Farnborough 2022, the headline order came from Delta Airlines with its much-anticipated commitment for 100 Max 10 units, with a further 30 options. Delta will accept delivery of the largest Max variant from 2025 to 2029.

While the order was a delicate, politicised act to appease several relationships, including those in Boeing and Washington DC, it also solved the problem of asset availability and pricing; Boeing was more likely to discount the struggling Max 10 to attract a new customer, whereas Airbus would exert some pricing discipline with its best-selling product line that had few open slots.

As a result, Avolon's Max order is unlikely to include favourable pricing with five years of escalation built in and interest rate uncertainty on top. Leasing pundits are quick to note that long lead orders rarely outperform the "closer in" purchases.

Instead, Avolon's order is a move to keep pace with its competitors while maintaining close ties with Boeing for services and support.

In fact, an order with near-term availability and favourable pricing will be exceedingly difficult, if not impossible, this time around.

Airbus and Boeing revealed fresh disruptions in their narrowbody product lines ahead of Paris. Both manufacturers already face challenges, though Boeing recently resolved issues impacting deliveries of its 787 model.

Airbus did not specify the nature of its delays as *Airfinance Journal* went to press; however, it notes that the setback did not reflect a worsening of supply chain issues. The delays mainly affect the larger, in-demand A321neo variant, which now represents more than half of all Airbus deliveries.

Airbus began notifying airlines and lessors that delays will affect deliveries in 2024 of its A320neo family, with several hundred units delayed by as much as three months.

The delays do not impact Airbus's 2023 delivery total, which has already been reduced to 720.

Meanwhile, Boeing says a "non-standard manufacturing process" by Spirit Aero Systems was affecting near-term deliveries and production.

Boeing's chief executive officer (CEO), David Calhoun, says 9,000 seats will be missing from airline schedules this summer.

The US manufacturer still expects to increase Max production to 38 a month later this year and 50 a month by 2025 or 2026. It also expects to maintain its 400 to 450 Max delivery target for the year.

Even so, at what point do production delays become long-term problems?

On the lessor's first-quarter earnings call, Aercap's CEO, Aengus Kelly, said the reopening of air travel in China will "further exacerbate" the supply-demand imbalance for aircraft as airlines increase domestic and international capacity.

He says this will be particularly "acute on the widebody side" because of severely restricted new aircraft production, continued air traffic growth and the retirements or conversions of many widebody airliners into freighters that started during the pandemic.

A C-suite lessor, meanwhile, believes the situation will not resolve itself in the next 18-24 months without a recession and order cancellations.

And the lessor could be on the right track. Recent figures from the Commerce Department show that US growth eased far more than expected in the first quarter, and various economists believe a recession in the world's largest economy is inevitable.

Perhaps the execution of aviation's new investment playbook is already underway.

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Printed in the UK by Buxton Press, Buxton, Derbyshire.

Registered in the United Kingdom 1432333 (ISSN 0143-2257).

Airfinance Journal (USPS No: 022-554) is a full service business website and e-news facility with printed supplements by Delinian Limited.


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NAC hires former DAE Capital's Creevey for CFO role

Nordic Aviation Capital (NAC) has named Jennifer Creevey as executive vice-president and chief financial officer (CFO), based in Dublin, Ireland.

She replaces Morten Mikkelsen, who was the lessor's CFO since 2020.

Creevey has more than 25 years' experience in finance, including aircraft leasing, telecom, banking and healthcare. She was the CFO of Dubai Aerospace Enterprise (DAE) Capital between 2017 and 2022.

From 2008 to 2017, Creevey was with AWAS, a firm subsequently acquired by DAE. She served as chief accounting officer, leading the financial reporting team at AWAS and working on key strategic projects.

Before AWAS, she was head of investor relations for Eircom, the leading telecom provider in Ireland. In addition, she held various finance roles with Westpac Banking in Australia and Bayer Diagnostic in Ireland.

Creevey is a Fellow of the Chartered Institute of Management Accountants and has an MBA from Dublin City University.

"We are very pleased to welcome Jennifer to the NAC team. She brings a broad array of financial expertise and will be a key player to drive NAC's go-forward strategy," says Norman Liu, president and chief executive officer of NAC.

Mikkelsen joined NAC in 2017 as senior vice-president and head of group finance and will stay at NAC as a senior adviser until the summer. He played a pivotal role in strengthening and leading the development of NAC's global finance function.

DAE named Sinan Kahya last summer as a replacement for Creevey. Kahya has been with the Middle East-based lessor since October 2014.


Jennifer Creevey

O'Reilly returns to **Aergo Capital**

Eugene O'Reilly has returned to Irish leasing company Aergo Capital after 11 years at Volito Aviation Services, where he was senior vice-president marketing.

He was Aergo Capital's senior vice-president commercial between 2010 and 2011.

O'Reilly started his career in audit at PwC in 1986 and worked for Pegasus Airlines for eight years between 1992 and 2000.

O'Reilly replaces Martin Browne as chief operating officer. *Airfinance Journal* understands that Browne left the company in February.


Nathan Riggs

Aergo Capital also announced the promotion of Nathan Riggs to chief commercial officer (CCO). Riggs was the company's head of Americas and trading. He joined Aergo Capital in 2017 from Pacific Airfinance, where he served as principal for more than four years. Riggs has also served as a senior vice president with Aircastle, where for seven years he played a leadership role in shaping and growing the company into an industry-leading aircraft leasing firm.

Paul Naylor was named head of marketing. Naylor, who was the company's head of EMEA and CIS, has over 35 years' experience in his field and was a large contributor to Aergo's growth in recent years. He joined Aergo from Bristol Associates where he spent 20 years as managing director. Naylor started his career in aviation at Sumitomo Trust, and pioneered the bank's foray into aviation lending, resulting in a $500 million aviation loan book.

DAE promotes Lyons

Dubai Aerospace Enterprise (DAE) has promoted Lisa Lyons as senior vice-president trading. She has been with the lessor for 15 years, trading aircraft from the beginning.

Lyons is a co-founder of Propel Her, an association of aircraft leasing professionals that seeks to motivate women in the industry to strive for advancement in their careers.

Lyons had a busy trading year at DAE in 2022 when the lessor sold 33 aircraft – 10 owned units and 23 from its managed portfolio.

Aircraft Finance Germany recently acquired an Airbus A321 from DAE's managed portfolio that came off lease during the Avianca restructuring.

DAE Capital has an owned, managed, committed and mandated-to-manage fleet of about 450 Airbus, ATR and Boeing aircraft, with a fleet value of more than $15 billion.

BOC Aviation announces new chairman

BOC Aviation announced the appointment of Liu Jin as chairman, with effect from 24 April 2023.

Liu has been serving as the vice-chairman of the board of directors and as an executive director of Bank of China since June 2021 and president of the bank since April 2021.

He also began serving as vice-chairman of the board of directors of BOC Hong Kong (Holdings) as of August 2021.

Prior to joining Bank of China in 2021, he served as executive director of China Everbright Group between December 2019 and March 2021, President of China Everbright Bank between January 2020 and March 2021, and Executive Director of China Everbright Bank between March 2020 and March 2021.

He worked at China Development Bank as its executive vice-president between September 2018 and November 2019.

Liu had previously worked in Industrial and Commercial Bank of China (ICBC), serving as deputy general manager of its Shandong Branch, vice-chairman executive director, general manager of ICBC (Europe) and general manager of ICBC Frankfurt Branch, general manager of the Investment Banking Department of its head office, and general manager of its Jiangsu Branch.


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ABL Aviation expands in Asia with Zhao appointment

Independent and full-service aircraft investment and asset manager ABL Aviation has appointed Joey Zhao as head of the Asia-Pacific region.

Zhao previously spent eight years at Bocomm Leasing in sales positions in Dublin, Ireland. Between 2019 and 2022, he was the head of commercial and led airline relationships in EMEA and the Americas, responsible for the origination of all the transactions within the regions.

He started his career in 2011 at Bank of Communications as senior investment manager, based in Shanghai, PRC.

In his new role, Zhao will manage relationships with all airlines, lessors, banks and investors in the region, excluding Japan.

Based in Dublin, he will manage the ABL Hong Kong office.

Last October, ABL Corp, the parent of aircraft asset manager ABL Aviation, appointed Umid Sharipov as managing director of relationship management in its Tokyo office. Sharipov joined ABL Corporation from BNP Paribas, where he most recently held the position of vice-president, loans and specialised finance/ loans and market financing syndicate.

In January, the firm hired JJ Kelly from Goshawk as vice-president of pricing.


Joey Zhao

Orix Aviation promotes Sparks

Orix Aviation made a number of promotions within its commercial, investment and legal teams in April.

The lessor promoted David Sparks to vice-president, commercial. He has worked in Orix's commercial team for more than five years.

Karen Conroy and Sarah Doherty were promoted as directors of corporate planning and investment. Both have also worked at Orix for more than five years. Conroy was previously a senior auditor at Deloitte, while Doherty worked as a tax manager at Deloitte.

Orix named Daniel Costello as assistant vice-president legal. He had worked as legal counsel at Orix since 2021. He previously worked at A&L Goodbody as an aviation finance solicitor.

The lessor has promoted Niall Walsh to manager, financial operations and contracts management. He joined Orix as a senior analyst in 2021 and had also worked at Aer Lingus in fleet asset analysis and maintenance planning.

El Al appoints Shahar as CFO

Israeli flag carrier El Al has named Yancale Shahar as its new chief financial officer following the resignation of Yitzhak Eliav from the end of March.

Shahar has served as El Al's treasurer for over 17 years. Prior to El Al he worked at Bank Hapoalim.

The carrier is planning a five-year narrowbody fleet renewal programme which includes the addition of between four and seven Boeing 737s while phasing out older 737s from 2025. El Al said the plan is "subject to availability from aircraft manufacturers".

During the fourth quarter, El Al signed a lease agreement with an undisclosed company for one 737-800 converted freighter. The aircraft will be leased for six years starting from delivery in April 2023.

The carrier also expects to take delivery of its 16th 787 from the third quarter of 2023. It will then take delivery of the 17th unit purchased from the US manufacturer in the second quarter of 2024.

Warner named Boeing director global leasing

Boeing has named Michael Warner as regional marketing director, global leasing.

Warner was previously managing director at Boeing Capital Corporation (BCC).

He has built a nearly 30-year career at Boeing across various sales, marketing, business development and analysis management and executive positions.

Following the departure of Tim Myers in spring last year, Boeing realigned the Boeing Capital organisation to operate within Boeing Commercial in coordination with Boeing Treasury.

Rob Martin, BCA's chief financial officer, and David Whitehouse, Boeing's treasurer, are leading the business transition.

Richard Hammond, vice-president and global head of customer finance, is expected to take over from Myers.

BCC was Boeing's financing subsidiary tasked with arranging, structuring and providing financing for commercial aircraft, space and defence products. It was inherited in the 1997 merger with McDonnell Douglas and served as a financier of last resort for weaker-credit customers, occasionally providing backstop financing for airlines.

SMBC AC builds up innovation team

SMBC Aviation Capital (SMBC AC) has hired Sita Toolan as senior vice-president innovation of its product innovation arm, The Nest.

Toolan's role will cover environmental, social and corporate governance and sustainability, as well as driving customer and product innovations across the business.


Sita Toolan

"The airline industry will undergo many changes in the coming years with a huge focus on getting to net zero carbon emissions," she says.

Earlier this year, the Japanese bank-backed lessor signed a letter of intent with US low-cost carrier Southwest Airlines to sell carbon credits to the carrier over the next five years.

Southwest is the first customer to benefit from this new initiative and intends to use the credits to offset employee business and charitable travel.

Last year, SMBC AC launched its sustainability solution for its airline customers, including an initial $53.3 million investment in high-quality carbon credit programmes that align with United Nations Sustainable Development Goals. Under the programme, airlines and investors can acquire carbon credits from SMBC Aviation Capital either as part of a lease contract or independently.

Sukuk bonds activity to increase

Airfinance Journal estimates $15 billion-worth of deals have funded the aviation market since Emirates' first issuance. **Laura Mueller** and **Olivier Bonnassies** report.

Airlines in the Middle East and Asia have used the sukuk market to raise financing for new aircraft deliveries for about 18 years.

Leasing companies have rarely used this financing tool, preferring their access to unsecured and secured loans as well as the capital markets.

In March, Air Lease surprised the market with a $600 million sukuk issuance with a five-year tenor. The transaction was innovative because it was the first of its kind to be issued by Air Lease (ALC), representing its commitment to utilising a diverse range of funding tools, including Islamic financing.

The issuance is believed to be the first senior unsecured sukuk facility issued in North America for 14 years (General Electric did one transaction in 2009) and the first in the aviation industry since 2021, according to *Airfinance Journal*'s Deal Tracker.

Will others follow, and could Islamic financing, with its large pool of liquidity, play an increasingly important role moving forward?

One banking source says the recent ALC issuance is "interesting and somewhat puzzling".

Interesting because it demonstrates that some specific pockets of liquidity can be tapped at competitive conditions. "On top of Middle Eastern sukuk liquidity, this has also been the case recently still for Air Lease or Aviation Capital Group with Japanese unsecured bank debt for instance," he explains, adding: "Puzzling because it also shows that big investment-grade players, which used to tap easily and massively the unsecured bond market, are now looking carefully for those 'new' sources of financing."

For the banker, the key question is how long and how much those financing fixes can count as an efficient substitute to traditional, long-term aviation financing (either from aviation banks or capital markets) or even the more recent non-bank lenders, which were supposed to grow quickly, but some of which are now rumoured to be slowing down, on pause or even withdrawing from the market.

"The transaction was significant in a number of respects. Not only was it the first sukuk issuance by a corporate from North America, it was also the latest example of a market participant in the aviation sector tapping the global sukuk markets for its funding needs," says the Norton Rose Fulbright partner, Hamed Afzal, who has been advising on sukuk transactions for more than 15 years.

"The transaction is also in line with the global trend of an increasing number of western organisations looking to the deep liquidity pools in the Middle East for their funding needs. A significant number of Middle East-based banks and asset managers are notable investors in sukuk. Off the back of continued high oil prices and other macro-economic trends which are boosting liquidity across the region, this is another example of a western corporate eyeing Middle Eastern capital, this time in the fixed-income space."

Norton Rose Fulbright believes this is an area that has the potential for significant growth.

"Principal drivers include not only regional airlines issuing sukuk, as they continue to experience exponential growth with a commensurate requirement to fund that growth, but also, as demonstrated by the Air Lease Corp transaction, international players which are starting to eye the Islamic capital markets," says Afzal.

"The ALC transaction could be a watershed moment in the global sukuk landscape, as conventional organisations, including airlines, based in North America realise that investing the incremental effort in structuring and issuing a sukuk – which often they have the underlying assets to do – may have significant advantages in the current climate over issuing a conventional bond."

Airfinance Journal's Deal Tracker estimates that $15 billion-worth of sukuk transactions have closed since 2005.

Over the past few years, the aviation market has seen a number of aviation entities make a foray into the Islamic finance market. Airlines, especially in Asia and the Middle East, dominate the market, while Abu Dhabi Global Markets and Dubai Aerospace (DAE) have been the other issuers.

DAE priced a $750 million sukuk at 3.75% in late November 2020. The Shariah-compliant, dollar-denominated transaction that matures in February 2026 was part of a trust certificate issuance programme of up to $2.5 billion from issuer DAE Sukuk.

Abu Dhabi Global Market (ADGM) tapped the market in 2018. The transaction, a first for ADGM as a sukuk and aircraft asset-backed deal, followed the completion of the first aviation sale and leaseback transactions arranged by Natixis in ADGM in December 2016 and the licensing of three aviation leasing companies in ADGM in 2018.

Middle East carriers have issued about $8.5 billion-worth of sukuk deals since 2005.

Etihad Aviation Group is the largest issuer with three issuances, according to the data, worth $3.6 billion. In November 2020, it raised $600 million via the issuance of what it described as the "world's first transition sukuk", a form of Islamic financing linked to Etihad's carbon reduction targets and investments in next-generation aircraft. The issuance partly paid for a $1.5 billion debut sukuk bond with a five-year term issued in 2016 with a coupon of 3.86%.

The transaction included many firsts. It marked the first sustainability-linked issuance for the aviation sector and the first transition issuance for the aviation sector. The deal also represented the first sustainability-linked bond structure to adopt the purchase of carbon offsets instead of coupon step-ups.

Emirates Airline Group last tapped the market in March 2018 with a $600 million 10-year sukuk at a yield of 4.6%. The Dubai-based carrier first tapped the sukuk market in June 2005 and repaid the $550 million bond issuance in 2012.

In 2015, the Middle East carrier also launched innovative structures such as an export credit agency (ECA)-backed sukuk issuance opening a new avenue for pre-funding aircraft through a Shariah-compliant structure. The 10-year sukuk bond, guaranteed by UK Export Finance, was the largest capital markets offering involving an ECA guarantee.

In the Asian market, airlines have issued about $3.8 billion-worth of transactions since 2012. Air Asia, Malaysia Airlines, Garuda Indonesia and Pakistan International Airlines have issued bonds in that market.

ALC's inaugural sukuk

The $600 million transaction priced at a 5.85% coupon. Fitch Ratings and Standard and Poor's rated the five-year senior unsecured sukuk 144A format BBB.

Arab Banking Corp was the arranger in the transaction, Citigroup was the structuring agent.

Arab Banking Corp International, Al Rayan Bank, Deutsche Bank Securities, Dubai Islamic Bank, Emirates NBD, JP Morgan Securities, Kuwait Finance House and Warba Bank acted as joint lead bookrunners.

The initial price talk was 215 basis points (bps) over Treasury, with guidance at 190bps over Treasury. As a 144A/Reg S issuance listed on the London Stock Exchange, the sukuk was open to the global investor community. The transaction launched for $600 million-worth of orders but the transaction was 3.5 times oversubscribed.

In March, the US Federal Reserve lifted the funds rate to the new range of 4.75% to 5%, the highest level since 2007. The European Central Bank and the Bank of England also opted to increase rates, despite instability in the banking sector that was partly brought about by aggressive monetary policy.

"This was a tremendous soaking of additional debt capital financing at rates that were cheaper than what we could have achieved in the US bond market," ALC's chief executive officer, John Plueger, tells *Airfinance Journal*.

ALC had $2.4 billion in peak demand on the transaction.

"And for a market that most view as pretty small, that is fairly close to the demand that we see on our US deals," says Daniel Verwholt, senior vice-president and treasurer, ALC.

"We generally get about four to five times oversubscription. And at that level, it was four times oversubscribed on the $600 million that we ultimately printed," he adds.

Verwholt says that the deal priced five to 10 basis points inside what ALC would have expected in the US bond market.

The lessor began discussions about a possible sukuk before the pandemic as part of a campaign to broaden its debt providers.

"During the past six years, we have been expanding our bank group, and we also doubled the size of our revolver to $7.4 billion. Arab Banking Corp participated in the revolver and said, 'come over here and talk to our investors about sukuk'.

"But time moved on, then Covid hit, and then finally, last September, after ISTAT Morocco, we went over and started doing some non-deal roadshow meetings and got a very positive response," he explains.

Through the sukuk, ALC succeeded in its drive to engage different investors, with 80% of the deal going to Middle Eastern investors.

"We view this as a watershed moment for the sukuk because it was the first time a North American corporate with the right profile issued. GE Capital and Goldman Sachs did issues 15 years ago, but they are financial institutions, and these investors want hard asset profiles from corporate names to achieve their investment objectives," says Verwholt.

Although the sukuk sounds complex and confusing, Verwholt reassures that the structure "looks, feels and acts" like senior unsecured debt.

"It's a senior unsecured instrument that is pari passu with all of our other senior unsecured bonds and fixed-rate dollar financings," he says.

It also proved favourable to other funding options.

"The fact that you could do the sukuk in dollars on a fixed-rate basis and have no overlap with the bond buyers in the USA or Europe made it very attractive, compared with the euro or other non-dollar markets," adds Verwholt.

Extra capacity

The structure is repeatable, and he says that, given the time and effort put into the financing, more deals from ALC or another investment-grade lessor are likely.

"We're hopeful that people will see our transaction and won't think of it as a nice one-time trade and will spend time in the Middle East working with investors because there is a sophisticated capital base over there," comments Verwholt.

ALC will look to include the sukuk market as part of its annual funding plan and could return to the sukuk market annually to every 18 months.

He adds that the market is available to other lessors willing to spend time educating investors, but investment-grade ratings are important.

"Middle East investors take a lot of comfort and credibility in the ratings, and that's why investment grade has always been so important to us as it significantly expands access to capital," says Verwholt.

"When interest rates were zero, it was easy for unrated or high-yield borrowers to raise money. But it turns out that investment-grade ratings matter a lot in periods of higher volatility. Trying to scrape warehouse money out of the market right now that's tough," he adds.

ALC has unencumbered assets exceeding $27 billion as of 31 December that provide the company with substantial flexibility in its funding plans.

However, the assets associated with the sukuk are not encumbered, and no owner provisions exist.

"And because it's not secured debt, our management team likes it," says Verwholt. "We prefer to finance our business on an unsecured basis as we believe it is the best and most flexible option. So, getting this type of funding without securing an aircraft fleet is always a win."

The issuance also will expand ALC's banking capital as it looks to finance a $25 billion orderbook over the next five years.

"The incremental bank appetite that we're going to get on the back of this is probably pretty substantial, at least a couple of $100 million of bank capacity, whether in the form of a revolver or term loan," he says.

The way that will materialise is "sort of an inverse to normal" relationship, he explains.

"The banks usually lend first, and then you see the capital markets opportunities. In this case, and this is how it was described to us back in September, they wanted to see a sukuk transaction, where their bank treasury portfolios buy a portion of the bonds. Once the bank treasury portfolio is comfortable, they'll start lending on an unsecured basis."

But as aircraft delivery delays continue, will ALC need to raise additional funding to offset delayed revenue streams?

"That's where the revolver is key, and ours is $7.4 billion. That offers pure flexibility. With all the delivery delays, flexible debt options are huge. Otherwise, you're raising all this debt, and rates are rising, and if there is negative carry, you cannot deploy it into the aircraft themselves," says Verwholt.

Funding options

With the sukuk complete, ALC continues to explore other funding sources, including export credit support and euro transactions.

"ECA conversations have been constructive. We see them re-engaging in a way that is good for the market overall in terms of wanting to get more involved in the lessor pipeline for deliveries, given that we're buying roughly two-thirds of production," says Verwholt.

He adds the ECAs realise they need to evolve their structures to work for an investment-grade lessor.

"It shouldn't be the same structure an airline will get."

In January, speaking at *Airfinance Journal*'s Leaders Lunch, Air Lease's executive chairman of the board, Steven Udvar–Hazy, revealed that the lessor was considering a more "exotic" version of the traditional export credit offering.

He said the lessor could "test the waters for 3-5% of the debt portfolio" with government-guaranteed structures from the US Export-Import Bank and European export credit agencies.

Udvar-Hazy would like to see the structure include "light covenants" and a special purpose company (SPC) rather than a more restrictive mortgage structure.

"So, maybe instead of having a mortgage on the aircraft, which reduces our ability to mobilise the aeroplane and move around to different jurisdictions, maybe just put the aircraft into an SPC and then pledge some of the shares to the SPC. Then, if we move the aeroplane to another jurisdiction, we don't have to get permission from 20 law firms," he adds.

Cathay still at only 50% of pre-Covid capacity

Hong Kong SAR's Cathay Pacific continued to operate at just half of its pre-pandemic capacity levels in March, and serious loss-making at associate Air China is not helping either, reports **Dominic Lalk**.

Cathay Pacific Group, including airlines, subsidiaries and associates, has reported an attributable loss of HK$6.55 billion ($835 million) in 2022, worsened from attributable losses of HK$5.53 billion in 2021.

The second-half 2022 results for Cathay airlines and subsidiaries saw a marked improvement over their first-half 2022 results, reporting an attributable profit of HK$2.26 billion in the second half of 2022, but an attributable loss of HK$255 million for full-year 2022.

Explaining the difference between the airline and group results, Cathay's chairman, Patrick Healy, noted the significant drag from the group's Chinese mainland business.

"The results from associates, the majority of which are recognised three months in arrears, reflected the continuing impact of the Covid crisis on our Chinese mainland investments. These contributed a very significant loss of HK$6.3 billion for 2022 at the group level," he says.

"Taken as a whole, therefore, the Cathay Pacific Group, including our airlines, subsidiaries and associates, reported an attributable loss of HK$6.5 billion for the year. This compares with a loss of HK$5.5 billion in 2021," says Healy.

"Looking first at the businesses we directly control – before the contribution from associates – our airlines and subsidiaries reported an attributable profit of HK$2.3 billion in the second half of 2022, which represented a marked improvement over a first-half loss of HK$2.5 billion, generating an attributable loss of HK$0.3 billion for the full year, which compares to a loss of HK$3.8 billion for 2021.

"When compared with the very significant losses we made at the airline and subsidiaries level in the first year of the pandemic – HK$20.4 billion in 2020 – this close-to-breakeven performance represents a remarkable turnaround," he adds.

The difficult start to the year initially had an adverse impact on Cathay's monthly operating cash burn. However, following the Hong Kong SAR government's initial adjustments to travel restrictions and quarantine requirements from May 2022, Cathay

"When compared with the very significant losses we made in the first year of the pandemic this close-to-breakeven performance represents a remarkable turnaround."

Patrick Healy, chairman, Cathay Pacific

returned to being operating cash generative towards the end of the first half of 2022.

Further adjustments to restrictions came into effect in Hong Kong SAR in the second half of the year, and Cathay was operating cash generative in the second half of 2022 and consequently overall for the full year.

The group's available unrestricted liquidity stood at HK$27.2 billion as at 31 December 2022.

Cathay anticipates that the group – comprising passenger airlines Cathay Pacific and HK Express – will be operating about 70% of its pre-pandemic passenger flight capacity by the end of 2023, with an aim to return to pre-pandemic levels by the end of 2024.

At the end of the first quarter to 31 March, Cathay group capacity had been restored to about 50% of pre-Covid levels only.

At the end of 2022, Cathay Pacific had 181 aircraft, HK Express had 26 and Air Hong Kong had 15 (a total of 222 aircraft).

Of those, 41 passenger aircraft remained parked in locations outside of Hong Kong SAR. In 2022, Cathay brought back 24 aircraft that it had moved overseas for long-term parking to the special administrative region, and it says it will be bringing back more aircraft in line with operational requirements.

Cathay took delivery of five new Airbus A321neo and A350 aircraft in 2022, and the group anticipates a further 11 deliveries in 2023 comprising two A350-900s and nine A321neos. Five of the upcoming A321neos have been designated for mainline Cathay, while the remaining four are slated to enter service with the HK Express low-cost vehicle.

In late April, *Airfinance Journal* broke the news that Shanghai-based Bocomm Financial Leasing had finalised a four-aircraft A321neo sale and leaseback top-up transaction with Cathay, with the first unit from the new deal delivered by Bocomm Aviation Leasing Ireland to Cathay on 21 April.

Bocomm Leasing had already completed a five-aircraft A321neo sale and leaseback transaction with Cathay in 2021. Following this latest deal, the Shanghai-based lessor has placed a total of 15 aircraft on lease with Cathay and its subsidiary HK Express, according to the lessor.

Market sources note that Cathay is tapping the market for up to 10 A330 freighter aircraft to replace the A300F fleet at its Air Hong Kong cargo subsidiary. Air Hong Kong over the past few years inducted six A330 cargo units but still needs to replace nine A300Fs.

Moreover, market sources tell *Airfinance Journal* that Cathay is in negotiations with Airbus for an order of up to 50 additional aircraft, mostly A320neo-family units for HK Express, but also for A330-300 replacement requirements.

Cathay Pacific Group believes that based on its available unrestricted liquidity as at 31 December 2022, as well as its ready access to both loan and debt capital markets, it will have sufficient financing capacity to fund this material investment in its fleet and ride out China's drag on its bottom line.

CALC reaches crossroads

Many people in the leasing space say CALC has bitten off more than it could chew in recent years and that geopolitical developments are not exactly favourable either. **Dominic Lalk** reports.

Market insiders tell *Airfinance Journal* that Hong Kong SAR's China Aircraft Leasing Group (CALC) is still in the market seeking buyers for various portfolios of lease-attached narrowbody and widebody aircraft.

Saudi Arabia's Avilease, however, is said to have cooled on acquiring a significant chunk of the CALC fleet while the new entrant is taking a closer look at other portfolios in the market, including Standard Chartered and ALAFCO.

Earlier this year, CALC went to market with a request for proposals for 30 lease-attached new-technology aircraft – 27 narrowbodies and three widebodies. Part of this portfolio remains undelivered as *Airfinance Journal* went to press, including all Boeing 737 Max aircraft in the mix. All lessees attached are "foreign" – ie, non-Chinese carriers.

Sources say CALC was also seeking interest for another slightly smaller portfolio with leases attached to Chinese players. This, however, was met with obviously little interest from global leasing companies, many of which are currently reducing their exposure to China.

The chairman, Steve Udvar-Hazy, said recently that Air Lease (ALC) will deliver just two aircraft into China in 2023 as part of efforts to reduce its netbook value exposure to mainland carriers.

Many in the leasing space say CALC has bitten off more than it can chew in recent years and that geopolitical developments did not exactly help either.

CALC has one of the largest orderbooks in the industry. The lessor has more than 200 aircraft on firm order, while its current fleet stands at some 170 aircraft. About 130 Airbus A320neo-family aircraft are due for delivery in the coming years, as well as 66 Max units and some 30 Comac aircraft.

The lessor has been negotiating to sell and transfer part of its future orderbook positions and there are potential takers, people in the know tell *Airfinance Journal*. This, however, was allegedly met with concerns and objections from at least one key original equipment manufacturer and so the negotiations are said to have stalled.

In October 2022, China's Communist Party is understood to have finally given direction for the sell-off of western airline exposure by Chinese lessors — a policy change *Airfinance Journal* first flagged in autumn 2021 when it broke the story of CK Asset Holdings disposing of its AMCK leasing portfolio to Carlyle Aviation.

China wants its aviation industry, including lessors and financiers, to focus on domestic airlines and move away from US dollar-based international aspirations.

With the US dollar remaining strong, now appears as good a time as ever for CALC to dispose of current and future assets and become a leaner and meaner organisation.

Shareholder concerns

But there is apparently a whole lot more to the story. CALC's main shareholder, China Everbright Bank, is said to be among the reasons the lessor is looking to scale back its growth aspirations.

Mainland sources say that Everbright is concerned by and following the latest Communist Party directives on foreign lease exposure, and struggling to secure sufficient financing for CALC's growth, particularly on its orderbook capital expenditure requirements.

Another source has suggested to *Airfinance Journal* that Everbright Bank's own leasing arm – China Everbright Leasing – could pick up some of CALC's domestic portfolio in a trade and rebalancing effort.

Certain industry players *Airfinance Journal* has spoken to have also questioned whether the current developments at CALC were part of founder and key principal Mike Poon's "exit strategy".

Some have said Poon was "on his way out". Others have referenced the family trust that Poon and his wife, Christina, established last year for "long-term family planning and charity purposes", saying this indicated his intentions to step back from the business.

2022 result

For the 12 months ended 31 December 2022, CALC's total revenue was HK$4.17 billion ($531 million), up 27% from HK$3.28 billion in 2021. Operating profit for the year amounted to HK$775.2 million, a decrease of HK$44.7 million or 5.5% compared with HK$819.9 million in 2021.

Total lease income from finance leases and operating leases for the year 2022 amounted to HK$3.54 billion, compared with HK$2.5 billion in 2021, an increase of HK$1.04 billion or 41.7%. In 2022, the group's average lease rental yield of the finance leases and operating leases was 13.8% versus 12.9% in 2021 and 11.7% versus 11.5% in 2021, respectively.

Average lease rental yield for finance leases and operating leases is calculated by expected annualised gross lease receipt divided by net book value of aircraft. Weighted average lease rental yield of the group was 11.9% versus 11.6% in 2021.

Profit attributable to CALC shareholders in 2022 was HK$73.6 million, down steeply from HK$525.8 million in 2021. Without Russia write-offs, adjusted net profit would have reached HK$512.6 million.

CALC delivered 28 aircraft in 2022 – 18 from its orderbook and 10 aircraft via purchase and leaseback arrangements. During the year, the group also sold five aircraft to its aircraft asset management joint-venture platform and third parties.

The CALC fleet stood at 176 aircraft at 31 December 2022, including 150 owned and 26 managed.

The 30 aircraft confirmed to be ready for disposal as per the recent request for proposal comprise three widebodies and 27 narrowbodies.

The widebodies are two 787-9 aircraft with leases attached to Vietnam's Bamboo Airways, as well as a young A330-300 with Iberia.

The narrowbody assets comprise eight A320neos and six A321neos, six 737 Max aircraft and seven Airbus-family current generation aircraft – four A320s and three A321s.

There are four 737 Max 8s with future leases attached to Virgin Australia, as well as two 737 Max 9s with future leases attached to Aeromexico.

The A321neos operate for Taiwan's China Airlines and Volaris (two each), alongside two A321neos, one each attached to Frontier Airlines and Hawaiian Airlines.

The A320neos are with Icelandic's Play, Chile's Jetsmart Airlines (two), Chile's Sky Airline (two), Spirit Airlines, Air Cairo and Pegasus Airlines.

The young current-generation A321s have leases attached to Air Macau (two) and Japan's Peach Aviation. The A320s are with Air India (three) and Jetstar Japan.

ESG risk and transparency in aircraft leasing

Understanding climate risk and increasing transparency around aircraft emissions is a key first step for the industry's net zero ambitions. **Hugh Davies** reports.

The focus on sustainability in the aviation sector comes with its own risks as well as rewards as the industry sets its sights on reaching net zero by 2050.

Public environmental, social and corporate governance (ESG) reporting, and emissions disclosure in particular, is becoming more broadly expected by lenders, investors, shareholders and other stakeholders, both as a way to monitor companies' progress as well as avoid greenwashing.

Given the leasing community's increased share of ownership of the commercial fleet, its ability to weather the pandemic (for the most part) unscathed, and airlines' lacking the financing or delivery slots to enable the transition, aircraft lessors have a significant role to play around sustainability.

Will cost of funding become more expensive as financiers start to incorporate ESG metrics into their lending policies for aviation?

In an interview with *Airfinance Journal*, Barry Moss, co-chair of PACE and managing director of Avocet, said the Russian invasion of Ukraine, a situation which effectively closed an entire aircraft market overnight, has prompted lessors to increase the level of scrutiny on geography and credit risk.

"There are only a couple of degrees of separation between the Russia situation and climate change risk," says Moss.

"It's all about the risk and analysing that risk and pricing it into a deal and, at the moment, climate change risk is not being priced in."

He argues that it is only a matter of time before ESG becomes more of a factor in determining ratings.

"Up until now credit ratings agencies have had no engagement with this at all. They don't appear to understand climate change risk and have largely been ignoring it. That will have to change because of how quickly the situation is changing."

Market-based measures

The European Union Emission Trading Scheme (EU ETS) is the mechanism implemented in Europe and is complemented by the International Civil Aviation Association's (ICAO) carbon offsetting and reduction scheme for international aviation (Corsia), which covers international flights.

However, the complicated structure and goals of Corsia mean that lessors necessarily do not understand it very well, though that is changing rapidly, according to one source.

Another source points out that, despite the scheme being voluntary, airlines, and therefore lessors, cannot afford not to comply with additional costs associated given the public's perception and understanding of sustainability and ESG.

"The problem with Corsia is that it has a three-year credit risk accumulation risk cycle rather than an annual accumulation under the EU ETS and UK ETS," explains Moss.

Under Corsia, in the event of an airline failure, a local government could try to frustrate a lessor's ability to repossess aircraft by arguing that compliance has not been in accordance with ICAO recommended practices under the Corsia scheme.

"If anyone thinks this is implausible then they should focus the situation in Vietnam where the Aviation Working Group has put the country 'on watch' after Vietnamese courts blocked the return of several aircraft to a lessor earlier this year," says Moss.

The other problem is the multitude of jurisdictions covered under Corsia.

"One hundred and ninety three member states are part of ICAO, so it will be difficult to know how each member state has transcribed the ICAO Standards and Recommended Practices under Corsia into local law," he adds.

He also notes that it could be up to five years before any allowances are required to be surrendered.

"Anyone signing up to a lease today may not understand or realise they are signing up to this exposure. I'm sure their awareness of the situation is far greater now after the situation in Russia due to the crisis prompting a greater focus on country and political risk."

Emissions reporting

Lessors and other investors looking to diversify or renew their fleets are starting to look at ways of measuring the climate impact of aircraft.

Lessors, as one of the fastest-growing group of aircraft financiers, have begun expanding the amount of information related to CO_2 emissions in their ESG reports as demand for transparency around scope 3 climate impacts increases.

Regulators are also pushing towards disclosure of non-CO_2 impacts, which, when combined with CO_2, could account for up to 5% of global emissions. This is particularly the case in Europe, which means Irish-based companies will have to find ways to measure non-CO_2 effects as well.

"Lessors are particularly interested because they don't necessarily have any data on aircraft fuel burn," explains Nicolas Meijers, co-founder of Estuaire, a start-up advisory firm working with airlines and lessors to establish a fleet emissions baseline to monitor improvements in both CO_2 and non-CO_2 emissions (nitric oxide, contrails, etc).

"It also provides them with a way to show advantages they might have operating new-generation aircraft or turboprops versus other lessors," he tells *Airfinance Journal*.

"The demand for greater transparency is definitely there," says Meijers, adding: "All of the lessors want to produce ESG reports either internally or publicly. What we also see is that the leasing companies usually want to educate themselves as well and understand the impact."

One source agrees that even if lessors are not publicly disclosing emissions data, they would likely be communicating that information internally to shareholders who are increasingly concerned with sustainability.

In its first ESG report published publicly for 2022, regional lessor Nordic Aviation Capital acknowledged that aircraft lessors, as scope 3 emitters, have an important role to play decarbonising the sector, despite not being directly involved in aircraft manufacturing and operations.

In its 2022 ESG report, UAE-based lessor DAE Capital disclosed that it has reached more than 50% of its owned fleet being new-generation aircraft, three years ahead of schedule.

"Our airline customers continue to work to decarbonise their operations and, as an aircraft lessor, we play a key role in financing this fleet renewal and generating new business through these transactions while reducing our scope 3 GHG emissions," the lessor stated.

DAE Capital's scope 3 emissions, which would include emissions stemming from operations of its leased fleet, were not disclosed; however, the lessor aims to achieve "net zero leased aircraft emissions" by 2050.

"We're a long way from being able to quantify the financial impact of ESG and sustainability but we are working closely with our leasing partners to develop KPIs which aid decarbonisation."

Ulrike Ziegler, president, Impact

In the sixth iteration of its ESG reporting, Aercap said that environmental regulation and the general public's increasing interest in less carbon-intensive travel will continue to drive airlines favouring aircraft with lower emissions and exiting older technology assets more quickly.

This is expected to affect lease rates on Aercap's older technology aircraft and also poses a risk to their residual values, says the lessor.

Scope 3 emissions make up the biggest impact for lessors, accounting for more than 90% of emissions in most cases. However, lessors have the least amount of control over this category.

Impact, a non-profit platform for aviation investors and financiers, is developing key performance indicators (KPIs) for airlines that are pragmatic yet sufficiently precise to use as a benchmark: the absolute carbon footprint of airlines, emissions intensity and decoupling CO_2 emissions from capacity growth.

While the latter is possible for the airlines, as scope 1 emitters, for lessors it is significantly more complex because it involves scope 3 emissions, Philipp Goedeking, the founder and managing partner at Avinomics, and Impact member tells *Airfinance Journal*.

"The challenge is to reconcile the type of aircraft and the sustainability of the airline. One of many approaches we have is looking at it from a portfolio perspective and use portfolio analysis techniques, but it remains extremely difficult to factor in lessor emissions as a lessor's scope 3 emissions are the scope 1 emissions of multiple airlines."

Ulrike Ziegler, president of Impact, says the platform is in the fact-finding stages of developing lessor KPIs.

"We're a long way from being able to quantify the financial impact of ESG and sustainability but we are working closely with our leasing partners to develop KPIs which aid decarbonisation," she tells *Airfinance Journal*.

"Our expectation though is that there will be implications in terms of access to capital markets, cost of capital as well as the devaluation of older aircraft. This is why we are trying to establish risk management strategies today and not wait for regulations to do the work for us."

The levers to reach net zero are numerous but all have one thing in common: extremely large amounts of investment.

Sustainable aviation fuel is one area identified as one of the key elements in helping achieve the industry's net zero 2050 carbon goal.

However, the industry will require a huge boost in SAF supply to meet the demand for bio jet fuel required to achieve net zero carbon emissions.

In 2022, global SAF production was less than 0.1% of jet fuel, with just 240,000 tonnes of production, whereas the industry will require about 400 million tonnes of SAF globally by 2050 to reach net zero, according to data from consultancy firm ICF.

Another more direct method is through fleet renewal. Significant investments are being made into true zero emissions future technology propulsion systems. In the meantime, airlines and lessors are putting emphasis on incorporating the latest technology aircraft.

However, having a higher percentage of newer aircraft in the fleet does not necessarily translate to lower absolute emissions, given the industry's growth trajectory over the coming decades.

"There is a tendency to think that new-technology aircraft will lead to fewer emissions," says Goedeking, highlighting the importance of the decoupling KPI and how similar KPIs could be applied to lessors.

"While progress is being made whenever older aircraft are replaced with newer, more fuel-efficient aircraft, simply replacing older aircraft with new-generation aircraft is not a viable strategy when it comes to reducing absolute emissions.

"As long as capacity growth overrides our ability to reduce CO_2," he adds, "that worsens the problem and makes it harder to justify the sector's licence to grow."

Lessor provides **home comforts**

Spring Airlines' in-house leasing arm produces lower-cost funding/cost savings for the carrier, its vice-president, Zhang Wu'an, tells **Elsie Guan**.

Until it established its own leasing unit, Chinese low-cost pioneer Spring Airlines frequently tapped global lessors for its fleet growth. With Spring Airlines Leasing now firmly in place, the tide appears to have turned, Zhang Wu'an, vice-president at Shanghai-based Spring, tells *Airfinance Journal* in an exclusive interview.

"Recently, Spring Airlines mostly adopted finance leases via its leasing arm – Spring Airlines Leasing – which was registered in the Shanghai Free Trade Zone, using the platform to connect with long-term fixed-asset loans denominated in RMB [renminbi] from major Chinese domestic banks," explains Zhang.

Spring Airlines Leasing was established in 2014 by the carrier to address it's aircraft financing needs.

"The leasing arm not only benefits from the preferential financial and tax policies of the free-trade zone, but also fully utilises the advantages of low-cost funds in Shanghai as a financial centre," comments Zhang.

Spring Airlines has actively promoted Chinese leasing companies to switch to renminbi lease rental structures and thereby help reduce exchange rate exposure.

"We actively use foreign exchange derivatives such as currency forwards to smooth out exchange rate risks through overseas branches," says Zhang.

In terms of interest rate risk management, Spring Airlines uses fixed-rate loans, adjusts financing structures, select appropriate loan types and terms to reduce interest rate risk.

Spring's fleet strategy could be summarised as "single, new, green and quantity", in line with national procurement orders from the top, and supplemented by market-oriented operating leases.

"Single" refers to a single aircraft type (Airbus A320-family) and a single cabin layout (186 seats); "new" means actively adopting new-generation aircraft (A320neo series) to reduce operating costs; "green" represents low carbon emissions to meet environmental protection requirements and sustainable development goals; "quantity" reflects economies of scale.

When the airline was first launched in 2005 it relied exclusively on global lease players to fuel its growth via operating leases. As it matured, self-purchase became the primary channel.

> *"The leasing arm not only benefits from the preferential financial and tax policies of the free-trade zone, but also fully utilises the advantages of low-cost funds in Shanghai as a financial centre."*
>
> **Zhang Wu'an**, vice-president, Spring Airlines

Aircraft taken up by Spring Airlines in recent years are from the carrier's orderbook with Airbus on finance lease and sale and leaseback transactions, notes Zhang.

As of 31 March, Spring Airlines had a fleet of 117 A320-family aircraft, according to the listed carrier's filing with the Shanghai Stock Exchange.

Its A320 fleet comprised 43 owned units and 36 on operating lease; the A320neo fleet comprised 15 owned aircraft and 14 on operating lease; and the A321neo fleet comprised eight owned aircraft and one on operating lease as of 31 March. Currently, the purchase-to-lease ratio is about 60% to 40%.

Airfinance Journal's Fleet Tracker shows that ICBC Financial Leasing and AVIC International Leasing are Chinese lessors which lease A320-family aircraft to Spring Airlines.

Several lessors such as Aercap, BOC Aviation, Carlyle Aviation Partners, Standard Chartered Aviation Finance, DAE Capital and Macquarie Airfinance are exposed to Spring Airlines.

Spring Airlines announced last year that it would raise about Rmb3 billion ($416 million) via a private A-share placement, according to a filing with the Shanghai Stock Exchange.

The low-cost carrier issued 62,086,092 shares at Rmb48.32 per share to 14 fund management companies and asset management companies.

Spring Airlines has also utilised innovative financing methods such as bond financing and green financing.

"We are paying attention to customised leasing and capital market products for new-technology aircraft to increase the leasing of such aircraft. Spring Airlines is participating in the carbon market, reducing carbon emission costs through carbon quota trading and, at the same time, generating additional revenue," says Zhang.

Spring Airlines was one of the few Chinese carriers to post an annual profit in 2021, with a net profit of Rmb39 million and an operating revenue of Rmb10.9 billion for the 12 months ended 31 December 2021.

In 2021, the majority of listed airlines were unprofitable. Six domestic listed airlines – including the big three carriers, Shandong Airlines, China Express Airlines and Juneyao Airlines – all reported losses for the 12 months ended 31 December 2021, except Hainan Airlines and Spring Airlines.

In terms of both passenger and cargo transportation, Spring Airlines also showed better performance in 2022.

Compared with pre-pandemic, Spring Airlines' passenger numbers last year were at 60% of 2019 levels, representing the best recovery among all of China's listed airlines, according to separate filings with the Shanghai Stock Exchanges.

With the recovery of international routes, passenger traffic has also rebounded significantly, data shows. The number of international passengers using Spring Airlines in 2022 exceeded the level of the whole year of 2021.

The decline in passenger load factor is also a common problem faced by Chinese airlines. Compared with the same period in 2019, there is still a gap of 16 to 19 percentage points. Spring Airlines' passenger load factor was still leading the industry at 74.7%.

In addition, from the perspective of passenger turnover of listed airlines, Spring Airlines was relatively higher at 50% compared with the same period in 2019.

Cargo performance of various airlines was better than passenger transportation in 2022. Spring Airlines showed 3% better volumes than in the same period in 2019.

Wang Yu, president of Spring Airlines, told National Business Daily in June 2022 that the Shanghai-based low-cost carrier is also paying close attention to the airline merger and acquisition (M&A) market following increased consolidation among state-owned carriers.

Wang told the Chinese media: "The first thing is to strengthen ourselves, keep our cash plentiful and keep our debt ratio at a reasonable level. At the same time, we will not miss any opportunities for airline M&A."

Lessors approach **refinancing juncture**

Interest rates may peak in 2023, but lessors still have $10 billion to be refinanced.

Operating lessors have taken advantage of a window of opportunity to secure funding ahead of further monetary policy action by central banks, the rescue of another bank by US regulators and before a potential US recession this year.

The developments, which were unfolding as *Airfinance Journal* went to press, could result in a more challenging financing environment for lessor borrowers as they look to pay down debt and pay for operations.

On 1 May, San Francisco-based First Republic Bank was taken over by federal regulators and most of its operations were sold to JP Morgan Chase. The failure marked the second-largest in US history and the fourth since March, following the collapse of Silicon Valley Bank, Signature Bank and Credit Suisse.

For now, talks of a spiralling banking crisis are being dismissed by financial executives and bank chiefs, including Jamie Dimon, the boss of JP Morgan.

Against this backdrop, the US Federal Reserve, the Bank of England, the European Central Bank have yet to announce their latest decisions on interest rates.

The cooling US economy plus recent banking turmoil has prompted the US Fed to start talking about a pause in rate hikes.

Many forecasters anticipate the Fed will deliver a final 25-basis-point interest rate increase in May and then hold rates steady for the rest of 2023. They also expect the USA to fall into recession sometime this year after growth slowed sharply in the first quarter to 1.1% on an annualised basis between January and March.

For now, with leading indicators of recession flashing red in the USA and concerns growing over tighter credit conditions due to recent banking turmoil, lessors would be wise to plan ahead for upcoming financing needs.

A lessor source notes borrowing costs are "nowhere near as expensive" as they could be for issuers.

The ongoing uncertainty begs the question: Should lessors be issuing more debt at the moment?

"The Fed rate is 5% and the five-year is 3.5%. We have seen three US banks fail and massive inversion in the forward curve. That has never boded well for outlook and these inversions are huge."

The lessor believes there is a risk of "much greater issues in the markets the longer this sort of disconnect continues."

According to the most recent update from *Airfinance Journal*'s The Lessor Analyst, investment-grade lessors have $98 billion of unsecured bonds outstanding, of which $10 billion is scheduled for repayment in 2023 after some maturities and prepayments in the first quarter.

The data indicates a total of $4.1 billion of lessor bonds and fixed-rate notes have matured or been redeemed early since 1 October 2022.

Unsecured bond issuances by investment-grade lessors peaked in 2021 with Aercap's funding of the GECAS acquisition. But interest rate volatility, asset sales and some operating cash flow recovery reduced the level of issuance in 2022.

However, refinancing needs are bringing the lessors back to the market in 2023, and this time with higher funding costs. For sure lessors took advantage of attractive borrowing costs for years, so deals done since the US Fed started pushing up benchmark interest rates appear expensive in comparison.

Airfinance Journal's data shows that lessor funding costs were lower in 2022 than in 2018. But a spate of recent financings indicates this is changing rapidly.

On 1 May, the same day First Republic's sale to JP Morgan was announced, Avolon priced a private offering of $750 million of 6.375% senior unsecured notes.

Initial price talk on the single-tranche deal was treasuries plus 337 basis points, according to documents reviewed by *Airfinance Journal*.

Avolon, which is rated Baa3, BBB-, BBB-, is expected to use proceeds from the five-year senior unsecured notes offering for general corporate purposes, including debt repayment. Avolon's transaction followed bond deals from SMBC Aviation Capital (SMBC AC) and BOC Aviation.

SMBC AC priced $650 million in 5.45% senior notes at $99.831 to yield 5.489%. Sources indicate that the deal, which matures in April 2028, "came in almost 40 basis points tighter than original price talk".

BOC Aviation launched a $500 million 10-year bond deal the same week. The financing was issued at treasuries plus 160 basis points for 5.015% all-in pricing.

But the deal that made the market take notice of higher funding costs came from a non-investment grade issuer, Macquarie Airfinance. The financier closed an unsecured offering totalling $500 million. The private placement of senior notes priced at 8.38% on 21 April.

Although the lessor was in the market for funding, sources indicate it opted for an unsecured deal as part of its plan to achieve the prized rating.

"It is the only reason you would do a high yield at 8 3/8ths," says a source familiar with the matter.

Another source echoes that view, adding that is necessary "to take the pain and load up on a higher percentage of unsecured financings" in order to secure an investment grade rating.

Other recent lessor deals include Aviation Capital Group, which secured financing in late March with a $600 million unsecured notes offering, which priced at treasuries plus 275 for a 6.25% coupon, according to pricing details reviewed by *Airfinance Journal*.

The deal is said to have priced "10 basis points inside where their (ACG) secondaries were implying fair value prior to the announcement".

Commenting on the recent transactions, Andy Mansell, a partner at Split Rock Aviation, told *Airfinance Journal*'s podcast: "It's a huge jump and what becomes critical now is the skyline of bond maturities. The cost of each issuance is not that relevant versus your weighted average cost of capital and how it's impacted. If you have a weighted average cost of capital of very low threes, as ACG did in 2022, and then you're first out of the gate in 2023 with more than six, your weighted average cost of capital is going to tick up quite quickly — especially if you are going out another time or two this year."

Air Lease (ALC) secured a $600 million Islamic financing on 15 March that priced at treasuries plus 185 for a 5.85% coupon. Earlier ALC secured a public offering of $700 million of 5.3% senior unsecured medium-term notes due 1 February 2028.

Meanwhile, Aircaslte turned to the secured banking market late last year. Its chief financial officer, Roy Chandran, told *Airfinance Journal* the seven-year $450 million secured aircraft financing facility was the first time the leasing company had tapped the secured market in more than six years.

However, as anxiety grows in the banking sector over talks of tighter scrutiny in lending practices, lessors could find a similar bank deal might be harder to come by as they weigh their funding options in the coming months.

Reflections on the **revolution in leasing**

William Glaister, head of Clifford Chance's global asset finance group, reflects on his career and tells **Olivier Bonnassies**, in an exclusive interview, that the firm is more US driven than it ever was.

William Glaister was until the end of April 2023 head of Clifford Chance's global asset finance group specialising in advising financiers, lessors and operators on all aspects of big-ticket asset finance transactions.

He is a one-career person having joined Clifford Chance in 1991. He graduated from University College London in 1989 with a BA reading history. He was admitted as a solicitor in England and Wales in 1993.

Glaister was seconded to the firm's Singapore office in 1996-97 and the Hong Kong SAR office btween 1997 and 2001. He became a partner in 2000.

He headed a team of 16 partners across the world with offices in New York, Hong Kong SAR, Singapore and Dubai, and passed the baton to Zarrar Sehgal, from the New York office, at the end of April.

Glaister agrees the move to appoint a new global head in North America represents a "shift" for Clifford Chance. He says it reflects the significance of the US market for the practice.

"The practice is still very global and undoubtedly remains the pre-eminent global aviation finance practice. We have partners in New York, London and Asia and some great junior talent emerging but certainly the more complex structured finance transactions in the capital markets, in particular, are tilting towards the US market. It is now more US driven than it ever was," he says.

Clifford Chance has over the years developed its US practice ahead of UK firms that do not necessarily have that level of aviation finance presence in New York. In 1991, the firm had an office in the US market but did not have a dedicated asset finance presence there.

"That really developed when the firm hired John Howitt in 2006 and, with the arrival of Zarrar Sehgal around the same time, it really launched our practice. When I look back, this was the most significant development that propelled us to allow the firm to do big-ticket transactions," he comments.

Glaister believes the capital markets will be there in the future, whether it is public or private.

"It is a dollar industry, and it will remain a dollar-funded industry for many years. I don't see that predominance of the US dollar in our industry moving away anytime soon and the US capital markets will remain the centre of funding in our industry. Funding in other currencies should develop and, in a way, it is surprising that those have not accounted for more."

"It is a dollar industry, and it will remain a dollar-funded industry for many years. I don't see that predominance of the US dollar in our industry moving away anytime soon."

William Glaister, head of global asset finance group, Clifford Chance

He recalls that the European capital markets are nowhere as deep and sophisticated as the US market to the extent there is lots of funding from pension funds. "I don't think they are so keen on some of the aviation assets."

Glaister adds: "The bank market is stronger on euro-denominated lending by definition and capital market transactions are uncompetitive pricing-wise for euro debt. They are certainly more expensive to put in place as the deal execution is more costly. The combination of those things means the lack of appetite for it in Europe when the bank market remains competitive.

"In the early '90s, the Japanese banks really started to become active in aviation alongside the Japanese leveraged lease product. Likewise, the French and German banks were more aligned to tax products at the time.

"The capital market products have been hindered because the banks have remained so strong in Europe, although the growth of the ABS [asset-backed securities] market has shown demand for capital markets when the conditions are right."

The main change in the banking market has been the gradual withdrawal of the tax allowances to finance the aviation space, with the exception of Japan and, to some extent, the French market.

"When I started, almost every financing for British Airways was a Japanese leveraged lease," he says. "Many banks were offering tax lease-linked products but as the industry developed in the late 2000s, appetite for those products was eroded by legislative crackdowns. Now we are just left mainly with the Japanese products."

Glaister agrees aviation banks will continue to fund the market, but he points out that the regulators "are not encouraging them to do long-term secured lending" particularly on assets that are not core infrastructure.

He says: "The regulatory cost of that kind of lending by banks will increase as the Basel rules evolve. In addition, the regulators will get involved in emissions-related issues (especially in Europe) and will dissuade banks from lending against assets that they don't regard as 'clean'. It is already an issue for certain banks with their shareholders, but that will become increasingly governed by the regulators."

The current debate over the EU taxonomy, and whether even brand-new, fuel-efficient aircraft are "green" or even "transitional" is evidence of this.

"I don't think they will never prohibit financing against aviation assets, but they will impose more capital requirements," he comments.

For Glaister, this provides more opportunities to alternative lenders.

"It comes back to the capital markets as most of those lenders are funding in the capital markets," he says. "They are better at intermediating the funds between the capital markets and the customers and have very little regulatory constraints."

Glaister started to work with alternative lenders in 1999 with PK Airfinance (now Apollo) but he confirms that alternative lenders are representative of the current trend of moving away from financing just mature aircraft towards brand-new asset deliveries with top-tier airlines.

"It is an attractive asset class for some alternative lenders with good security and returns. It is a good hedge within their portfolios on the global economy. They have gone through Covid and are here to stay. That is not only a trend within aviation but also in other sectors like real estate," he comments.

Glaister believes that insurance-supported financing products are allowing banks to remain active in the sector because it addresses the regulatory capital requirements and the credit diversification.

"Those products will definitely remain and address that pocket of risk exposure that insurance companies don't want to fund themselves. Insurance companies normally buy bonds, and financing aircraft individual loans is not their core business. They won't manage aircraft portfolios and therefore gaining exposure on an unfunded basis fits their strategy whilst allowing banks to obtain better reg cap treatment," he says.

Glaister has worked with the export credit agencies (ECAs) for most of his career and is not surprised by their retrenchment.

"The ECAs have moved back to their primary role: being a lender of the last resort. The development of the insurance products and the increasing role of alternative lenders has allowed them to retreat to that role," he adds. For Glaister, from a tax-payer perspective, this is fair.

He does not see the current changes in benchmark regulation, with US dollar Libor being replaced by the secured overnight financing rate (SOFR), as affecting any of these trends.

"The drive towards SOFR is driven by a specific regulatory concern over the calculation of Libor and risk of manipulation of that calculation. The desire for a term SOFR product to provide certainty has to be balanced against the regulators' desire for transparency which the overnight SOFR rates provide."

He notes that the process is less than perfect and the way in which the swaps market and the loan market have gone down slightly different paths on some issues is unhelpful. Having identified the problem, he believes the regulators should have been more proactive in implementing the solution.

> *"The cost of capital into the aviation industry is going to change and be increasingly affected by environmental issues."*
>
> **William Glaister**, head of global asset finance group, Clifford Chance

But while the benchmark changes will be permanent once the change process has been completed, in a few years' time, he does not see it as being an issue of contention going forwards. "The contentious issue is going to be the regulatory influences around emissions," he says.

Operating lessors

But for Glaister, the main change in funding the industry has been the growth of the operating lessor.

"They hardly existed back then. After barely a year at the firm, I started working on the GPA initial public offering. This was my first introduction of operating lessors and one of the first matters I worked on. Unfortunately, it fell over and spawned into the financing of the GPA ALPS 92-1 issuance, the first-ever aircraft ABS."

While GPA difficulties caused it to fracture into Aerfi (Aercap) and GECAS (owned by General Electric), ILFC was growing significantly at that time and there were also big Japanese leasing firms which started moving into the sector.

The formation of Singapore Aircraft Leasing Enterprise (now BOC Aviation) in the mid-1990s was unique in that it showed state interest in aircraft leasing (something now more prevalent). The lessor was first founded by Singapore Airlines and US lessor Boullioun Aviation Services, and the company's shareholder base broadened when Temasek Holdings and the Government of Singapore Investment Corporation invested in 1997.

The growth of operating lessors is evidenced by their share of commercial aircraft moving from high single digits in the early 1990s to now more than 50% by value.

As lessors have grown, the friction cost of moving aircraft around has come down. The nature of financing has become commoditised and implementation is relatively cheap.

"There is no novelty in doing a secured loan for an asset; it is a well-trod path. But, at the same time, the stronger lessors, those with investment-grade ratings, are funding themselves through unsecured paper. That massively reduces the friction cost of moving assets around and that gives a more competitive advantage versus secured funding.

"The operating leasing industry is where growth has most significantly impacted our sector over the past 30 years."

Glaister believes there will be a natural cap because some well-funded carriers inevitably are keen to own their assets, especially if those are core to the fleet.

But he says it is not a coincidence that the growth of operating lessors over the years has allowed the development of low-cost carriers.

"Obtaining an aircraft was always a barrier to entry for the airline industry and the operating lessors reduced that barrier," he says.

To Glaister, the dynamics of the operating lessor industry has changed over the years in terms of the new inventory lessors need to place. And their risk tolerance has extended to weaker credits as the legal environment has allowed lessors to take more risk.

"That has been facilitated on the legal side by the development of processes around aircraft repossessions. The Cape Town Convention has greatly helped but even in some jurisdictions where there is not Cape Town, the process of repossessing an aircraft 25 years ago was a massive and complex exercise for lessors. Today, lessors can repossess an asset within a few weeks if not days," he explains.

Glaister sees more consolidation activity among lessors.

"We have seen an increasing consolidation trend amongst the lessors and the increasing cost of capital, inflation in SG&A and staff costs has pushed a need to fund on unsecured basis to be competitive, and that means more consolidation is inevitable. The acquisition of GECAS by Aercap is evidence of this trend," he says.

It has almost come full circle for Glaister: from the collapse of the GPA initial public offering in 1992 to the acquisition in 2021 that has propelled Aercap into being the world's biggest lessor.

But, Glaister believes the environmental issues will be the main challenge going forward for aviation.

"The cost of capital into the aviation industry is going to change and be increasingly affected by environmental issues," he says. "Newer assets will have a cheaper cost of capital relative to older assets, but it will still in absolute terms be higher than today; and if we think about what that means for the industry, it is raising a barrier to entry to new entrants, both for airlines and lessors.

"Unwittingly, perhaps, I think this is going to drive consolidation and reduce competition."

Qantas eyes new-gen growth

Greg Manning, Qantas group treasurer, explains to **Hugh Davies** how the carrier is optimising capital structure for the long term with upcoming new-generation aircraft deliveries.

The Covid-19 pandemic has shown the resiliency of aircraft as assets that perform strongly through the cycles and that lenders are willing to finance even in the worst of circumstances.

Though banking system stress, inflation and potential recession challenges have increased market uncertainty in recent times, carriers with strong balance sheets and flexibility in sources of financing are showing strong recovery signs in the wake of the Covid-19 era.

In an exclusive interview with *Airfinance Journal*, Qantas Group treasurer Greg Manning said the company is heavily focused on aircraft ownership and long-term capital structure, leveraging the investment case for aircraft assets over the cycles.

"It's a good asset class to fund against," Manning says. "Its mobile, people know that they can get their asset back if they need to and there are strong secondary markets for almost all aircraft types."

This ties into Qantas' focus on long term-capital structure: "On average we use our aircraft for a bit over two decades and so we want those aircraft to be part of the capital structure for that period of time," he explains.

"That means we have a combination of mid-life and new aircraft being funded. We also look at unencumbered new aircraft as a good source of liquidity if we go through an external shock and need to boost cash."

He says the carrier looks to optimise the capital structure for new and used aircraft and keep a number of new aircraft on the balance sheet that it can access should the cycle turn.

"Ownership gives us operational flexibility as well as good economics. We are in a bit of a privileged position with that investment grade rating behind us – people can see the strong credit profile as well as the solid asset risk.

"If you have a strong balance sheet and are looking to hold the asset for most if not all of its useful life, ownership makes sense, especially for carriers like us," Manning continues.

The sale and leaseback market remains competitive and challenging to make the economics work, Manning says, but adds that Qantas won't rule it out in the future.

"We won't go straight away into sale and leaseback, we will look at all markets available to us," Manning says.

He reflects on aircraft financing avenues during the Covid-19 pandemic, noting that diversity of funding and access to multiple markets was critical for bolstering liquidity.

"Being active in Jolco markets, secured and unsecured markets and mid-life aircraft markets is important so that lenders are familiar with you, and you can access pockets of liquidity as they come available.

"Leasing still holds value and it doesn't mean we won't ever turn to that market. If we need the aircraft and we don't have them on order with manufacturers, we would go to the lessors to fill that gap if necessary," he says.

"With the new aircraft technology available today, we believe there is also the opportunity to work with some lessors to create a new paradigm where a leasing structure may work for those airlines expecting to hold their aircraft this long – not just the current 6, 8, 10, 12-year structures that seem to be all that can be considered today."

Market sources indicated to *Airfinance Journal* earlier this year that the carrier is looking to finance its final three Boeing 787-9 widebody aircraft in the Japanese operating lease with call option (Jolco) space.

Qantas had previously financed smaller 787-8 aircraft for group subsidiary Jetstar in the Jolco market.

Also, the Australian mainline carrier has tapped Jolco investor funds for various 737-800 narrowbody deliveries between 2012-14, *Airfinance Journal*'s Deal Tracker shows.

The majority of Qantas Group's previous Jolco financings were arranged and underwritten by banks including CA-CIB, DBS and MUFG, Deal Tracker shows.

Cost of cash

Against the backdrop of rising interest rates, Manning explains that the carrying costs of cash is less impactful than coupon increases when refinancing in the current environment.

"We're conscious that our net debt position is very low at the moment – like other carriers we've held a lot of cash through Covid and we now have more cash than floating rate debt at the moment, so rising interest rates is actually positive for us in terms of funding costs," he continues.

"Where interest rates are right now, if we want to pay down gross debt with surplus cash now and then possibly need to go to the funding markets in a year or two, the coupon will be two or three times what it was on the debt we just paid off and much more than the cost of carrying cash."

Qantas' debt maturity profile, with a slight spike in 2024, is "less about next year still being modest but relatively high, and more about every other year being low."

"We did a lot of work pre-Covid in spreading out our maturity profile. The flatter the debt maturity profile you have, the better you will cope with the different cycles that aviation goes through and avoid being stuck with a peak at the wrong time."

Qantas expects some financings next year, with an A$250 million ($165 million) unsecured bond maturing next year.

"We can be opportunistic about that, either paying it off with cash or refinancing it but we'd probably only do the latter if the tenor was there and wait for a better long-term rate."

For other secured financing coming up next year, paying that off unencumbers the

"It's undeniable that there are supply chain issues affecting both new aircraft as well as for MROs bringing aircraft back from hibernation."

Greg Manning, group treasurer, Qantas

assets which plays into Qantas' view on developing a long-term capital structure, Manning explains.

Project Winton

Qantas has selected the Airbus A220 and A320neo families as the preferred aircraft for the long-term renewal of its domestic narrowbody fleet.

The purchase, announced in 2021 and dubbed 'Project Winton', represents the largest aircraft order in Australian aviation history.

The firm commitment for 40 aircraft – 20 A321XLRs (extra long-range) and 20 A220 aircraft.

Qantas will also have a further 94 purchase right options on aircraft over a 10-plus year delivery window as its existing Boeing 737-800s and 717s are gradually phased out.

This order combines with the existing firm order of 109 A320s for Jetstar into a single Qantas Group narrowbody order of 299 aircraft, half of which are firm orders and half are purchase right options.

Part of this new deal includes combining these two orders so that the Qantas Group can draw down on a total of 299 deliveries across both the A320 and A220 families as needed over the next decade and beyond for Qantas, QantasLink and Jetstar. Recently the airline added a further nine A220 aircraft to last year's order for 20 aircraft by exercising existing options (as part of the 299 order), which demonstrates confidence the airline has in the outlook and what the A220 will bring to the domestic market. Qantas expects to receive its first A220 towards the end of the year.

On average the airline expects to receive one new aircraft every three weeks for the next few years.

Placing a large aircraft order earlier in the pandemic put Qantas towards the front of the queue for new aircraft deliveries, mitigating to some degree production constraints facing the industry today.

"It's undeniable that there are supply chain issues affecting both new aircraft as well as for MROs bringing aircraft back from hibernation.

"That early mover advantage means that, regardless of whether the supply chain is moving timing to the right, we're still sitting at the front of the queue whenever they come… we're happy with the timing of that and the slots that we got," Manning says.

Airfinance Journal's Fleet Tracker shows that the Qantas mainline fleet consists of 75 737-800s, with an average age of approximately 15 years.

Its low-cost subsidiary Jetstar has relied on the operating lease market for A320s. It operates a fleet of nearly 70 A320-family aircraft, with around 30 leased from lessors including SMBC Aviation Capital, BOC Aviation, Macquarie Airfinance, Avolon and Aercap.

In late July last year, Jetstar Airways received its maiden A321LR from an order placed by Qantas Group.

Delivery of a further eight A321LRs are scheduled through July 2023, with nine more A321LRs expected to be delivered by around mid-2024. A further 20 A321XLR aircraft will arrive between 2024 and 2029, providing an even longer range of narrowbody flying.

Alongside the narrowbody order, in 2022 Qantas purchased Airbus A350-1000 aircraft as part of long-term project to launch non-stop flights from Sydney and Melbourne to London and New York.

The Australian national carrier has placed an order for 12 Rolls-Royce Trent XWB-97-equipped A350-1000s with deliveries to begin around the end of 2025 and be completed by mid 2028.

The Pacific region is expected to take delivery of 920 new aircraft over the next 20 years, generated by an average growth in passenger traffic in the region of 3.2% per annum, according to Airbus' most recent Global Market Forecast.

The forecast for new aircraft includes around 750 single-aisle aircraft like the A220 and A320 families and around 170 widebodies including the A330neo and A350. Around 55% of this demand will be for growth and 45% will be to replace aircraft currently in service, according to the OEM.

Undiminished appetite for **growth**

No matter what the naysayers argue, CDB Aviation will continue expanding its aircraft leasing business at home and overseas, its new chief executive officer, Jie Chen, tells **Dominic Lalk**.

The past three years have not been easy for aircraft lessors. For most of this time the pandemic has been riding roughshod over airline operators worldwide, particularly in the Asia-Pacific region, and even more so in China.

Then, there is Russia's war against Ukraine, which continues to weigh heavy on geopolitics and has caused many lessors, including CDB Aviation, to post losses.

Yet, there is a lot of optimism among top industry players as the consensus is that the worst is definitely over and that lease rates and demand for aircraft leases will continue to increase.

The only potential game changer, or "wild card", as some may say, is China. Nobody can be certain just how badly tensions between China and "the democratic West" could rise.

Jie Chen, CDB Aviation's newly minted chief executive officer (CEO) and a Chinese native, knows China and aircraft leasing arguably better than most. At CDB Aviation, he is now the man in charge of 276 owned and 107 committed aircraft.

The 276 current aircraft are on lease to about 70 airline operators from 39 countries. They comprise 73% narrowbody, 23% widebody and 4% freighter and regional aircraft. Among CDB Aviation's latest transactions are: a sale and leaseback with Oman Air for five Boeing 737 Max aircraft; the lease placement of young 737-800s with Italy's Neos, which it successfully reclaimed from Russian carrier Nordwind Airlines; and the redelivery of an Airbus A330P2F aircraft to Sichuan Airlines following conversion.

Jie Chen, pictured with Airbus and Sichuan Airlines chief executives, during a ceremony held at the Airbus Delivery Centre in Toulouse, France, in December 1995, marking the delivery of China's first A320 aircraft on the Chinese mainland to Sichuan Airlines.

Perfect man for the job

Chen spent the past 30-plus years working with Steve Udvar-Hazy and his team to develop and execute Air Lease's, and previously ILFC's, long-term commercial strategy in Asia-Pacific, including China. The success they achieved speaks for itself: under Chen's stewardship, ALC developed numerous new markets and cultivated strong relationships with the original equipment manufacturers (OEMs) and financial institutions in the region.

In 1995, Chen led ILFC to deliver the first A320 aircraft lease in China. That delivery went to Sichuan Airlines. Now there are more than 1,700 A320-family aircraft in China.

"There were lots of memorable moments during the past 30 years. When I started at ILFC in the summer of 1992, ILFC's Asia business was very small. By 2010, when I left ILFC, I had grown its Asia business to become the second-largest region for ILFC at around 33%. After that, at ALC, I built the Asia business from scratch to become the largest region, accounting for more than 42% of ALC's total revenue and income by 2022," recalls Chen.

Chen took the helm at CDB Aviation in January. His first 100-plus days in office have been busy as expected, he says. After relocating from Los Angeles to Dublin, Chen unfortunately has had little time to settle into his new city centre apartment because most of his schedule has been packed with travel to CDB Aviation's global offices to meet and greet the local teams, but also to China, where he met his new bosses and shareholders at CDB Leasing (CDBL).

Meeting the parents did not exactly come at the best time. After all, the aircraft leasing business had just recorded a $246 million pre-tax loss for 2022, reversing a $45 million pre-tax profit posted the previous year. Yet, Chen says he returned from China light-hearted and feeling assured.

"Our working relationship with our shareholder is in a very positive place. CDBL recognises that CDB Aviation is a business in growth mode and fully supports our strategic direction, providing their unwavering financial backing and an array of benefits stemming from their quasi-sovereign rating," Chen tells *Airfinance Journal* in an exclusive interview.

"CDB is the largest policy bank with Rmb18.3 trillion [$2.7 trillion] deployed both in and outside China and this benefits CDB Aviation through easy access to liquidity. We enjoy very competitive cost of funding," says Chen.

Not reducing foreign exposure

Despite what some in the industry have said, Chen tells *Airfinance Journal* that allegations that CDB Aviation was up for sale or part-sale were completely unfounded and nothing but rumours.

Over the past year, persistent industry talk suggested that several Chinese-owned portfolios, varying in size and asset quality, remain up for grabs, particularly after certain Chinese lease players were prohibited from expanding their overseas platforms following orders from the China Banking and Insurance Regulatory Commission.

Some Chinese players, including Agricultural Bank of China Leasing, have completely cut ties with lessees outside China. Others, including at China Aircraft Leasing (CALC), continue to offer large chunks of their current and future fleet to the highest bidders.

Chinese-owned lessors ultimately own 27% of today's global leased fleet and account for one-third of the lessor orderbook. Needless to say, this makes them a fundamental component of the aircraft financing ecosystem.

"While CDB Aviation is certainly a Chinese-owned platform, we are committed to advancing our long-term vision of being a full-service, top-tier aircraft leasing company with a global footprint and teams based in Dublin and Hong Kong.

"Our global customer base reflects this approach as we've been working with airlines in markets spanning the Americas, China, Asia-Pacific and the EMEA regions, as demonstrated by 23% of our fleet being leased within China and 77% outside China," says Chen.

He adds: "Despite the odd, unsubstantiated industry rumour claiming inside knowledge, the reality is there has been no mandate from our parent, CDBL, to reduce our exposure outside the country. On the contrary, at CDB Aviation, we are busy building our global footprint.

"I cannot speak for other Chinese lessors, but I can tell you that at CDBA Aviation this is not the case."

He adds: "At the same time, CDB Aviation will remain a key lessor to Chinese airlines, given our extensive relationships and our focus on newer technology aircraft required to fuel their growth. If overseas lessors feel they should downsize exposure in a market as critical as we see China, well then, we see that as an opportunity for CDB Aviation growth through asset acquisitions."

CDB Aviation signed financing transactions worth $5.6 billion in 2022. Its investment-grade rating was recently reaffirmed by S&P (A/Stable), Fitch (A+/ Stable) and Moody's (A1/ Negative).

The lessor currently holds 276 aircraft in its owned and managed portfolio and has an additional 107 units committed. A new aircraft order is being negotiated with the OEMs, says Chen.

In its current orderbook are some 60 A320neo-family units and 35 aircraft from Boeing, plus aircraft committed to sale and leaseback (SLB) financing and from committed trades with other lessors.

In addition, the wider CDB leasing group has 100 non-binding entitlements with other OEMs, consisting of 20 ARJ21 and 50 C919 aircraft from COMAC, and 30 MA700 aircraft from AVIC Aircraft.

In 2022, CDB Aviation signed new lease transactions for a total of 94 aircraft with 34 customers. It acquired 35 aircraft on operating lease, including 10 via direct OEM orders, 23 via sale and leaseback and two following trading activity with other lessors.

Also last year, CDB Aviation terminated 15 leases with Russian airlines, although it only managed to repossess six of the aircraft, with the remaining nine still stranded in Russia.

This was a key driver of CDB Aviation's recent loss making but not the only drag on its performance. In 2022, an impairment charge of $436 million was recognised on 41 aircraft, up from $114 million charged against 25 aircraft in 2021. Evidently Russia's aggression was not the only reason for write-offs.

Challenges and opportunities ahead

"Being able to engage directly with our parent as an Irish company with Chinese ownership is a distinct advantage, which will be critical to the next phase of our growth. Certainly, my Chinese heritage and knowledge of Chinese corporate culture, along with insights into the unique requirements of the Chinese market, will be helpful in bolstering this critical relationship," says Chen.

"My goal for CDB Aviation is to be a global company that our customers can trust and rely on to execute, one that delivers value to our customers and shareholders. I've been very impressed with the team at CDB Aviation in my first 100 days – we have a strong group of highly experienced professionals, who are focused on collaboration. Our team stands out for their experiences, energy and enthusiasm.

"While the challenges of recent years have required ingenuity and novel approaches to how we do our jobs, the results achieved by our professionals and their collaboration have impressed me," says Chen.

However, there are challenges that remain.

"One of the challenges ahead is that we have more demand than supply for aircraft leases, which is obviously a good problem to have. This shows that the post-Covid recovery is well underway, people are eager to get on planes, airlines are looking to expand their fleets," notes Chen.

Because of this, Chen says CDB Aviation is actively pursuing opportunities to secure future aircraft orders with both Airbus and Boeing.

"Our relationship with the OEMs is vital. We have around 100 aircraft on order for delivery through 2026. As you would expect for a lessor with a sizable orderbook, we are continually in discussions with both OEMs with regards to new business and incremental orders that will ensure our long-term business growth."

Another challenge, a real one this time, is the macroeconomic situation, says Chen. "The interest rate environment remains volatile, and inflation is still not under control. The cost of doing business keeps going up. This situation affects all lessors. That said, we also see this as a potential opportunity. As I have said, we are owned by one of the largest policy banks in the world. Easy access to liquidity and cheap capital could potentially give us an edge over the competition. We'll remain focused on targeting price-efficient debt to fund the needs of the business."

Asia-Pacific rebound, geopolitical tensions

Chen says he is confident that Asia-Pacific, including China, will experience a level of rebound through 2023 like that seen in Europe and the Americas in 2022. He notes that most Asia-Pacific carriers saw positive business development in the first quarter, which ended late March.

"We are geared up to meet the demand for aircraft from Asia-Pacific and Chinese carriers, with ongoing campaigns for both placements and SLBs in the region. That said, I would say that the current market environment is still evolving, as interest rate volatility, economic headwinds and geopolitical turbulence present challenges for us lessors to manage," says Chen.


From the onset, Jie Chen held conversations with staff members around their perspectives on CDB Aviation's growth trajectory and the ways in which to advance the lessor's customer-centric approach.

Quizzed about growing conflict between China and the West, he remained reticent. "I am not a politician, and I don't have any certainty about what the future geopolitical outlook would be. One thing I am certain about is that we are following the geopolitical issue closely and are ready to tackle any challenges arising from this situation. We will follow where the economic growth is, whether it is in the East or West."

He adds: "The recovery has been domestic and regional-led initially, with long-haul slower to return, and that has suited our fleet mix, which is 72% narrowbody, and reflects well on the discipline of our portfolio management. Our strength of having a global customer base means we can allocate resources and our portfolio where growth is strongest at any time."

Today, airlines lease more aircraft than they acquire directly. Chen believes that the pandemic and its aftermath will further promote this trend.

"More than ever, with balance sheets bruised post-pandemic, airlines value the flexibility and certainty offered by those select few lessors capable to execute financing. With demand for travel now approaching pre-pandemic levels globally (and already higher in some regions), we are seeing excellent demand for new and used aircraft placements. Lease rates are continuing to rebound strongly from pandemic lows, but they are not yet at the level to match the higher interest rates that have raised the costs of financing our fleet."

Chen further notes that the competitive mix CDB Aviation faces is evolving – for instance, Japanese operating leases with call options are back after a pandemic lull and a depreciating Japanese yen.

Something that has not been evolving in a positive way are the delays the industry is forced to endure from the OEMs. "We are seeing delivery delays on our aircraft from the OEMs of around four to six months like most other lessors and airlines. OEM production ramp-up challenges post-pandemic are the root cause, which has been a real disappointment to us. This has a knock-on impact on our customers, as aircraft are not being delivered on contracted dates and required capacity is not in place. And it also has a knock-on impact on the business growth we expected to achieve in 2023 and 2024," says Chen.

Because of this, he argues, the current OEM duopoly could use some additional competition.

"From an industry perspective," says Chen, "all stakeholders stand to benefit from the addition of another major supplier, be it an OEM from China, Brazil or Canada, which will spur innovation in technology."

Airfinance Journal Awards shortlists

AIRFINANCE JOURNAL AWARDS2022

Airfinance Journal received 339 submissions for its 2022 Awards, covering 86 unique deals.

The shortlists include deals of the year, team awards and individual categories.

Unlike other awards, which rely exclusively on their hosts' views, *Airfinance Journal* works with the collective voice of the global industry.

Our international judging panel includes senior aviation finance executives representing the banking, law firm and leasing industries:

- **James Cottle**, Former Managing Director and CEO of Airbus Financial Services;
- **Richard Forsberg**, Former Head of Strategy, Avolon;
- **David Goring-Thomas**, Former MUFG Managing Director - Head of Global Aviation Finance;
- **Bertrand Grabowski**, Former board member of DVB Bank's Aviation and Rail Businesses;
- **Richard Moody**, Former Managing Director-co Head Transportation Infrastructure and Energy Financing EMEA and Americas Deutsche Bank;
- **James Paterson**, Ex-Investec and Former Head of SMBC Aircraft Finance Group EMEA; and
- **Rex Rosales**, Former Partner Herbert Smith Freehills.

The combined knowledge and experience of our expert judging panel provides the *Airfinance Journal* Awards adjudication process with an added layer of independence that is not found at our competitors' awards.

After the *Airfinance Journal* editorial team has selected three shortlisted deals for each award category, the judges will, completely independently, select the winners in the following categories.

There are 25 categories considered in the *Airfinance Journal* 2022 Awards

Asia-Pacific Deal of the Year
- Hong Kong Airlines $6.2bn Leases Restructuring
- CALC Rmb1bn Bond Issuance
- Malaysia Airlines $2bn Financing for 20 aircraft

Europe Deal of the Year
- Air France-KLM €500m Bond Issuance
- GOAL $120m Insurance Supported Loan/Sale & Leaseback for three Air Baltic A220s
- Nordic Aviation Capital $6.3bn Restructuring

Latin America Deal of the Year
- LATAM $500m Revolving Credit Facility/$1.1bn Commercial Loan/$1.15bn Bond Issuance
- Aeromexico $5,5bn Fleet Restructuring
- Volaris $144m PDP Financing for 13 aircraft

Middle East and Africa Deal of the Year
- Acia Aero Leasing $59m Revolving Credit Facility for 14 aircraft
- Flydubai $250m Sale & Leaseback for five 737 Max8s
- ALAFCO $80m Commercial Loan for two A320neos

North America Deal of the Year
- Aircastle $450m Commercial Loan
- Air Lease Corporation $1.5bn Bond Issuance
- Jetblue Airways $3.5bn Commercial Loan

Airline Restructuring Deal of the Year
- Aeromexico $5.5bn Fleet Restructuring
- LATAM $500m Revolving Credit Facility/$1.1bn Commercial Loan/$1.15bn Bond Issuance
- Lion Air €1bn Restructuring

Bank Loan Deal of the Year
- AerDragon AFIC-supported financing for two 737 Max9s
- Avolon $660m Commercial Loan for 17 aircraft
- SMBC Aviation Capital $1.8bn Commercial Loan/$700m Revolving Credit Facility

Capital Markets Deal of the Year
- Air Lease Corporation $1.5bn Bond Issuance
- LATAM $500m Revolving Credit Facility/$1.1bn Commercial Loan/$1.15bn Bond Issuance
- MAST 2022-1 $303.7m ABS for aircraft

Cargo Deal of the Year
- Aero Capital Solutions €200m Commercial Loan for 14 737-800s
- Air France-KLM/CMA CGM Partnership for Freighter Conversions
- Altavair/Hawaiian Airlines 10xA330-300P2F Operating Lease & Funding

EETC Deal of the Year
- British Airways $522m EETC for four aircraft
- Iberia €680m EETC for five aircraft
- Sun Country Airlines $188.3m EETC for 13 737-800s

Equity Deal of the Year
- Air France-KLM €2.256bn Share Issuance/€305m Bond Issuance
- Air France-KLM €500m Bond Issuance
- Nordic Aviation Capital $6.3bn Restructuring

Guaranteed Financing Deal of the Year
- Groupe Dubreuil $145m Insurance Guaranteed Loan for one A350-1000
- GOAL $120m Insurance Supported Loan/Sale & Leaseback for three Air Baltic A220s
- Pegasus Airlines €520m ECA Guaranteed Loan for 10 A321neos

Lease (Operating/Sale leaseback) Deal of the Year
- GOAL $120m Insurance Supported Loan/Sale & Leaseback for three Air Baltic A220s
- Volaris $144m PDP Financing for 13 aircraft
- Scoot Tigerair Sale and Leaseback for four 787s

M&A Deal of the Year
- Aergo Capital/Seraph Aviation Management Acquisition
- Carlyle Aviation Partners/AMCK Holdings Merger
- SMBC Aviation Capital/Goshawk $6.7bn Merger

New Leasing Platform of the Year
- PIF Aviation Fund
- PIMCO Aviation Fund

Portfolio Trade of the Year
- DAE Capital/Sky Fund I 36-aircraft acquisition
- Carlyle Aviation Partners/AMCK Holdings Aircraft Portfolio Acquisition
- SMBC Aviation Capital/Goshawk Aircraft Portfolio

Revolving Credit Facility Deal of the Year
- Acia Aero Leasing $59m Revolving Credit Facility for 14 aircraft
- DAE Capital $1bn Revolving Credit Facility
- Truenoord $400m Revolving Credit Facility for 17 aircraft

Structured Lease Deal of the Year
- Avation $44m Commercial Loan for two A220-300s
- Castlelake Aviation $123.4m Gulf Air A321neo PDP Financing Facility
- Sky Leasing $312m Commercial Loan for 12 737 Max8s

Tax Lease Deal of the Year
- Avolon $170m Jolco for three aircraft
- ICBC Financial Leasing $112m Jolco for three A320neos
- Pegasus Airlines $44.2m Jolco for one A321neo

Unsecured (Airline & Lessor) Deal of the Year
- Air Lease Corporation $1.5bn Bond Issuance
- SMBC Aviation Capital $1.8bn Commercial Loan/$700m Revolving Credit Facility
- Wizz Air €500m Bond Issuance

Used Aircraft Deal of the Year
- BBAM Commercial Loan for 15 aircraft
- Carlyle Aviation Partners $4bn Commercial Loan
- Sky Leasing $312m Commercial Loan for 12 737 Max8s

AFJ Sustainability Award Europe
- Aircraft Leasing Ireland Sustainability Charter
- Iberia €680m EETC for five aircraft
- Pegasus Airlines €520m ECA Guaranteed Loan for 10 A321neos

Innovative Deal of the Year
- Avolon $170m Jolco for three aircraft
- Castlelake Aviation $123.4m Gulf Air A321neo PDP Financing Facility
- Malaysia Airlines $2bn financing for 20 aircraft

Overall Deal of the Year
- Air Lease Corporation $1.5bn Bond Issuance
- Nordic Aviation Capital $6.3bn Restructuring
- SMBC Aviation Capital $2bn Commercial Loan

Aviation Finance House of the Year
- Citi
- MUFG
- Societe Generale-CIB

Widebody market to return

Original equipment manufacturers are booking more orders and the secondary market is lively as widebodies recover quicker than expected from their Covid slump. **Olivier Bonnassies** reports.

The widebody market is tipped to come back this year, with mid-life aircraft expected to benefit from improved market conditions.

One source attributed the activity in the widebody market to different factors, including increasing international traffic, China opening up and original equipment manufacturers (OEM) still struggling to deliver new aircraft.

"Some [Boeing] 777-200ER activity is due to airlines phasing out fleets and had been in the pipeline for a while," he says, adding that 777-300ER activity is strong and being helped by "yet another 787 delay being conveyed to airlines over the last couple of weeks".

At *Airfinance Journal*'s Dublin 2023 conference, Aercap's chief executive officer, Aengus Kelly, highlighted the important role for used widebodies given the production issues faced by manufacturers.

"On the widebody side, we've always been bullish and that has proven to be correct. What we have seen on the Boeing 787 is very significant production delays. If you wind back the clock pre-Covid, there were around 14 787s manufactured per month. Maybe it will get to five by the end of this year, but it is still a very small number," he says.

"On the Airbus side, the A330neo is constrained as well and I don't think they can go above four or five a month until 2024 or 2025," he adds.

Kelly notes that these constraints, coupled with a large portion of widebody aircraft retiring during Covid, means there is improved demand for used widebodies as operators recover from the pandemic.

"The widebody business comes down to a lot of expertise. You can make a tremendous amount of savings or indeed losses depending on your expertise in transitioning widebody assets. We're very bullish on the widebody market because we don't see the supply coming back on stream for years," he says.

In an interview with *Airfinance Journal*, the SMBC Aviation Capital chief executive officer, Peter Barrett, says that widebodies certainly have been hit harder by the Covid crisis, but they will recover.

"On the widebody side, we've always been bullish and that has proven to be correct. What we have seen on the Boeing 787 is very significant production delays."

Aengus Kelly, chief executive officer, Aercap

"Recovery has started for newer technology 787s and A350s. We definitely see more appetite for those types with airlines saying that demand is coming back. Markets like Asia are opening up too. You are going to see the recovery of the widebody market as the story over the next two years. It is going to start with high-quality and newer assets but it will, with time, trickle down to older aircraft," he comments.

Recovery for some assets will be difficult, though, he reckons, as the economics, including the costs of engine overhauls and cabin configurations, will be challenging for asset owners.

"Unlike a 15-year- or 20-year-old Boeing 737 you can get back in the air that will not be prohibitive relative to the value of the asset. The challenge for widebodies is the relative cost of getting the aircraft back in the air. It can be significant and some assets may not come back," he explains.

Lease rates will probably pick up as widebody demand returns, and Barrett points out that the current interest rate environment means "money is more expensive for everybody, including lessors. The base rates are going up and the cost of funding is going up".

Kelly recently highlighted the shortages on the widebody side.

"Production rates for new-technology aircraft such as the 787, the A330neo and the A350 are well below expectations. Airbus was targeting five A330neos per month in 2019 and delivered less than three per month in 2022. They were targeting 10 A350s per month in 2019 and delivered only five per month in 2022. Boeing were targeting 14 787s per month in 2019, and delivered less than three aircraft a month in 2022 with more than 80% of these coming from storage," he says.

He adds that this has resulted in about 740 fewer widebody aircraft built since 2019, a 15% reduction relative to the 5,000 or so widebodies that were in service at the time.

"That's equivalent to almost two full years of normal production, so how are we capitalising on this opportunity? The best example I can give you is that since the start of 2022, Aercap has completed nearly 100 widebody transactions, which I suspect is possibly more than the rest of the aircraft leasing industry combined," he comments.

"We are seeing broad base demand, and we expect this to be sustained by continued traffic growth and low production rates for widebody aircraft. We believe that the issues affecting aircraft production are likely to persist for several years, resulting in strong demand and upward pressure on lease rates and values for the foreseeable future."

Air Lease (ALC) is also bullish on a widebody rebound as regions most impacted by the Covid-19 pandemic start to recover and even exceed 2019 performance.

In March, ALC's executive chairman, Steve Udvar-Hazy, said that the widebody recovery had been quicker than anticipated.

"We're very bullish about widebody lease rates. Part of that is that the transatlantic market exploded last year, and now in Asia where it is getting back to or exceeding 2019 levels in certain regions like Australia and New Zealand," Udvar-Hazy commented at a JP Morgan conference.

"We've seen major widebody orders globally and so the market is getting to a point where we are going further and further out in terms of widebody backlog."

"We've seen major widebody orders globally and so the market is getting to a point where we are going further and further out in terms of widebody backlog."

Steven Udvar-Hazy, executive chairman, Air Lease

OEM orders

Airbus and Boeing had different fortunes in 2022 in terms of new commercial aircraft orders in the segment.

The European manufacturer won 63 gross new orders: 19 A330s and eight A350-900s, 12 A350-1000s and 24 A350Fs. However, it recorded 11 A350-900 cancellations along with 23 A350-1000s.

Boeing received orders for 213 widebodies: 114 787s, 31 767-300Fs and 68 777s. The United Airlines order for an additional 100 787s, along with 100 options, is noteworthy for the leasing community. Its sheer size means funding it will require sale and leaseback financing for those lessors willing to take widebody exposure as the market for that part of the sector continues to recover.

The US manufacturer has dominated the first three months of this year with more announcements.

Saudi Arabian Airlines and newly launched Riyadh Air have committed to 110 787s.

Air India has signed letters of intent with both Airbus and Boeing to acquire 40 A350s, 20 787s and 10 777-9s as part of orders for 470 aircraft with both manufacturers.

Qatar Airways' 23 A350-1000s were reinstated on the airframer's backlog as part of its activity in February.

The commitments are not only providing further confidence that the widebody market is returning to a more normal status, but also justifying recent production hike announcements.

The European manufacturer says it sees growing demand in the widebody market as airlines continue to scale up international services.

Airbus is further increasing A330-family production rates to four aircraft a month in 2024, as well as nine aircraft a month for the A350 family at the end of 2025.

The A330 monthly production rate increased to about three at the end of 2022 and the A350 monthly rate is currently six aircraft.

Boeing's production rate on the 767F programme is three aircraft a month.

Its 777/777X production line is also at three units a month but the US manufacturer plans to increase monthly production rates at four in 2025/26.

Boeing's rate is low on the 787 but it plans gradually to return to five a month in late 2023 and increase that to 10 aircraft a month in 2025/26.

Airfinance Journal investor poll

Some leasing platforms and investors have recently approached the market looking to sell widebody exposure. A growing capacity demand expected from next year onwards has translated into an improving outlook, mainly for new-technology widebodies.

The focus has been on new-technology assets in the widebody market, with the A350-900 and 787-9 models well ahead of their peers in the latest *Airfinance Journal* investor poll's four criteria: residual value, value for money, operational success and remarketing potential.

Both models again came top but lost ground versus last year's poll.

The A350-900 has been hit by some airline bankruptcies and restructurings, unlike the 787 models. SAS is still talking to its leasing community about some aircraft, and should they be released, a new home, especially in Europe, is probable.

One leasing source says A350-900 appetite is here with four out of five airlines recently sounded out in need of additional capacity, albeit at some aggressive rents.

In the meantime, those aircraft may involve reconfiguration costs for their owners.

"Finnair and SAS are making it more challenging to place in addition to the overhand in Qatar Airways, too," says another source, adding: "I believe future residual values are understated."

The A330-900 and the 787-8 had different fortunes: one marginally improving, the other marginally dropping. One respondent to the poll observes that demand for the 787-8 has dwindled at the expense of its larger stablemates, which offer a better blend of passenger capacity, payload and range. There are some aircraft on offer in the marketplace, and one respondent highlights the "strong tier-one operator base".

A lessor source expects a large portion of the 787 fleet to remain with current operators because there is very little prospect of a replacement widebody aircraft and production will be low for some time.

The 787-9 is clearly Boeing's favourite asset in the widebody production line and is an attractive asset when offered for trading.

One respondent perceives the 787-10 as "nichy", but the type has "room for improvement and it is coming", says another.

Lease rates

Unsurprisingly, there is a lower recovery for widebody models relative to narrowbody aircraft.

But 2023 could see better activity in this market, despite lagging behind pre-Covid-19 levels.

A full recovery of the widebody market is scheduled for 2024, but this year could see an acceleration of the recovery as more widebody markets open.

In a recent webinar, IBA said market values for widebodies could potentially rise with China's reopening.

A mid-life 787-8 has seen lower base values with strong supply hitting the market given lease ends. Although there will be extensions, the larger capacity on the 787-9 makes it a preferred aircraft and that is baked into the 787-8 base. Market values for both the 787-8 and 787-9 are far from recovered from 2019 levels with some prospects to trend towards the new base values.

New widebody lease rates are expected to recover because of higher interest rates and a tighter supply chain.

As for the older generation, the decline has been substantial. Covid-19 and the overexposure in Russia have impacted demand.

The A330-200 type is viewed as a "very cheap" asset for airlines needing capacity. "It is still a workhorse at the right price and I am bullish on the outlook for cheap widebodies," says a source.

Airfinance Journal is aware of some medium-term placements for some mid-life A330-200 aircraft between $210,000 and $235,000 a month.

The pre-Covid market for the type was more in the $250,000 to $270,000 range, according to sources. Some placements in 2020 were made below $200,000, but one transaction was north of $250,000 a month, *Airfinance Journal* understands.

The market for the A330-300 has been more impacted than the -200 market. Pre-Covid, some airlines were paying more than $375,000 a month but, in 2020, one transaction dropped to a $210,000 lease rate, according to one source.

The passenger aircraft for the A330-300 market is more into the $250,000 range. Some extensions have been negotiated at $225,000 a month, according to the source. Demand for the A330-300 is essentially for cargo conversion.

The 777 market lease rates were at about $680,000 a month in 2017 and are currently at about $350,000 a month.

But there was an upward trend in the second half of last year because some carriers are leasing at shorter terms, believes IBA.

The tighter supply of new aircraft has helped the older widebody recovery, as lessees have no other option than to extend their leases.

Previous-generation lease rates stabilised in the fourth quarter with increases expected into the first half of this year. IBA has a generally positive outlook for the widebody lease market through 2023 as demand picks up.

One leasing source says the -300ER market is driven by two fundamentals, demand and engine values. Engine values for a half-life engine have risen from $11 million-$13 million to $15 million-$18 million. Therefore, aircraft values have also risen ($30 million to $40 million now). Aircraft lease rates are now $350,000 to $450,000 a month, he adds.

777 trading activity

Trading activity in the 777 market has increased over the past few months as more Asia-Pacific fleets are purchased by entities in the USA.

Airfinance Journal research shows that some aircraft previously operated by Air New Zealand, Air China, All Nippon Airways, Garuda Indonesia, Japan Airlines and Singapore Airlines have recently traded.

US entity Alta 777 has acquired two 777-200s from different parties to expand its fleet, according to regulatory filings.

The company purchased one 777-200ER, powered by Rolls-Royce Trent 895 engines, that was owned by an entity managed by Aercap, according to *Airfinance Journal*'s Fleet Tracker.

The 2005-vintage aircraft had been operated by Air New Zealand since new.

In November and December 2022, Alta 777 purchased four 777-200ERs previously owned by Air New Zealand, Fleet Tracker shows.

The units were delivered new to the New Zealand flag carrier between 2005 and 2006. Affiliate carrier Eastern Airlines operates the aircraft.

Alta 777 also purchased a 777-200 aircraft from Boeing Capital, according to data. The aircraft is powered by Pratt & Whitney PW4090 engines.

Fleet Tracker shows that the 2001-vintage aircraft had been operated by Air China. Boeing Capital Aircraft acquired the aircraft in 2018.

There are only 40 777-200s in service or storage, according to Fleet Tracker, and all but a dozen aircraft, which are still with All Nippon Airways and Thai Airways, are in the USA.

The PW4000-powered aircraft include those as old as 27 years. Market values are in the $5.5 million range for the 1996/2001-vintage aircraft. Distressed values are more in the $3.8 million range.

In 2022, Alta 777 purchased three former All Nippon Airways 777-200ERs, powered by General Electric GE90-115B engines. The aircraft were built in 2004 and 2006.

Avitas shows that 2003-vintage Trent 884-powered 777-200ER aircraft are trading in the $10 million range, while market values for a 20-year-old PW4090-powered aircraft are about $12 million.

A GE90-powered 2005-vintage aircraft sits at about $11 million in terms of market value.

Jet Midwest is growing its 777 inventory with the acquisition of a 2003-vintage 777-200ER previously operated by Singapore Airlines. The Rolls-Royce Trent 884-powered aircraft was last owned by Boeing Capital.

US cargo operator Logistic Air recently acquired a 777-200ER aircraft equipped with GE90-94B engines. The 2005-vintage was last operated by Japan Airlines.

Air India leases

US trader Jetran continues its purchase programme of 777-200LRs equipped with GE90-110B1 engines that were last operated by Delta Air Lines. The company acquired its final two units from Mammoth Freighters in December and April.

Sources say five of the six aircraft are being placed with Air India as passenger aircraft before conversion by Mammoth Freighters. The widebodies were to be delivered through March.

The other four 777-200LRs, which are also part of the 10 former Delta Air Lines acquisition in 2021 by Mammoth Freighters, were being sold to Cargojet Airways.

The 777-200LR market is fairly limited, although it has a wider operating base than the basic -200 model. Air Canada, Air India, Azerbaijan Airlines, Emirates Airline, Ethiopian Airlines, Iraq Airways, Qatar Airways, Turkmenistan Airlines, Pakistan International Airlines and White Airways operate the type, the data shows.

The 2005-08 vintage models have a $20 million market value and a $14 million distressed market value.

A 2009-vintage aircraft would trade at about $22 million, says Avitas.

"The 777-200LR is a great feedstock for conversion and should provide equivalent capability to a factory -200LRF. The -200LR feedstock is actually lower than one may think because approximately 13 of the pax aircraft have a smaller rear lower deck cargo door which is not ideal for conversion," says a leasing source.

One aircraft that is coming back strong is the 777-300ER. Once left almost dead in pre part-out conditions, the type is benefitting from the recovery, including for large widebody assets.

The 777-300ER has lost ground because of remarketing cost and risk, but has benefitted from 777X delays, with airlines extending their fleets. The model also benefits from a passenger-to-freighter programme. Trading opportunities are on the increase, according to one respondent, because the model is perceived as the sole exception to old-generation widebodies because of outstanding operational capacity.

"When international travel returns," he says, "this will be the best bang for the buck."

Embraer starts E-Jet conversion structural work

The Brazilian manufacturer is moving on with its passenger-to-freighter conversion programme. **Olivier Bonnassies** reports.

The second quarter of this year will see Brazilian manufacturer Embraer reach another milestone in its E-Jet conversion programme with the start of structural work on the first aircraft, an Embraer 190 model.

The first off-wing metal cut for the freighter door was completed in December 2022.

Embraer officially launched a passenger-to-freighter (P2F) conversion programme for the E190 and E195 families in March 2022.

The first E190 arrived in Sao Jose dos Campos, Brazil, in February. "The first E190 conversion for an undisclosed customer has already started," says Embraer Services and Support head of sales operations and contracts, Gustavo Ribeiro.

Embraer has two contracts, for up to 20 cargo conversions. Operating lessor Nordic Aviation Capital is one of them with up to a 10-aircraft conversion order.

The manufacturer has started the aircraft maintenance activities and certification and delivery continue on time, scheduled for the second quarter of 2024.

Typically, a first conversion takes longer because of the development and the certification process.

"After the learning curve period, we expect to turn around the conversions in three to four months without maintenance checks," explains Ribeiro.

The full-freighter conversion is available for all pre-owned E190 and E195 aircraft. The E190F can handle a payload of 23,600lb (10,700kg) while the E195F a payload of 27,100lb.

The conversion to freighter includes main deck front cargo door, cargo handling system, floor reinforcement, rigid cargo barrier with access door, cargo smoke detection system, including class E extinguishers in upper cargo compartment, air management system changes (cooling, pressurisation), interior removal and provisions for hazardous material transportation.

The Brazilian manufacturer forecasts a market for this size of aircraft of about 700 over 20 years.

The cargo conversion will extend the life of the most mature E-Jets by another 10 to 15 years and encourage their replacement with more efficient, more sustainable and quieter aircraft.

Demand for converted freighters has been growing worldwide after the pandemic.

"E-Jet footprints spread across all continents are an essential enabler to reaching out to operators and offering a flexible and rightsized product to explore potential markets in different regions of the world," he adds.

The E-Jet freighters fill a gap between the ATR72 freighter and the Boeing 737-800 freighter models. Effectively, their ideal envelope is anything above 500 nautical miles (nm) and below 15 tonnes of payload.

"These capabilities could be well suited to e-commerce, express freight, mail and high-yield cargo transport in countries or continents with large land mass. However, the market size is more niche than for standard narrowbody freighters," notes one source.

"Typical operators will include incumbent E-Jet carriers that want one or two freighters in their fleet, e-commerce/express freight customers upsizing from ATR72s, airlines that have high-yield time-sensitive cargo and airlines wanting to replace ageing freighter types like the Bae 146-300F," says the source, who adds that the E-Jet freighter offers a good defensive play for lessors with large amounts of incumbent passenger variants.

Embraer delivered a total of 568 E190s and 172 E195s. The Brazilian manufacturer handed over three E190s last December to CIAF Leasing, marking the final deliveries of the model.

Airfinance Journal Deal Tracker shows 524 E190s in active service and/or storage as of 28 April.

"The earliest of these aircraft were delivered in 2005/06 and are thus reaching 17-18 years old, which is ideal for cargo conversions," says the source.

The E195 operating base is more restricted and subsequently has a more constrained feedstock. But the model benefits from greater economies of scale and therefore lower unit costs.

"Both options are the best available in the market. The E-Jets P2F conversion will deliver unmatched cargo economics and flexibility at affordable and competitive prices. The E-Jet freighter is faster, has over 50% more volume capacity, three times the range of large cargo turboprops, and up to 30% lower operating costs than narrowbodies," Ribeiro tells *Airfinance Journal*.

At the lower end of that market, ATR has had a market presence in cargo conversions, through bulk freighter (tube version) and unit load device freighter (large cargo door version) for more than two decades in the eight-tonne segment.

The ATR72 is a 35-year-old aircraft programme this year. The oldest ATR72-500s are 26 years of age, while the first deliveries of the ATR72-600 started in 2011.

As with any conversion programme, three factors are needed: market demand, feedstock availability and asset residual values.

A cargo conversion would need values in the "conversion zone" to make the project viable and, since Covid, asset values have come down.

Embraer aircraft were in the $9 million to $12 million range in 2020. Most E190s trading over the past three years have been within the conversion zone of around $6-8 million, according to sources, with maintenance condition the real differentiator. Some deals have closed at lower than $5 million but those are run-out assets in need of maintenance.

AEI eyes sustainable P2F growth

The time of lessors dominating conversion lines will soon be over as increased demand and new-technology engine issues push airlines to secure used narrowbody capacity. **Hugh Davies** reports.

Having had almost complete control over narrowbody conversion lines over the past three years, lessors' share of freighter conversions for the Boeing 737-800 is starting to normalise as feedstock runs out and passenger demand returns.

"For the last three years up to 2022, lessors were dominating the production lines upwards of 90-95%," Aeronautical Engineers' (AEI) senior vice-president sales and marketing, Robert Convey, tells *Airfinance Journal* in an interview.

"The reason for that is that operators typically don't look out two years in advance. So when the lessors locked up all the slots, they were locked up for a couple years and pushed out the operators' ability to secure slots."

In the post-pandemic environment, lessors are seeing a slowdown in demand as lease rates are softening for freighters at the same time that lease rates and demand for passenger aircraft are on the rise.

"There are always these kinds of ebbs and flows," explains Convey. "We had three really good years and now we're starting to reset. And as lessors push out, delay and convert their slots, operators now have a better opportunity to take near-term slots."

Credit risk concerns are also giving added pause to some lessors, he argues.

"It comes down to appetite for risk. That is part of the reason why there is a slight delay in deployment of the asset after conversion because lessors might be looking for more creditworthy and better risk."

Convey explains the company is starting to get back to about a 50-50 split between lessors and airlines securing conversion slots, and moving back to a more normal production pace.

He says it is a good thing that conversion houses such as AEI are starting to reset post-pandemic.

"Our production rates over the last three years, although excellent for business, clearly were not sustainable over the next 20 years. You can't build 80-90 737-800s, plus what Airbus is building, plus what else is out there in the market, and still expect the market to absorb it. It's just not that big of a market."

For the -800 converters combined, AEI believes it will slow down to a "digestible" 50 or fewer aircraft a year, compared with about 80 a year in the past three years.

"I have a huge bone to pick with the engine OEMs. They're the cause of a lot of customers' feedstock problems, and it's one reason why we're seeing higher passenger lease rates."

Robert Convey, senior vice-president sales and marketing, Aeronautical Engineers (AEI)

Convey recalls AEI being the primary supplier of the 737-400 conversion. "The most we ever did in one year for those aircraft were around 25 conversions and that was a big year for us. To double that number on the -800, there's just not enough business."

He adds: "We've got a steady backlog. We won't produce 35 this year, perhaps closer to 20-23, but we're happy with that and it means it will be more sustainable over a longer period of time. We're playing the long game rather than the short game now."

Engine woes

Convey echoes concerns from others in the market about new engine production and maintenance issues.

As carriers look to secure used narrowbody capacity to replace new engine-equipped, grounded metal for the peak summer period, this competes with AEI customers who are currently in the market to secure feedstock within a suitable conversion window.

"I have a huge bone to pick with the engine OEMs [original equipment manufacturers]," says Convey. "They're the cause of a lot of customers' feedstock problems, and it's one reason why we're seeing higher passenger lease rates."

He argues that the engine manufacturers have "overreached" in terms of gaining maximum fuel efficiency.

"Because of that, airlines that got burned last summer through delayed deliveries won't make that mistake again. They're extending leases or buying up aircraft on the market that my customers might buy for feedstock.

"As an industry, we're putting too much pressure on them to increase fuel efficiency."

He also notes that availability of aircraft in the "zone of conversion", aged between about 17 to 20 years old, was already waning because of a low period of production for the 737-800 during that time period.

"Most of those went to mainline carriers that are keeping them until part-out, which further limits feedstock," he says.

He adds that one customer has placed an aircraft as young as 13 years old into conversion. "It will be a great aircraft but it's a $25 million freighter which, for an -800 conversion, is $5-7 million too much," says Convey.

"It's forcing customers into situations where they can't source older, less expensive aircraft to convert."

That will take a few years to normalise, according to him.

He says: "The engine manufacturers will eventually work things out. Feedstock will free up as more are produced in that zone of conversion and that will drive passenger lease rates below freighter lease rates but, for the next couple of years, it will remain challenging."

Mixed fortunes for freighter conversions

Freighter market rents continue to decline amid a slowing global economy and the return of belly capacity, with widebody cargo units particularly affected, **Elsie Guan** reports.

It is a mixed outlook for the cargo segment and passenger-to-freighter (P2F) aircraft conversions because an increasing number of firms entered the sector during the pandemic, especially in China. Industry experts believe that narrowbody freighters will fare much better than their larger widebody cousins.

"Currently, some pressure is evident on narrowbody freighters, even though they aren't heavily impacted by belly freight capacity. Widebody market is impacted by slowing economic activity and a return of belly freight, along with easing congestion in ports that had shifted some of the traffic into aviation from traditional maritime," John Mowry, managing director of Alton Aviation Consultancy in New York, tells *Airfinance Journal*.

The China air cargo operator business is significant at 203 units in service and has grown at a quick pace in recent years.

Some 126 of these aircraft are narrowbodies (all converted) while 76 are widebodies, with the split about one-third of converted freighters and two-thirds of factory freighters, led by the Boeing 777F.

Privately-owned carrier SF Express is the largest operator with 79 freighters in its current fleet, followed by China Postal Airlines with 28, China Cargo Airlines with 17 and China Southern Airlines with 16 units, Alton's data shows.

"In the 737-800 freighter market, for example, placement lease rates have fallen by approximately 20%. At the same time, freighter market rents have declined, and interest rates have risen, making conversions less economically attractive. As some softening was observed in the freighter market and interest rates have increased, demand for passenger aircraft has picked up, as have passenger lease rates.

"Consequently, we should expect to see the future volume of P2F conversions reduce until supply and demand gets more aligned," says Mowry.

"Nonetheless, conversions in the widebody market that have been limited recently significantly owing to feedstock availability of 767 units will increase with A330 and the 777 conversion programmes," adds Mowry.

Changes in fleet ownership composition could also impact the supply of freighter conversions on the narrowbody and widebody markets, he notes.

"The drop in demand by operators for certain aircraft types during the Covid-19 pandemic, notably [Airbus] A330s, resulted in many lessors committing to freighter conversions, increasing the supply of available widebody freighters. At the same time, belly capacity continues to recover, potentially creating an excess supply for these aircraft," says Mowry.

A significant number of maintenance, repair and overall (MRO) facilities throughout China have experience in conversions. P2F facilities in China include Boeing Shanghai Aviation Services, GAMECO, STAECO, Haite, Ameco, Sichuan Airlines Group, ST Engineering Guangzhou, STARCO and HAECO.

In February, Elbe Flugzeugwerke (EFW) and Sichuan Haite Hi-Tech (Haite), a publicly listed MRO solutions provider, signed a letter of intent for collaboration on Airbus P2F conversions.

As the first third-party conversion house for EFW's A321P2F programme, Haite will carry out P2F conversions for the programme at Haite's facility in Tianjin in China, and start with one conversion line and induct the first A321 aircraft for conversion in the third quarter of 2023.

"Collaborating with EFW on this programme means that Haite has production capabilities for both the 737NG and A321 narrowbody P2F conversion. This is bound to improve our business structure and offerings.

"At the same time, working with EFW on the programme will also expand Haite's global influence in the P2F conversion and MRO fields, laying the foundation for further expanding production scale and developing overseas customers in the future," Ivan Chin, general manager of Tianjin Haite Aircraft Engineering, tells *Airfinance Journal* in an exclusive interview.

In the third quarter of 2024, Haite will establish the second A321P2F conversion line. It is expected that a first phase, for 10 A321P2Fs, will be completed in 2026.

EFW's family of Airbus P2F programmes – A320P2F, A321P2F and A330P2F – are developed in collaboration with its parents, ST Engineering and Airbus, with EFW holding the supplemental type certificate and leading the overall programmes as well as their marketing and sales efforts.

To meet the recent high demand for freighter conversions, ST Engineering and EFW have set up conversion sites in China and the USA and are working with third-party conversion houses to complement the established Airbus P2F conversion facilities in Germany and Singapore.

"While the engineering capability is more limited, Chinese MROs that have accumulated significant experience in P2F conversions, such as STAECO, are now working on parts manufacturing for P2F, aiming to localise the supply chain of parts to improve its profitability on this business," says Alton's Mowry.

Key factors that have driven freighter conversions flowing to China include the availability and relative cost efficiency considering wages and productivity, aerospace structures skills and experience derived from large MRO businesses in the country for many years and depending on where aircraft are coming from (many from Asia-Pacific as a result of overall large fleet size) and going to, potentially limiting ferry costs, according to Alton Aviation.

"There may be some teething pains on new programmes but the overall satisfaction with the conversions from China is high," says Mowry.

According to Alton's forecast, the Asia-Pacific region (including China) will require 634 narrowbody freighters and 436 widebody freighters by 2042; China will need 391 narrowbody freighters and 228 widebody freighters by 2042.

Airbus and Boeing have directionally similar outlooks for expansion of the freighter fleet through 2041, with Boeing slightly more optimistic than Airbus at 3,610 compared with 3,070 units.

"Airbus doesn't provide a regional forecast but Boeing anticipates a requirement for nearly 1,100 new and converted freighter additional aircraft over the period through 2041, split roughly evenly between narrowbody and widebody units," says Mowry. "Collectively, this requirement is anticipated to account for 38% of the global need."

A320 – the original success

The A320neo has sold well. **Geoff Hearn** looks at how the new aircraft's popularity is impacting the fortunes of its direct predecessor.

Large numbers of the original A320 remain in service

The new engine option (Neo) version of the Airbus A320 is the centre of much industry attention as the European manufacturer grapples with supply chain issues in its attempts to ramp up production to meet demand.

The difficulties facing the new-generation model are impacting the fortunes of the original A320, which still has a huge presence in the commercial aircraft fleet and plays a crucial role for many operators and financiers.

Recent market activity

Reports of trading for the original A320 suggest carriers are looking to acquire aircraft, not least because of the delays and production issues associated with the new-generation models. Australia's Qantas, for example, has revealed changes to its fleet plan which include sourcing additional used A320 aircraft to meet growing demand.

As reported by *Airfinance Journal*, Qantas Group's chief executive officer, Alan Joyce, commented: "Aircraft manufacturers are seeing the same supply chain delays as a lot of other industries and we've been told that some of our deliveries will be pushed back by up to six months. When you combine the delays with the sustained growth in travel demand that we're seeing, we need to find other ways to lift capacity in the short and medium term."

In another sign that used aircraft are being sought to meet increasing demand, Ryanair Group is said to be in talks with lessors to expand its A320 fleet with a view to adding 10 of the original type to the operations of its Lauda subsidiary for the summer of 2024.

Original family member

The A320 was Airbus's second major project in the commercial aircraft market. The European consortium had established a presence with the A300, but the A320 represented its entry into the single-aisle market. The A320, which entered service in 1988, was the first member of that family. The stretched A321 entered service in 1994, the smaller A319 in 1996. The A318 model completed the A320-family in 2003.

The A320 typically seats 150 passengers in a two-class cabin, or up to 180 in a high-density layout. The A320 introduced fly-by-wire flight controls into the commercial market. Although controversial at the outset, the concept is now well established and is a key part of Airbus's family concept. The aircraft is available with either CFM56-5B or IAE V2500 engines.

Developments

Until its replacement by the Neo version, the original A320 was regularly updated during its production life with improvements to fuel consumption and maintenance costs as well as interiors.

Sharklets, wing tip devices that cut fuel burn, have been available on new-build A320s since 2012 and are standard fit on A320neos. Airbus offers a retrofit programme for older A320s, which involves strengthening the wing and extending the aircraft's service life.

A freighter conversion programme is available for the original A320 model and aircraft have been delivered by Airbus's conversion specialist, Elbe Flugzeugwerke. However, the larger A321 is widely viewed as a better platform for conversion, and the type makes up the bulk of deliveries for the family (see A320 family passenger-to-freighter conversions).

A320 family passenger-to-freighter conversions

The Airbus A320 passenger-to-freighter (P2F) conversion programme competes with the Boeing 737-800 conversions, but so far the focus has been on the larger member of the original family – the A321. The programme was launched in 2015 and is a partnership between ST Engineering, Airbus and their joint subsidiary, Elbe Flugzeugwerke (EFW).

EFW's senior vice-president, marketing and sales, Wolfgang Schmid, told *Airfinance Journal* there was a conscious decision early in the programme to focus on the A321, because it was a natural replacement for ageing 757 freighters – for which there is no other obvious successor.

Further, Schmid says reports suggest that the 737-800 freighter market is suffering from oversupply, which could make placing similarly sized A320 conversions more difficult. He nonetheless believes there will be demand for P2F versions of the smaller member of the family, not least from current Airbus operators which will benefit from commonality.

In terms of deliveries, the A320/A321P2F trails the various 737-800 programmes, but its producers claim several advantages over the competition. Lower fuel burn and operating costs, as well as a fully containerised lower deck are among the key features cited in the marketing literature. A plentiful feedstock for conversion (more than 4,500 units anticipated over the next 20 years) is also highlighted.

A worldwide network of conversion facilities has been established, but Schmid says that, at this stage, it is difficult to give a precise figure on production capacity because each location has its own capabilities. Overall production is likely to be between 30 and 35 aircraft a year.

At the moment, lessors account for the majority of customers, but the freight integrators are likely to play an increasing role as the programme develops.

AIRCRAFT CHARACTERISTICS

Seating/range

Maximum seating	180
Typical seating	150
Typical range (winglets)	3,500nm (6,500km)

Technical characteristics

MTOW	78 tonnes
OEW	42 tonnes
MZFW	62.5 tonnes
Fuel capacity	27,200 litres
Engines	CFM56-5B/V2500
Thrust	25,000lbf (120kn)

Fuels and times

Block fuel 200 nautical miles (nm)	1,850kg
Block fuel 500nm	3,390kg
Block time 200nm	54 minutes
Block time 500nm	94 minutes

Fleet data

Entry into service	1988
In service	3,720
Operators (current)	410
In storage	431
Built peak year (2013)	352
Average age	13.5 years

Source: Airfinance Journal Fleet Tracker, 15 April 2023

Indicative maintenance reserves

C-check reserve	$65-$70 per flight hour
Higher checks reserve	$60-$65 per flight hour
Engine overhaul	$110-$120 per engine flight hour
Engine LLP	$130-$140 per engine cycle
Landing gear refurbishment	$50-$45 per cycle
Wheels, brakes and tyres	$130-$140 per cycle
APU	$80-$90 per APU hour
Component overhaul	$220-$230 per flight hour

Source: *Airfinance Journal* estimates based on historical data

An Appraiser's view

Olga Razzhivina
Senior Istat appraiser, Oriel

The Airbus A320-200 is the most popular variant in its family and one of the most successful aircraft, with a presence across the world in every type of airline.

Having undergone continuous improvements throughout its life, the A320 was instrumental in Airbus achieving narrowbody market-share parity with its main rival Boeing.

Unlike its competitor, the Boeing 737-800, the A320 is powered by two engine platforms, the CFM56 and IAE V2500. Both engine families have evolved over the programme's life to improve efficiency, reliability and time on-wing. This reliability has proven to be the core strength of the original generation of the aircraft type.

The market dynamics for the type have undergone very little change over recent years. Despite being superseded by the Neo family, the original A320 remains in demand, supported by the same set of circumstances.

The teething issues of the new-generation engines are persisting, with airlines having to cope with frequent unscheduled [hospital] shop visits, extended turnaround times and aircraft on the ground. Deliveries of new aircraft continue to fall behind plans, with the Covid legacy exacerbating the problem.

Even though new production is trending towards the larger A321neo, with particular emphasis on its long-range versions, the baseline A320neo variant accounts for the bulk of orders, with little sign of its popularity waning.

The A320 continues in service in large numbers and its values are recovering, especially for the younger examples. It has been easier for some time to place CFM-powered aircraft rather than their V2500-powered counterparts. This situation was largely caused by a technical issue, which affected large numbers of engines. With increasing numbers of V2500s having been through an inspection or a hospital shop visit, demand is starting to equalise between the two power variants.

Aircraft that are available immediately without a need for maintenance and with the desired – usually high-density – interior layout are increasingly in short supply. Covid-related effects have impacted not only new aircraft production, but also the supply of parts and labour for the routine maintenance of all types. New delivery challenges and maintenance, repair and overhaul bottlenecks have bolstered demand for used aircraft, and the numerous ACMI (aircraft, crew, maintenance, insurance) contracts that have been announced for summer 2023 are a confirmation of supply shortage.

Market lease rates, as usual, were the first to see signs of recovery, partially spurred on by rising interest rates. They were followed by market values. While the A320 numbers are still weaker than the 737-800's, the Airbus aircraft's figures have improved, from the Covid trough, for younger vintages.

Early A320s are now more than 24 years old and are largely traded for part-out where the prices are determined by engine condition and parts commonality with the Neo family. The freighter conversion programme is in place but the larger A321 is the far more attractive platform for its main customers in e-commerce and express freight.

Oriel expects market values and lease rates to continue recovering and hold firm in the short to medium term. The resolution of teething problems and delivery delays for Neo models will be the main factor in determining the ongoing demand for the original A320.

Longer term, the younger vintages of the first-generation model will have a role to play towards the end of this decade, although values may see a rapid decline, likely coinciding with another industry downturn.

Oriel view of A320 values and lease rates

Build year	1995	2000	2005	2010	2015	2020
Current market values ($m)	6.0	6.1	8.1	12.55	18.55	25.8
Lease rates ($'000s/month)	100	100	125	155	205	255

Aircraft specifications: MTOW 77,000kg, IAEV2527-A5 S1engines. Maintenance status assumes half-life.

Smaller widebodies – room for improvement

With the demise of some large widebodies and delays to replacements, both Airbus and Boeing are looking to their smaller twin-aisle models to keep production rates up. **Geoff Hearn** looks at how successful this tactic is proving.

German carrier Condor recently took delivery of the 100th A330neo

Saudi Arabian flag carrier is set to order Boeing 787-9s and -10s

News that the first Boeing 787-8s are to be parted out (as reported by *Airfinance Journal* at the end of February) came as a surprise, if not a shock. The Boeing aircraft suffered a tortuous development programme, not least because it pushed technology boundaries – so the 10-year-old aircraft that are being disassembled by Dublin-headquartered Eirtrade Aviation are of relatively modern design.

The move is perhaps a reflection that the market for smaller widebodies is dwindling. For once, the Covid pandemic does not seem to be the culprit, as sales of the smallest 787 model had started to tail-off prior to the outbreak.

The Boeing model had enjoyed initial success, which has not been the case for the smaller of Airbus's competing A330neo models – the A330-800. Both manufacturers, however, are able to point to more successful larger variants.

787-8/9 and A330-800/900 leading characteristics

Model	787-8	A330-800neo	787-9	A330-900neo
Maximum seats	359	406	406	440
Typical seats	248	220-260	296	287
Typical range (nm)	7,300	8,150	7,530	7,200
Entry into service	2011	2020	2014	2018
Delivered	388	7	584	95
Orders backlog	43	4	426	187
Current market values - new ($m)	105.4	89.9	141.8	103.8

Source: Air Investor 2023 and *Airfinance Journal* Fleet Tracker.

Market prospects and developments
Sales of widebody aircraft are starting to pick up as passenger demand for long-haul flights recovers post-Covid, albeit more slowly than for the shorter-haul markets largely served by single-aisle aircraft.

The 787 programme received a major boost in mid-March when Boeing announced two large orders from Saudi Arabia, the majority of which were for the 787-9 variant. The orders were from the flag carrier Saudia and new airline Riyadh

787-8/9 and A330-800/900 recent orders

Aircraft	Up to 2019	2019	2020	2021	2022	2023 Q1
787-8	497	2	None	1	None	8*
787-9	863	91	11	16	138	5*
A330-800	14	6	1	None	None	None
A330-900	238	98	None	24	19	None

Source: Airfinance Journal Fleet Tracker.
Includes subsequently cancelled orders. *Excludes March Saudi Arabia announcements.

Air. The manufacturer says the agreement is part of Saudi Arabia's wider strategic plan to create a global aviation hub.

The deals are said to include up to 121 orders – making it potentially the fifth-largest commercial order by value in Boeing's history. The orders were, however, not confirmed in the manufacturer's official figures at the end of March, which included an order from Eva Air for five additional 787-9s.

As with single-aisle models, the manufacturers are being frustrated by supply chain issues as they try to ramp up production. Boeing's woes have been compounded by the problems that caused a hiatus in 787 deliveries. However, the worst of these difficulties appear to have been resolved.

Air Lease Corporation's executive chairman, Steven Udvar-Hazy, who has been critical of the delays of the Boeing aircraft, was more positive during a recent JP Morgan conference, saying: "The widebody recovery has been quicker than we anticipated. We're gratified that 787 deliveries will resume and rates are accelerating nicely for us."

Other positive signs include recent indications that Royal Jordanian Airlines is planning to grow its 787-9 fleet. As reported by *Airfinance Journal* in April, the carrier shared its fleet plan in its annual report for 2022, noting that the company is in talks with Boeing to acquire additional 787s and replace older units.

Leasing companies are increasing their activity in the A330neo market. Avolon says it will deliver five aircraft to German carrier Condor in 2023 as part of the carrier's plan to replace completely and expand its long-haul fleet with the Airbus model. In April, the airline was the recipient of the 100th A330neo to be delivered. Other lessors involved in financing deliveries for the Frankfurt-based company include Aercap and Castlelake Aviation.

Separately, Avolon has placed direct orders with Airbus for nine A330-900 aircraft and has agreed several other financing mandates for the model, including with Cebu Pacific Air and Malaysia Airlines.

Used aircraft finding new homes and refinancing

Secondary market activity for the 787 is returning. As recently reported, Aergo Capital has confirmed the delivery of two 787-9s to Air Premia. The aircraft are second-hand models and were stored in 2020 during Norwegian's restructuring. *Airfinance Journal* understands that both Air Lease Corporation and Aergo have agreed to supply additional 787-9s to Air Premia.

Given the smaller in-service fleet, there is less A330neo secondary market activity than for its competitor, but *Airfinance Journal* understands a recent closing of a Japanese operating lease with call option transaction by Orix Aviation included a 2019-vintage A330-900 attached to TAP Portugal.

Relative cash cost at fuel price of $3.7 per US gallon

	787-8	A330-800	787-9	A330-900	A330-900
Cash cost per trip	Base (100%)	109%	104%	111%	95%
Cash cost per seat	Base (100%)	113%	87%	98%	77%

Assumptions: 4,000 nautical mile sector; *Airfinance Journal* cost model and interpretation of manufacturer data.

Increasing contributions

The improving 787 situation helped Boeing to deliver more aircraft in March than Airbus – a rarity in recent times. The aircraft that were handed over by the US manufacturer included seven 787s, with deliveries of the type resuming after the manufacturer addressed the latest production problem – a data analysis issue.

Airbus also appears to be making some progress with its widebody portfolio. In March, the company handed over five twin-aisle models, including three A330-900s and two A350-900s. This was up from three widebodies in February and two the previous month.

Close rivals

As is the case for many of the head-to-head competitions between Airbus and Boeing models, the 787-9 and A330-900neo are closely matched. Typical passenger capacities are similar and individual airline choices influence which aircraft comes out best. However, thanks to better fuel consumption and higher design weights, the Boeing aircraft can either fly further or carry more passengers/cargo.

Maintenance a key question

Manufacturer claims on operating cost are difficult to decipher and maintenance requirements are particularly opaque. In theory, the 787's modern airframe should give it a cost advantage. However, with all the problems the aircraft has had, it is unclear whether the theoretical advantage has materialised in the real world.

Maintenance for the A330neo is unlikely to differ greatly from the original models, except for the engines, which, in theory, will be lower cost. The caveat is that engine maintenance costs are largely dependent on reliability and there is relatively little experience on which to base assessments.

Many airlines will opt for manufacturer schemes that offer, at a price, predictable costs. The availability of two engine options on the 787 gives customers a chance to negotiate with the engine manufacturers, but only before making a selection.

Airbus commonality

Airbus's marketing makes much of the commonality between the A330 and A350 models, particularly in the area of crew qualification. The European original equipment manufacturer has been granted regulatory approval of a common type rating difference training course for A330 and A350 models, based on the similar handling properties.

The company says the cockpit commonality allows crew to move from one aircraft type to another after short training periods and to hold more than one type qualification – allowing pilots to fly different aircraft types concurrently.

Cost comparison

Although the A330neo variants entered service after the competing 787 models, they are not an all-new aircraft, being based on the original A330 models, which entered service in the mid-to-late 1990s. The models incorporate significant developments, designed to improve the operating economics, but these do not match the benefits that the 787 models gained from their clean-sheet design and use of more modern technologies.

Airfinance Journal's cost analysis, carried out at the current fuel price, confirms the expectation that the 787 models retain a considerable advantage in cash operating costs.

As the A330neos were derived from previous-generation models, development cost will have been significantly lower than the investment required for the 787 programme, particularly given the problems getting the Boeing aircraft into service. This should allow Airbus to keep capital costs down in comparison to the 787.

In the absence of comparable list prices, Airbus's expectations for the A330neos are difficult to judge, but appraisers cite significantly higher current market values for the respective Boeing models.

If Boeing has finally got on top of the 787's problems, the A330neo could struggle to compete. However, commonality with the more successful A350 family may encourage some operators to choose the re-engined aircraft for routes that do not need the capabilities of the larger Airbus widebodies.

Rating agency unsecured ratings

Airlines

	Fitch	Moody's	S&P
Aeroflot	WD	-	-
Air Canada	B+(pos)	Ba3(stable)	B+(stable)
Air New Zealand	-	Baa2(stable)	-
Alaska Air Group	BB+(pos)	WD	BB(stable)
Allegiant Travel Company	BB-(stable)	Ba3(stable)	B+(stable)
American Airlines Inc.	B-(pos)	Ba3(stable)	B-(pos)
American Airlines Group	B-(pos)	B2(stable)	B-(pos)
Avianca Group International Ltd	WD	B3(stable)	B-(stable)
Azul S.A.	CCC-	Caa2(neg)	CCC-(neg)
British Airways	BB(neg)	Ba2(stable)	BB+(stable)
Delta Air Lines	BB+(stable)	Baa3(stable)	BB(pos)
EasyJet	-	Baa3(stable)	BBB(stable)
Etihad Airways	A(stable)	-	-
Grupo Aeromexico	-	B3(stable)	B-(stable)
GOL	CCC+	Caa2(neg)	CCC+(pos)
Hawaiian Holdings	B-(stable)	B1(stable)	B-(stable)
International Consolidated Airlines Group	-	Ba2(stable)	BB+(stable)
jetblue	BB-(neg)	Ba2(stable)	B+(neg)
LATAM Airlines Group	WD	B2(stable)	B-(stable)
Lufthansa Group	-	Ba2(stable)	BB+(pos)
Pegasus Airlines (Pegasus Hava Tasımacılıgı Anonim Sirketi)	BB-(neg)	-	B(stable)
Qantas Airways	-	Baa2(stable)	-
Ryanair	BBB(pos)	-	BBB(pos)
SAS	-	-	-
Southwest Airlines	BBB+(stable)	Baa1(stable)	BBB(stable)
Spirit Airlines	B+(stable)	B1(neg)	B(stable)
TAP Portugal (Transportes Aereos Portugueses, S.A.)	-	B2(pos)	B+(stable)
Turkish Airlines	B+(neg)	B3(stable)	B(neg)
United Airlines Holdings	B+(stable)	Ba2(stable)	BB-(stable)
Virgin Australia	WD	-	-
WestJet	B-(stable)	B3(stable)	B-(stable)
Wizz Air	BBB-(neg)	Ba1(stable)	-

Source: Ratings Agencies - 17/4/2023.

Lessors

	Fitch	Moody's	S&P	Kroll Bond Ratings
Aercap	BBB(stable)	Baa2(stable)	BBB(stable)	-
Air Lease Corp	BBB(stable)	-	BBB(stable)	A-(stable)
Aircastle	BBB(stable)	Baa3(stable)	BBB-(stable)	-
Avation PLC	WD	-	B-(stable)	-
Aviation Capital Group	-	Baa2(stable)	BBB-(stable)	A-(stable)
Avolon Holdings Limited	BBB-(stable)	Baa3(stable)	BBB-(stable)	BBB+(stable)
AWAS Aviation Capital Limited	-	Baa3(stable)	-	-
BOC Aviation	A-(stable)	-	A-(stable)	-
CCB Leasing (International) Corporation	-	-	A(stable)	-
CDB Aviation Lease & Finance	A+(stable)	A2(stable)	A(stable)	-
Clover Aviation Capital	-	Baa3(stable)	-	-
Dubai Aerospace Enterprise	BBB-(stable)	Baa3(stable)	-	BBB+(stable)
Fly Leasing	-	Caa1(stable)	CCC(developing)	CCC(neg)
Global Aircraft Leasing	-	B2(neg)	-	-
ICBC Financial Leasing	A(stable)	A1(stable)	A(stable)	-
ILFC (Part of Aercap)	BBB(stable)	Ba1(hyb)(stable)	-	-
Macquarie Group Limited	A(stable)	A3	BBB+(stable)	-
Marubeni Corporation	-	Baa2(pos)	BBB+(stable)	-
Mitsubishi UFJ Lease	-	A3(stable)	A-(stable)	-
Park Aerospace Holdings	BBB-(stable)	Baa3(stable)	-	BBB+(stable)
SMBC Aviation Capital	BBB+(stable)	-	A-(stable)	-
Voyager Aviation	WD	WD	-	WR

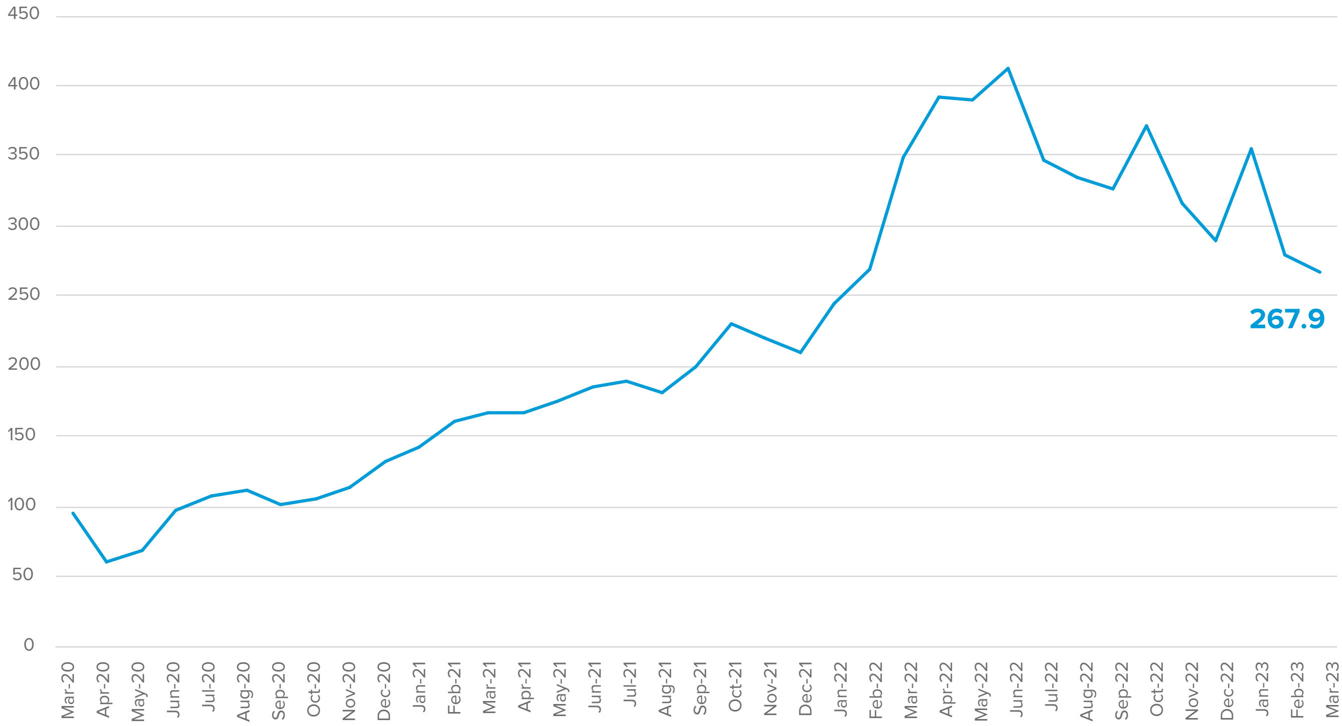
Source: Ratings Agencies - 17/4/2023.

Manufacturers

	Fitch	Moody's	S&P
Airbus Group	BBB+(stable)	A2(stable)	A(stable)
Boeing	BBB-(stable)	Baa2(stable)	BBB-(neg)
Bombardier	WD	B2(stable)	B-(stable)
Embraer	BB+(stable)	Ba2(stable)	BB+(stable)
Rolls-Royce plc	BB-(pos)	Ba3(pos)	BB(pos)
Raytheon Technologies Corp	-	Baa1(stable)	A-(neg)

Source: Ratings Agencies - 17/4/2023.

US Gulf Coast kerosene-type jet fuel (cents per US gallon)



Source: *US Energy Information Administration.*

Commercial aircraft orders by manufacturer

	Gross orders 2023	Cancellations 2023	Net orders 2023	Net orders 2022
Airbus (31 March)	156	14	142	820
Boeing (31 March)	120	13	107	774
Embraer	0	0	0	62
ATR	0	0	0	27

Based on *Airfinance Journal* research and manufacturer announcements until 28/04/2023.

Recent commercial aircraft orders (March-April 2023)

Customer	Country	Quantity/Type
Azerbaijan Airlines	Azerbaijan	Eight 787-8s
China Aviation Supplies Holding Company (CAS)	PRC	150 A320neo family aircraft, 10 A350-900
Eva Airways	Territory of Taiwan	Five 787-9
Greater Bay Airlines	HK-SAR	15 737 Max 9
Japan Airlines	Japan	21 Max 8
Lufthansa Group	Germany	Five A350-900, 10 A350-1000
Lufthansa Group	Germany	Seven 787-9
Luxair	Luxemburg	Two Max 8
Riyadh Air	Saudi Arabia	39 787-9
Saudi Arabian Airlines	Saudi Arabia	39 787-9/10

Based on *Airfinance Journal* research March-April 2023.

New aircraft values ($ million)

Model	Values of new production aircraft
Airbus	
A220-100	33.7
A220-300	38.1
A319neo	39.3
A320neo	51.5
A321neo	59.6
A330-800 (neo)	89.9
A330 900 (neo)	103.8
A350-900	147.9
A350-1000	161.9
ATR	
ATR42-600	15.4
ATR72-600	19.3
Boeing	
737 Max 8	50.5
737 Max 9	51.9
767F	80.7
777-300ER	121.6
777F	166.7
787-8	105.4
787-9	141.8
787-10	152.4
Embraer	
E175	26.5
E190-E2	31.6
E195-E2	35.4

Based on ISTAT appraiser inputs for Air Investor 2023.

New aircraft lease rates ($'000 per month)

Model	Low	High	Average
Airbus			
A220-100	210	245	227.5
A220-300	235	290	262.5
A319neo	222	315	268.5
A320neo	285	375	330
A321neo	335	420	377.5
A330-800	557	750	653.5
A330 900	655	875	765
A350-900	897	1,100	998.5
A350-1000	950	1,170	1060
ATR			
ATR42-600	105	135	120
ATR72-600	125	166	145.5
Boeing			
737 Max 8	280	350	315
737 Max 9	285	370	327.5
767F	450	750	600
777-300ER	800	949	874.5
777F	970	1,400	1185
787-8	630	755	692.5
787-9	865	1,050	957.5
787-10	895	1,110	1002.5
Embraer			
E175	170	229	199.5
E190-E2	189	235	212
E195-E2	219	270	244.5

I came from Alabama without my banjo on my knee

Moving production to the southern state seems to have worked out well for Airbus, writes **Adam Pilarski**, senior vice-president at Avitas.

There are just very few places in the world that have a final assembly line (FAL) for large aircraft. They are highly desired for the prestige they bestow on the host company and country, even though, in terms of value, the FAL work amounts only to a small percent of the final value of the aircraft. As a matter of fact, the value of, say, engines, is significantly higher than the value added generated by the FAL.

Having an FAL is seen as a source of national pride and various countries – such as Brazil, Indonesia, Argentina, India, South Korea, and others – attempted to have their own FALs for large jets.

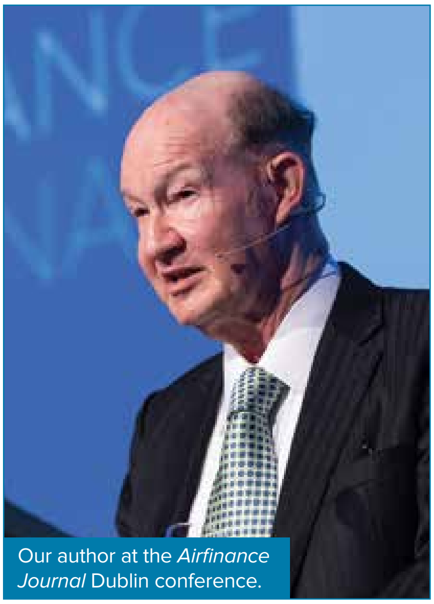
Today, FALs for large aircraft exist in Russia and China, in addition to the ones in France, Germany and the USA. In the USA, after McDonnell-Douglas and Lockheed ceased production of civilian aircraft, the manufacturing was all accomplished in Washington state.

Interesting developments have occurred in recent times. In the USA, Boeing moved an FAL to the South of the country, land where union power is much weaker than in Seattle or California. Boeing's FAL started operating in North Charleston, South Carolina, in 2011. Eventually, the US manufacturer moved all Boeing 787 production there.

Airbus pursued a different strategy by moving production out of Europe to other continents. Today, in addition to Europe, Airbus has FALs in Asia and the USA.

The facility in Tianjin, China, was recently in the news having delivered the first Airbus A321 aircraft and having opened a second A320 line. The facility in the USA is in Mobile, Alabama. Like Boeing, Airbus selected a less union-friendly part of our country hoping for easier labour relations.

Recently I visited the Airbus facility. The last time I travelled to this beautiful state was about 50 years ago. At that time, I was interested in the state having listened in my youth to a song, I came from Alabama with my banjo on my knee, written in 1848 by Stephen Foster. During my first visit I was impressed by the local music and friendly people but would never have expected to see a serious aircraft manufacturing facility there.



Our author at the *Airfinance Journal* Dublin conference.

> *"It turns out you can have high-tech manufacturing in beautiful Alabama, not just music and Southern charm."*

Airbus now produces some of its narrowbodies in Mobile, including the A220 and the A320. Having visited the CSeries (A220) in Canada years ago, I was interested to see the Alabama site. The trip was very pleasant for me. Not unexpectedly, the line runs smoothly and everything seemed in order, similar to the other line I visited years ago in Mirabel, Canada.

I must admit that when Airbus started talking about FALs in China and in the USA, I was quite sceptical about the motivation of these moves. I assumed that Airbus was developing the additional FALs to be prepared for the existing huge order bubble eventually bursting. In such a case, production cuts would be necessary. European labour markets are quite different from those in the USA and large layoffs (such as Boeing implemented during significant downturns) are not feasible there for political reasons.

Therefore, I thought that Airbus wanted the ability to cut the labour force in the USA and/or China in the event of a downturn, where they face less-restrictive labour laws. Hence, my reasoning went, Airbus was creating a perfect situation for them. To satisfy the existing large orders, additional capacity on other continents would work perfectly in good times. In bad times, with the bubble of orders bursting, Airbus could easily lay off non-European workers without experiencing the wrath of their politicians and citizens.

Fast forward to today's situation. Airbus has produced already almost 400 aircraft in Mobile. Adding the production in Tianjin, the non-European production is significant but at most 10% of total narrowbody production levels. A nice supplement to Toulouse and Hamburg but not a real threat to workers' employment prospects in Europe.

We face very different realities today where we are more concerned with possible shortages of aircraft rather than a bubble bursting and too many aircraft being produced. In hindsight, Airbus's strategy fits today's circumstances quite well as the whole world is redesigning its production systems, moving towards derisking, and having multiple suppliers.

And moving production to Alabama seems to work fine. Producing aircraft in the USA for US customers (who get 85% of their Airbus aircraft supplied by the Mobile facility) has many benefits for Airbus.

Having production facilities close to their customers is an obvious benefit and cuts costs. Also, with both revenues and costs in the same currency, foreign exchange risks are significantly reduced.

Moving production to Alabama seems to have worked out quite well for Airbus and I had a great visit even without a banjo on my knee.

It turns out you can have high-tech manufacturing in beautiful Alabama, not just music and Southern charm.