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Calming Investors

There is no doubt these have been turbulent times, but it is time to move on and make some new money, says SMFL

LEASING TOP 50 SUPPLEMENT | ESG GAINING GROUND | UPDATE ON CAPITAL MARKETS

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Aviation's **sustainability dilemma**

Someone has to pay for a green future, and investors, governments and passengers all have to be on board to reach emissions targets.

As aviation emerges from the worst crisis in its history, airlines look forward to a cleaner, greener future in which their march to net-zero emissions proceeds in lockstep with improving profitability and lower debt.

Of course, such a symbiotic relationship is pure fantasy, especially as airlines look to repair their balance sheets from years of borrowing and losses.

Airline losses could top $200 billion over the 2020-22 period because of the crippling impact of Covid-19 on air travel, according to the International Air Transport Association (IATA).

And while the pandemic further prioritised investing with conscience across all sectors, it is yet to be seen whether this is merely a trend or a fundamental shift in how people invest.

The stickiness of ESG investors is critical if the aviation industry is to meet its 2050 net-zero goals. Will the sustainability focus shift from a corporate plan to a somewhat moral one with passengers helping to pick up the tab for greener skies?

Critical regulation

A lessor source argues government regulation will be required for a full-fledged adoption of a sustainable mentality because "airlines will be motivated by the dire state of their finances to look at cost-cutting".

Without regulatory mandates and subsidies, airlines will always go for the cheapest option, adds the lessor. Does this mean governments will need to collect a fuel surcharge – so that the price of flying increases?

An aviation banker agrees that sustainability targets "ultimately will be regulated", adding: "It is a matter of time." However, he notes change will come at both the consumer and investor levels.

While some consumers support sustainability efforts, they do not necessarily want to pay for it.

According to IATA, aviation contributes about 2% to 3% on average of global carbon dioxide emissions annually. However, with dramatic growth forecast during the next 20 years, the challenge of lowering emissions will intensify as passenger numbers rise.

And with high debt burdens, airlines may struggle to hit sustainability targets.

The good news is that investors across all asset classes have become more engaged with ESG concerns since the onset of the crisis, and linking profitability to a green plan is becoming more common as consumer consciousness increases.

Data from Bloomberg Intelligence's ESG 2021 mid-year outlook shows that ESG-linked assets are on track to exceed $50 trillion by 2025.

Sustainability versus debt

Airlines were given essential liquidity from governments and investors during the pandemic to survive a collapse in traffic.

The financial support was a "lifeline" for many airlines during the crisis," IATA's director general, Willie Walsh, said at an October meeting in Boston.

"Much of that – about $110 billion – is in the form of support that needs to be paid back. Combined with commercial borrowing, the industry is now highly leveraged," he adds.

According to *Airfinance Journal*'s The Airline Analyst, balance sheet debt in 2020/21 timeframe (including operating lease liabilities under ASC 842/IFRS 16) increased to $596 billion from $392 billion and the debt/equity ratio more than doubled to 5.4x from 2.3x.

To achieve net zero, Walsh estimates that $2 trillion is needed to support an industry-wide resolution by 2050.

Not only will the sector have to invest billions of dollars in sustainable aviation fuel (SAF), air traffic control and infrastructure, but also manufacturers will have to develop newer, greener aircraft designs.

But if the industry is to meet its 2050 goal and decarbonise airlines, they will need SAF that is cheaper and more widely available.

Refuelling

SAF prices are currently about five times higher than prices for conventional jet fuel, shows data on European spot market prices collected by OPIS. To hit its net zero emissions target, IATA wants 65% of all aviation fuel to be SAF by 2050. It says 450 billion litres a year of SAF will be needed in 2050.

SAF is currently less than 1% of the aviation fuel, but IATA believes one billion passengers will have flown on an SAF-blend flight by 2025, and penetration should approach a tipping point of 2% of jet fuel.

But SAF is not the only alternative being researched to cut emissions. This year, Air Liquide said it would study liquid hydrogen supply at 30 airports globally with Airbus. The European manufacturer's chief executive officer, Guillaume Faury, told a sustainability event in September that Airbus is confident its hydrogen-powered aircraft will enter service by the target date of 2035.

Passenger pressure?

Some airlines think passengers will help fund the transition to net zero.

British Airways' 'Better World' initiative invites passengers to pay for SAF for their flights and contribute to carbon-reduction projects, such as reforestation. United Airlines is giving customers the ability to contribute funds for SAF purchases.

But passengers have not been big supporters of green measures to date.

According to the Aviation Environment Federation, the take-up rates by passengers on the option to offset their carbon emissions when they buy a ticket is very low – typically not more than about 1%.

For the sector's net-zero goals to materialise, there needs to be a paradigm shift in investment that supports a green agenda in aviation. Also, the industry needs to structure opportunities that support this change in investment.

There are also many questions about how nation states should leverage their burgeoning involvement in aviation. For example, should airlines which received bailout money be allowed to bring back older, less fuel-efficient parked aircraft?

Another lever might involve tying new route authorities to airlines tracking along stated ESG goals. Then there is the possibility of export credit agencies accelerating the transition to more efficient fleets with low-cost loans.

Al Gore made this point speaking ahead of the COP26 climate conference. He called for increased regulation and disclosure to force banks, traditional asset managers, private equity firms and other asset owners to overhaul how they deal with climate change risks.

"It is suicidal for the human race to continue on this track and to pretend that it can be somehow negated by promising to plant trees here, there or elsewhere. This is simply not realistic," says the former US vice-president.

The flying public, governments and investors need to be on board to fund and enforce the transition to net zero. Of course, a sure way to lower emissions is to fly less, but that view is currently not part of the sector's sustainability focus.

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CALC gets new group general counsel

Hong Kong-based China Aircraft Leasing (CALC) has appointed Nigel Goldsworthy as group general counsel, legal and contracts management, replacing Niel Liebenberg.

In his new role, Goldsworthy will provide strategic legal counsel to senior management of the group, overseeing its legal functions, and heading the legal and contracts management team to enrich the group's legal and contracts management framework. He will be responsible for all legal and contractual matters in CALC's global businesses.

Goldsworthy was previously the chief legal officer at Stellwagen Group and has significant experience in financing and leasing practices.

Before joining Stellwagen Group, he spent more than a decade with Rolls-Royce including as the group's company secretary and head of legal, as well as an earlier role as general counsel and company secretary of Rolls-Royce Capital and of the engine leasing unit Rolls-Royce and Partners Finance.

Before this, he spent more than 15 years in private practice with Freshfields Bruckhaus Deringer and Hogan Lovells where he was a partner in the aircraft aviation team.

"Nigel is a top-notch legal expert with deep understandings in aviation finance and leasing. With his extensive experiences and expertise, Nigel's new role as our group general counsel will be a valuable addition to the CALC team, strengthening our overall legal framework and facilitating expansion of our full value chain capabilities and global presence," says CALC's chief executive officer, Mike Poon.

CALC says Liebenberg will remain at the company as principal consultant.


Nigel Goldsworthy

Indigo promotes aircraft financing duo

InterGlobe Aviation (Indigo) has promoted Abhishek Bhalotia as associate director, aircraft financing.

Bhalotia was senior manager, aircraft financing, since April 2019 and was in charge of the carrier's sale and leaseback deals orderbook, comprising ATRs, Airbus A320neo-family aircraft and engines.

He joined the Indian low-cost carrier's aircraft financing department in 2015 from Power Finance Corporation where he was an associate project manager.

Indigo also promoted Sayan Bagchi to senior manager, aircraft acquisition and financing.

Bagchi joined the carrier in 2017 as manager aircraft acquisition and financing. He previously worked at PwC India as a consultant covering the energy and utility sectors.

Alton Aviation appoints global airline practice lead

Alton Aviation Consultancy has named Umang Gupta as global airline practice lead. He is based at the consultancy's New York office and will oversee its support to airlines.

Gupta brings 20 years' experience in airline strategy and revenue growth, having held leadership positions at United Airlines, Jetblue Airways, US Airways and Sabre.

His expertise extends across revenue management and pricing, planning, sales and distribution, marketing, brand management, advertising, non-airline partnerships, ancillary products, alliances and joint ventures, customer service, experience and loyalty.

"Umang's track record in driving strategic growth and performance improvement across a wide range of carriers speaks for itself. We are delighted to welcome him to the team as an invaluable asset to our airline clients," says John Mowry, Alton Aviation Consultancy's managing director.

In his most recent role as head of domestic revenue management at United Airlines, Gupta delivered unit revenue growth during the most turbulent time in the industry, while also leading the launch of United's acclaimed Premium Plus service.

Piiq Risk Partners adds senior partner

Piiq Risk Partners has hired Sylvain Devouge as a senior partner. Based in Paris, he reports to Mark Costin, senior partner.

Devouge will work across all aviation industry disciplines, developing (re) insurance expertise and tailored solutions, and will be responsible for the drafting and negotiation of (re)insurance documentation, contractual risk mitigation and claims advisory.

He brings 15 years' expertise to Piiq, the past five of which he provided Swiss Re with legal advice on commercial (re) insurance contracts as a senior contract specialist.


Sylvain Devouge

Previously, Devouge was head of Marsh France's aviation contracts and claims team, where he built extensive relationships with large aerospace manufacturers, maintenance, repair and overhaul companies and airline clients.

Griffin places first direct OEM order

Griffin Global Asset Management is doubling down on its aircraft investments. Its founder and chief executive officer, Ryan McKenna, talks to **Dominic Lalk** about the firm's first direct order with an original equipment manufacturer.

Los Angeles- and Dublin-based Griffin Global Asset Management announced in September it had ordered five Boeing 737 Max 8 aircraft. The purchase was its first direct order with an original equipment manufacturer (OEM).

Ryan McKenna, Griffin's founder and chief executive officer, tells *Airfinance Journal* that the firm has identified strategic opportunities to place the Max aircraft during the pandemic recovery.

"The market is still very dislocated because of the obvious travel restrictions that exist. At the same time, you are starting to see a tightening of the supply of aircraft for the most modern and fuel-efficient jets," says McKenna.

"As of today, we are thrilled to be a Boeing customer for the 737-8. It's a huge step in the evolution of our business and it sets the stage for us to do a lot of great things with Boeing in the future," says the former Air Lease top executive and head of strategic planning.

"There are a number of different transactions that we are actively engaged in that need delivery positions as part of broader solutions. Our strategy is to be a great long-term partner of Boeing and establishing an orderbook with the ability to scale over time is a key component to that objective," says McKenna.

"Ultimately, we seek to create solutions for our airline partners across their businesses. There is a need for capital in many different formats, and we offer the flexibility to respond to those needs," he says.

He agrees that a full market recovery will take time, with some regions recovering much faster than others.

"I think there is a fair bit of chop and uncertainty before the market returns to normal. We are spending a lot of time working with airlines to position themselves in the most favourable way for the recovering environment and the most modern, fuel-efficient aircraft are part of that," says McKenna, who is an FAA-rated pilot.

Backed by Bain Capital Credit, Griffin provides commercial aircraft leasing and alternative asset management, specialising in custom fleet solutions and innovative financing products to airlines worldwide.

"As of today, we are thrilled to be a Boeing customer. It's a huge step in the evolution of our business."

Ryan McKenna, founder and chief executive officer, Griffin Global Asset Management

Law firm Hughes Hubbard advised Griffin on the 737 Max order. *Airfinance Journal* understands that Griffin is also eyeing building its own orderbook with Airbus, and that it is in negotiations for widebodies.

Griffin has been tapping aircraft opportunities amid the industry turmoil created by Covid-19.

In 2020, Virgin Atlantic placed two 787-9 widebody aircraft under a sale and leaseback transaction with Griffin. The carrier used the $230 million in proceeds as part of its solvent recapitalisation.

Other transactions closed in the past 12 months include a bridging loan for an Airbus A350-1000, also with Virgin Atlantic, as well as delivery financing with Greek carrier Sky Express for one A320neo signed in May.

In April, Griffin closed a $1 billion warehouse facility. It said the facility includes innovations that provide it with maximum flexibility to offer airlines a variety of financing solutions, ranging from operating leases to finance leases to direct loans across a diverse spectrum of asset types and ages.

The facility also provides more flexibility on concentrations of certain airline exposure than a traditional warehouse facility, providing a bridging tool to long-term capital market solutions.

Initial commitments for the facility were provided by Goldman Sachs, Barclays Bank, Mizuho Americas, Morgan Stanley, Wells Fargo Bank, National Association, Bank of America and Deutsche Bank, New York Branch.

As for Boeing, the OEM confirmed to *Airfinance Journal* that "with more than 3,300 airplanes, the official 737 backlog (orders net of cancellations/conversions and accounting adjustments) is robust".

It added: "This year, through the end of July, the 737 orderbook has grown by 168 airplanes (535 gross orders, 343 cancellations, -24 ASC 606 changes)."

Since November 2020, 183 out of 195 global regulators have opened their airspace to the Max. To date, more than 30 operators have flown over 205,000 revenue flights totalling more than 500,000 flight hours, with greater than 99% dispatch reliability, notes the OEM.

Several key Asia-Pacific jurisdictions have recently cleared the way for a return of 737 Max aircraft to their skies, including landmark announcements from India, Malaysia and Singapore. Operators from these Asean nations have placed large Max orders, including 237 Max aircraft by Lion Group carriers and 200 by Vietjet Air.

Yet the biggest headache for Boeing remains China. Chinese regulators appear to be in no hurry to sign off a return for the Max, despite the fact that the US manufacturer opened its first overseas delivery facility, dedicated to the Max, in the Chinese port city of Zhoushan in 2018. For now, Boeing chief David Calhoun hopes to resume Max deliveries to China in the first quarter of 2022.

Japan, traditionally the OEM's best market in the Asia-Pacific, has kept its powder dry on the Max. Both All Nippon Airways and Japan Airlines, Boeing's best 787 widebody customers, have not placed any Max orders.

ACS targets growth in mid-life space

Chief executive officer Jason Barany tells **Hugh Davies** the lessor is targeting $500 million of equity capital to acquire another 80 to 100 mid-life aircraft and expand its conversion programme.

While mid-life aircraft and engine lessor Aero Capital Solutions (ACS) had its rough patches like any other company during the Covid-19 downturn, it sees many important opportunities ahead as the industry recovers.

In an interview with *Airfinance Journal*, ACS's chief executive and investment officer, Jason Barany, reveals that the Austin-based lessor is in the process of launching its third investment vehicle, targeting $500 million of equity capital.

Proceeds from the funds will be used to acquire another 80 to 100 mid-life aircraft, according to Barany. The lessor expects its aircraft portfolio to approach 175 to 200 aircraft over the next 18 months, with its engine portfolio exceeding 100 engines.

"We're raising that capital now and we'll be buying assets in that fund in the fourth quarter and all of next year," says Barany. "We definitely see our trajectory to continue from there."

Barany explains that the lessor is targeting three buckets of growth with an emphasis on finding alternative use opportunities for mid-life aircraft and engines.

Among its priorities, ACS will focus on acquiring feedstock Boeing 737-800s, either for placement opportunities as the market recovers, or for its freighter-conversion pipeline.

The lessor has made a large commitment to the 737-800-conversion programme. ACS recently expanded its freighter portfolio to 21 aircraft with seven additional conversions to be provided by Aeronautical Engineers, with modifications to begin in January next year.

Barany believes freighter demand for the growing narrowbody-conversion segment will remain strong in the long term because of structural changes resulting from the pandemic.

He notes that a combination of one-for-one replacements for passenger 737 Classics in the coming years, as well as growth on the package freight market and acceleration of e-commerce, will counter the return of belly freight as passenger demand recovers.

"The amount of folks that adopted e-commerce during the pandemic, they're not backing out from that," says Barany. "We don't see that going away. The market is still very much in its infancy, so there's a lot of growth in other parts of the world that is still yet to occur and that acceleration of e-commerce as a result of the pandemic is only going to grow from here," he adds.

Barany notes the company is also examining other freighter programmes, including the Airbus A321P2F, as well as mid-life widebody A330 or 777s, which have the potential to come off passenger leases into freighter conversions.

"That's something we're looking at, but we haven't put our toe in the water yet," he adds.

Barany says the company will be active in sale and leaseback transactions – in particular, offering airlines flexibility through shorter-dated sale and leaseback periods as carriers consider refleeting decisions in favour of new aircraft.

He explains that some airlines which deferred capital expenditure during the pandemic are now looking to be opportunistic in pulling in aircraft again as the market recovers.

Engine sale and leaseback deals are another emerging part of the ACS's platform, with green-time engine leasing expected to see an uptick as carriers review their fleet-retirement strategy and right-size their maintenance expenditure.

"We're watching that trend very closely," says Barany, who adds: "It's making green-time leasing become a lot more popular."

Engine placements are currently "pretty close to back to where they were prepandemic," says Barany, who estimates that engine lease rates are within about 10% to 15% of prepandemic pricing.

"That's without some of the other world markets participating just yet," he adds.

Barany says the company will also look to participate in lessor aircraft sales with an emphasis on deals more matched to its focus on mid-life assets.

> *Aircraft lessors are starting to sell airplanes again. The trading market is getting active again after 18 months where no-one was selling portfolios of aircraft.*

Jason Barany, chief executive and investment officer, ACS

"Aircraft lessors are starting to sell airplanes again. The trading market is getting active again after 18 months where no-one was selling portfolios of aircraft, so we'll certainly continue to price and win deals that are suited to us," he says.

Barany underlines that balancing all three types of origination is what differentiates it from other platforms, and what cushioned it to some extent during the pandemic.

"We definitely had some equipment that was redelivering on schedule that we took back and sat on the ground for a while, but we also took back aircraft early because we could do something else with them," he says.

"That gives us a lot of flexibility in the way we approach a given asset at a given time in given market conditions, because we've got options," adds Barany.

ACS's portfolio contains more than 110 aircraft and about 95 engines, with over $1.7 billion in assets under management.

Aircraft ABS stabilise

David Yu, an associate of the Shanghai campus of New York University and chairman of Asia Aviation Valuation Advisors, tells **Elsie Guan** how Covid impacted aircraft ABS and EETC deals.

Kroll Bond Rating Agency (KBRA) affirmed 23 and downgraded 11 ratings from 12 aviation asset-backed securitisation (ABS) transactions this autumn, after considering the structural provisions of the transactions and the priority of each security in the securitisation's capital structure.

"It is hard for me to think when the ABS market will reopen for the commercial jets sector. Right now, there is nothing apparent in terms of structures," says Chen Weili, head of commercial ABS, capital markets solutions, Standard Chartered Bank (Hong Kong).

"Take the global financial crisis as an example. It took six years for ABS to reopen. And I think there is a long period of time where the performance of both lease collateral and structure was going through slow recovery and revision," says Chen.

There have, however, been a few green shoots over the past 12 months.

ABS activity accounted for $3.6 billion of the roughly $65 billion of financing raised by lessors in the nine months ended 30 September, down from about $5.4 billion in the same period in 2019, *Airfinance Journal*'s Deal Tracker shows, with several more deals in the pipeline heading towards the end of the year.

In a joint paper, experts say that the two major multiple aircraft asset financing structures – aircraft ABS and enhanced equipment trust certificates (EETCs) – have been heavily impacted by the Covid-19 pandemic.

The paper was co-written by David Yu, a finance professor at New York University Shanghai and chairman of Asia Aviation Valuation Advisors, Christopher Papajohn, a finance lawyer in New York, and Tasos Michael, chief executive officer (CEO) of Inception Aviation.

"Both types of structures are under enormous stress, and bondholders and lessors are facing unusual challenges as airlines begin to default on the underlying leases," says Yu.

Since the mid-1990s, aircraft leasing companies have used ABS to finance large portfolios of aircraft operating leases. In 2019, aircraft ABS issuance neared $9 billion, 15% over 2018's level and 26% over that of 2017, shows data from Structured Finance Association 2020.

"Unlike aircraft ABS, which relies on the cash flows of multiple aircraft leased

"The occurrence of the virus does not affect the availability of the leased equipment or directly prohibit rent payment."

David Yu, an associate of the Shanghai campus of New York University and chairman of Asia Aviation Valuation Advisors

by multiple airlines, an EETC relies on the credit of a single airline and is secured by the selection of aircraft and/or engines in its fleet as collateral," says Yu.

Since the Covid-19 pandemic began, airlines have made various legal attempts to avoid their lease obligations.

Carriers are renegotiating or failing to make payments for leased aircraft, which could result in record levels of lease defaults given that the leased fleet is more than 40% of the worldwide aircraft market.

"The occurrence of the virus does not affect the availability of the leased equipment or directly prohibit rent payment. Because the lease is still technically capable of being performed, the airline's performance is not legally frustrated," says Yu.

Not only would the bondholders and servicer (in the case of ABS) be forced to negotiate with other creditors, but they may also be forced to negotiate with each other. With a diverse pool of investors, the smaller investors may be outvoted by the larger investors and be forced to accept a particular solution, he adds.

"Understand the fiduciary duties of the officers and directors of the servicer and security trustee; understand the current state of the assets and any contractual obligations tied to these assets; understand and refresh the valuations of the assets on differing levels of situations as laid out earlier to attempt to maximise recovery and pricing," Yu lists some practical tips for all stakeholder parties in an aviation ABS or EETC.

"You also need to understand the cash management system and cash flows in your ABS or EETC deal and where your position lies. Make sure that your intercompany debt is accurately tracked and good accounting records are maintained," says Yu.

"The upcoming 12 to 24 months will produce some interesting challenges. The faster that some of these issues are recognised and addressed, the faster the investors and other stakeholders can reset and continue on the long-term growth path of the asset class," he adds.

The market recently resumed with SALT 2021-1, a $894 million ABS, launched in mid-October. The ABS will be serviced by Bellinger Loan Management, an affiliate of Bellinger Asset Management, in partnership with Stonepeak.

The transaction is the inaugural aviation ABS loan launched by Bellinger, which manages a portfolio of 26 aircraft and two engines.

In September, KBRA assigned a BB+ issuer rating to Castlelake Aviation and a BBB- rating to the proposed $1.18 billion, five-year senior secured term loan B to be issued by Castlelake Aviation One DAC and guaranteed by the company.

As of 31 March, Castlelake had $20.2 billion of assets under management in private funds and seven ABS debt structures and is currently investing out of its fourth dedicated aviation fund.

In October, Fitch Ratings maintained Spirit Airlines' class-AA and A certificates for the 2015-1 and 2017-1 transactions at AA- and AA, as well as Jetblue's 2020-1 and 2013-1 series of EETCs at A and A+, respectively.

Spirit's 2015-1 pool contains 15 aircraft, which makes up about 9% of the company's current fleet. The 2017-1 pool contains 12 aircraft, or about 7% of Spirit's fleet.

ESG gaining ground

Sustainability focus is crucial for the airline industry as it emerges from the Covid-19 crisis, reports **Hugh Davies**.

Sustainability-linked financing is starting to gain momentum again in the aviation industry after being on hold during the Covid-19 pandemic, but it is still only scratching the surface in terms of potential to shape the sector to become truly sustainable.

Sarah Usmani, managing director and head of sustainable finance at Abu Dhabi First Bank (FAB), says great strides have been made across multiple sectors since 2017 when the bank issued its first green bond.

"Financiers are looking at this extremely positively, and the fact that some of these transactions are being structured in terms of KPIs [key performance indicators] with economic incentives attached is a way to encourage players in the industry and across sectors," she said at *Airfinance Journal*'s Reconnect: London event in late September.

Abu Dhabi-headquartered Etihad Airways has stepped up its green financing agenda with the launch, in October, of a $1.2 billion first-of-its-kind sustainability-linked loan tied to environmental, social and governance (ESG) targets, with FAB and HSBC acting as strategic partners in the transaction.

The new financing builds on the first deal, closed in 2019, which tied into United Nations sustainable development goals. In late 2020, the carrier closed a $600 million transition Sukuk, a form of Islamic financing linked to Etihad's carbon-reduction targets and investments in next-generation aircraft.

Daniel Tromans, Etihad's group treasurer, says sustainability-linked financing demand has opened up a significantly expanded liquidity pool for the carrier from the capital markets, with new investors holding strong interest in these instruments.

"We've seen growth both in terms of the bank market and debt capital markets, tapping into these global liquidity pools with green investors. We expect to see more of that going forward," he adds.

Are these financings enough for the industry to meet net zero emissions by 2050 though, and what more can airlines, lessors and other stakeholders do to accelerate the transition?

Kata Cserep, global managing director aviation at ICF, says the idea of treating an industry such as aviation as truly sustainable must be treated with caution, adding that sustainability-linked financing is still in its infancy.

> *"This has to be part of the financing world. Missing out on this kind of financing means missing out on the future of aviation."*
>
> **Kata Cserep**, global managing director aviation, ICF

She notes that the concept of "transition" financing in aviation better highlights the industry's transformation to becoming more sustainable, arguing that this will be "absolutely critical" to achieving true carbon-neutral flying in the future.

"This has to be part of the financing world. Missing out on this kind of financing means missing out on the future of aviation," says Cserep.

The Covid-19 crisis could not have come at a worse time from a sustainability angle, she adds, with the downturn creating a disconnect between managing the cost of transition and appetite to make the transition, particularly from an airline perspective.

This makes these forms of sustainability-linked financing even more important for the future – in particular, investments around sustainable aviation fuel (SAF), according to Cserep.

She emphasises the global framework for ESG initiatives is currently a "complete patchwork", even within certain regions.

"This means it's up to the issuers, airlines, lessors or the investors to choose what they consider is the most appropriate," adds Cserep.

Usmani says innovations in SAF and other breakthrough fuel technology will be key to a sustainable future for aviation.

"A lot of the airlines are focusing on fleet renewal to more fuel-efficient fleets. Clearly, there are emissions savings there, but the bigger picture is in areas such as sustainable fuels or green hydrogen," she says.

Speaking with *Airfinance Journal*, CDB Aviation's chief executive officer, Pat Hannigan, says the transition to sustainable aviation must come from all stakeholders, including the leasing community.

"The level of money that is going to have to be invested to reach the territory of net zero emissions is not just going to come from airlines; it's going to come from venture capital and the private sector, but it also has to come from governments," he adds.

Hannigan says CDB Leasing is particularly supportive of the transition to new technology as it pursues its own green agenda in other industries.

"They're very keen to do that. Their simple rule of thumb is to get into new technology sooner and last year was a big year for us for that," he adds.

"CDB are very heavily focused on the green agenda and they're actually doing something about it… They're talking to us about what the future is and how to invest sustainably but, at the end of the day, we're a leasing company with residual risk in airplanes."

He adds: "As a lessor, my focus is to finance an aircraft that is desirable by airline customers, as we invest in airplanes that can be leased and then re-leased after the first lessee.

"Our focus will always continue to be on new-technology aircraft, including future technology which offers environmentally friendly solutions that our airline customers seek and find value in. We intend to stay in close contact with the OEMs [original equipment manufacturers] and airlines as our industry addresses sustainability."

Hannigan says CDB Aviation originated 45 new-generation aircraft on sale and leaseback with airlines last year. The lessor portfolio comprises about 70% new-technology aircraft with the share to continue growing over the coming years as new aircraft start being delivered.

"That's one of our critical KPIs in the next few years as we work with airlines that are focusing on sustainability," adds Hannigan.

Lessor interest in zero-emission aircraft technology has grown in recent months, with Avolon placing 350 of its up to 500 electric vertical take-off and landing aircraft orderbook with Brazil's Gol and Japan Airlines.

In another ESG initiative, asset manager and lessor Amedeo signed a deal with Toulouse-based Aura Aero in late October to acquire 200 19-seat electric regional aircraft.

Hong Kong gets **new airline**

Greater Bay Airlines says it is ready to take to the skies with leased 737s as soon as Hong Kong SAR authorities approve its licence, reports **Elsie Guan**.

New entrant Greater Bay Airlines (GBA) received its air operator's certificate (AOC) from the civil aviation department of Hong Kong SAR in October. That, however, is not enough to take to the skies. An air transport licence issued by the special administrative region's Air Transport Licensing Authority (ATLA) is still pending approval.

Getting the blessing of ATLA is proving more challenging than GBA expected after Hong Kong's flag carrier of 75 years, Cathay Pacific Airways, called for a review.

Cathay Pacific tells *Airfinance Journal* that it had made representations to ATLA to ensure that "any application for air services should take into account the difficult operating environment that the Hong Kong air services industry is currently going through".

The carrier adds: "Aviation is a very competitive industry. We are already competing with more than 100 carriers and recognise an active and vibrant market for air services is critical to the success of Hong Kong as an international aviation hub. We remain committed to keeping Hong Kong connected."

ATLA will now hold a private inquiry in late December into GBA's bid to start flights, which means GBA's first flight has now been postponed to at least January 2022.

GBA was founded by Wong Cho Bau, founder and chairman of Shenzhen-based Donghai Airlines.

Algernon Yau is the start-up's chief executive officer (CEO). Until 2020, he was the CEO of Dragonair.

GBA's planned network closely resembles that of the former Dragonair – ie, narrowbody flights from Hong Kong SAR to China, Northeast and Southeast Asia. Sources confirm that Yau was at the helm of Dragonair when the decision was made to retire the airline from the Cathay portfolio.

"Airlines worldwide have undergone hard times due to border closure, government regulations and the continuous effects from the Covid-19 pandemic, no matter to a newcomer, or an existing airline," says Subhas Menon, director general of the Association of Asia Pacific Airlines (AAPA), in a seminar.

"There is a process for ATLA to approve air transport licences and listen to market voices. Under Hong Kong's aviation environment, it is very promising for GBA to start operations," says Johnny Lau, chief consultant of PwC Aviation Business Services.

The greater capacity offered by Hong Kong SAR airport's third runway should also make it easier for local authorities to approve start-up carrier GBA, adds Lau.

Hong Kong International Airport (HKIA) expects its third runway to be ready for use in 2022.

On 7 September, HKIA announced the completion of tarmac works on the third runway, marking the halfway point of a HK$141.5 billion ($18.2 billion) expansion of the city's aviation hub.

"Once the third runway is used, there will be more flight schedules for airlines, which gives GBA many opportunities to fly," says Lau.

GBA being fully incorporated in Hong Kong SAR will help it overcome regulatory and competitive obstacles, adds Lau, referencing the Jetstar Hong Kong application fiasco several years ago, and its eventual denial.

Jetstar Hong Kong intended to start flying with nine Airbus A320s in 2013 but came up against strong opposition from Cathay Pacific. It was one-third-owned by Jetstar parent Qantas, with the other two-thirds owned by Hong Kong SAR company Shun Tak Holdings and China Eastern Airlines.

Cathay's then CEO, John Slosar, continued to assert that Jetstar's principal place of business was Australia.

"The management team of GBA is experienced and is totally based in Hong Kong, which offers good chances for its local development," says Lau.

"At the beginning, GBA needs to remain stable, and it could operate routes which Cathay Pacific does not currently operate. However, the two parties will inevitably have direct conflicts in the future, because the most profitable routes are always desirable. Cost is always a fundamental problem," says David Yu, a finance professor at New York University Shanghai and chairman of Asia Aviation Valuation Advisors.

Billionaire Wong already runs Donghai Airlines, which operates 23 Boeing 737-800s and has orders for 25 737 Max aircraft.

GBA's first 737-800 arrived in Hong Kong SAR in September. The aircraft is under an operating lease contract with Beijing-based ICBC Leasing.

The 2017-vintage aircraft 737-800 was previously in operation with Norwegian. The first three 737s leased from ICBC Leasing will all be aircraft that came off lease early from Norwegian.

GBA would be Hong Kong SAR's fourth passenger airline. The others are Cathay Pacific, HK Express and HNA-associated Hong Kong Airlines.

How did **Jet2 finance its previous orderbook**?

Boeing operator Jet2 has switched to Airbus narrowbody model, the A321neo, and could finance some of its deliveries in the mortgage debt and Jolco markets.

UK leisure carrier and Boeing 737 operator Jet2 placed two orders for 51 Airbus A321neos with the European manufacturer, which could increase to up to 60 units.

Jet2 says it will retain flexibility in determining the most favourable method of financing the aircraft, which will be through a combination of internal resources and debt.

The UK carrier's Airbus announcements in October (15-aircraft order) and August (36-aircraft order) were its second direct order in six years, having previously leased aircraft or acquired some units in the second-hand market.

Its 2015 737-800 order, initially for 27 units, was subsequently increased in 2016 to 34 aircraft. Jet2 completed its 737-800 delivery financing after receiving 34 aircraft over two-and-a-half years to January 2019.

That order was designed to replace some of its 737-300s. At the time, Jet2 operated 58 aircraft: 29 737-300s (including eight quick-change variants with variable passenger or cargo configuration); 17 used 737-800s; and 12 757-200s.

The carrier took delivery of its first new aircraft in September 2016. Another seven new units were delivered during the second half of that year.

Half of its orderbook was financed via the commercial debt market, shows *Airfinance Journal*'s Deal Tracker.

The company raised financing in the Japanese operating lease with call option (Jolco) market for the other 17 deliveries.

In 2016, six deliveries were financed through mortgage loans with its parent company, the Dart Group. German lender Helaba was involved in three financings, while NordLB financed one delivery. Bank of China, London branch financed another two units.

That year, Jet2 used the Jolco market to finance two deliveries with Sumitomo Mitsui Banking (SMBC) Europe and Bank of Tokyo Mitsubishi UFJ, London branch, after Financial Products Group received the mandate.

The UK carrier received 14 new 737-800s, of which nine units were financed in the Jolco market.

The first of its 51 A321neo orders does not arrive before 2023

CA-CIB closed one transaction as overall arranger, while three deliveries were financed with SMBC as security agent. Five more 737-800s were financed with Bank of Tokyo Mitsubishi UFJ.

Jet2 financed five new deliveries in the debt market in 2017 and the airline enlarged its commercial bank pool with two new banks: Dekabank was mandated on two aircraft, while another two were financed by HSBC France. NordLB financed the final delivery.

In 2018, the UK carrier received 12 aircraft and roughly split its mandates between the commercial debt and Jolco markets.

SMBC closed two of the five Jolco financings that year, while Bank of Tokyo Mitsubishi UFJ financed three deliveries. Another aircraft delivery was financed under a Jolco arranged by CA-CIB.

Bank of China provided debt on four new 737-800 deliveries in 2018, while SMBC financed the other two aircraft in the debt market.

SMBC closed a Jolco transaction in January 2019 for the final 737-800 delivery for Jet2.

No sale and leaseback plans

Interestingly, the airline has not mentioned the sale and leaseback market for the financing of its future deliveries.

The finances of the UK carrier may not be the same as in the 2016-19 period, while the first of its initial 36 A321neo order does not arrive before 2023.

That firm order's deliveries stretch over five years through 2028. The additional 15 aircraft will be delivered between 2026 and 2029.

Like other UK carriers, Jet2 has accessed government support during the pandemic.

Last year, Jet2's owner, Dart, a leisure and logistics group, borrowed £300 million ($366 million) under the UK government's Covid Corporate Financing Facility (CCFF) to shore up its finances. Around the same time, Dart raised £172 million through a share issuance.

Last November, Dart raised £75 million through the financing of six unencumbered aircraft.

The UK leisure airline says it has taken "swift and decisive action" to mitigate the impacts of the pandemic over financial year 2021.

Earlier this year, the parent of the UK budget carrier raised about £422 million from a fundraising comprising 35.16 million placing shares and subscriptions for 593,561 retail shares, in each case at a price of £1.18 per ordinary share.

More recently, the UK budget carrier raised £537 million in new financing to boost liquidity in response to the Covid-19 pandemic. The company priced £387 million of guaranteed senior unsecured unrated convertible bonds due 2026 at 1.625%.

It also signed a new £150 million unsecured term loan maturing in September 2023. Jet2.com and Jet2holidays will initially guarantee the convertible bonds.

Jet2 ended fiscal year 2021 with a total cash balance of £1.4 billion after a £374 million pre-tax loss, widening from a loss of £264 million in the same period last year.

Single fleet focus **scotched Alaska's Airbus order**

The carrier is strengthening its ties with Boeing at the European manufacturer's expense, writes **Laura Mueller**.

Alaska Airlines' focus on fleet simplification is influencing its thinking regarding an order for 30 Airbus A320neos, which the carrier inherited alongside an A320-family fleet from Virgin America.

The airline, which has not formally cancelled the agreement with the European manufacturer, is expected to sever the deal before year-end.

"The A320neo order was originally placed by Virgin America years ago, and one of the secrets about long-term aircraft contracts is that they have escalation formulas in them," says Nathaniel Pieper, senior vice-president, fleet, finance and alliances and treasurer, Alaska Air Group.

"The price that Virgin America acquired the aeroplanes for probably was pretty good at that time, but frankly, many years of escalation have come and would come before delivery. So even if Alaska were going to build its fleet around A320neos, you wouldn't take them out of that contract. You'd go back and start a new competition with Airbus," he adds.

Alaska has ordered additional Boeing 737 Max units as part of the phase-out of its previous A320-family fleet, which will be completed by the end of 2023.

In December 2020, the airline restructured its 737-9 agreement with Boeing initially made in 2012, with the restructured agreement featuring 68 firm aircraft and 52 options, including 13 737-9s on lease from Air Lease Corporation.

Alaska has since exercised options on 25 additional 737-9s and secured 25 option positions to replace those exercised.

The 71 Airbus aircraft, which came with the 2018 acquisition of Virgin America, will be reduced to 10 A321neos by the end of 2023.

Alaska has 50 A320s (24 in operation, 20 parked and some returned to lessors), 10 A319s (all parked), 10 Leap-1A-powered A321neos (all in operation) and 166 737NGs.

Is the A321neo an option?

"We've made our commitment with Boeing for the 737-9s to be our core, and we are working with Boeing on the Dash 10. The relationship between Alaska and Boeing is really strong," says Pieper.

He acknowledges the A321neo has performed well for the carrier.

"It's a great plane. The leases for those 10 planes don't expire until 2029, 2030 and 2031, so absent a creative economic transaction, we're going to have those aeroplanes in our fleet for a long time.

"Fleet complexity is something I learned in my previous lives at Delta and Northwest, where we had so many fleet types, but now at Alaska, fleet simplicity is attainable. There are real benefits to having one fleet type," adds Pieper.

On 28 September, ALC took delivery of a new 737 Max 9 aircraft on long-term lease to Alaska.

Equipped with LEAP-1B engines, the unit is the first of 13 new Max 9s to be delivered to the airline, as announced in November 2020, from ALC's orderbook with Boeing.

This new Max 9 from ALC joins six Max 9 units currently flying in the Alaska fleet.

The carrier returned its first net profit without government aid since the pandemic began in the third quarter. It reported net income, excluding special items and mark-to-market fuel hedge accounting adjustments, of $194 million, compared with a net loss of $431 million.

Alaska generated an adjusted pre-tax margin of 12% in the three months. Operating revenue totalled $1.9 billion compared with $701 million in the year-earlier period.

"We are thrilled to return to profitability this quarter," says chief executive officer, Ben Minicucci, in an earnings release. "We're all feeling the momentum and look forward to building on our strong foundation for growth in 2022 and beyond."

The carrier reported a debt-to-capitalisation ratio of 51%, a reduction of 10 points from 31 December 2020.

It ended the quarter with $3.2 billion in unrestricted cash and marketable securities as of 30 September.

During the three months, Alaska prepaid $425 million in debt from its 364-day term loan facility, bringing total debt payments for the year to $1.2 billion.

Separately, Alaska Airlines has launched Alaska Star Ventures to back emerging technology that will accelerate the airline's progress toward net-zero carbon emissions.

Alaska Star Ventures' first investment, of $15 million, is in Los Angeles-based UP.Partners' inaugural venture fund.

That $230 million early-stage fund will focus on "sustainable, multidimensional mobility technologies that are transforming the moving world".

Market still in **fragile state**

David Yu, a senior Istat certified aviation appraiser and chairman of China Aviation Valuation Advisors, looks at recent aircraft financing trends and developments.

Covid has resulted in new financing trends and developments by banks and other financial institutions. We have moved from the extreme initial shock, where the industry essentially closed for new deals, while deals that were already too far along were completed. This can also be seen by the slew of asset-backed securities (ABS) deals finishing before the market took a pause.

Aircraft transactions are not easily processed and those who talked about no impact at the start of the crisis failed to mention that the start date on those completed deals was before the aviation world had heard of the word "Covid". Financial institutions in Asia and elsewhere took the time to conduct a comprehensive review of their aviation portfolios and underwriting policies.

These decisions had ultimately made all underwriting committees more conservative. Some decided that this market was too much and took a pause in underwriting new deals, while others decided to exit the industry or eventually reached that decision by selling their portfolios (National Australian Bank, etc); others decided to move forward initiating new deals.

From those highly distressed initial months, the market has moved slowly towards a rebound along with the increased global vaccination rates, although country entry restrictions still stifle the market.

While the aircraft deals market is still alive, the frequency is not as high as it was before Covid. The market has split where the freight and cargo aircraft segment is doing well and is in demand. Regional and narrowbody passenger aircraft are still seeing active trading but are still subdued and are at discounted values, while the bigger widebody aircraft transactions have slowed. There is still a disconnect between what parties are willing to sell and the realities of the market.

Apart from sale and leasebacks, transactions appear to be largely at values lower than appraisals and not as frequently reported. These slower amounts of transactions are also evident by the large number of new equity funds that have been raised and that are mostly waiting on the sidelines. Some deal terms have been increased back to as much (if not more than) pre-Covid robust figures such as lease rate factors, etc. The market has semi-recovered but is still very fragile with some way to go to a more sustainable recovery.

We have seen numerous but very uneven industry support by governments around the world with a stimulus of $243 billion as of October, according to the International Air Transport Association. Asia, unfortunately, is still lagging in this compared with other regions. This support has propped up our industry in the time of one of its greatest needs but, at some point, when the industry is sustainable, it will be time to exit. The current environment is still fragile, so governments should wait for more stabilisation before withdrawing these support systems.

Another stimulus that is working through the financing system is the side effects of the January 2022 implementation of the Basil IV banking requirements. While the rules have been implemented for greater transparency, they are having the unintended effect of guiding banks to divest defaulting aircraft loans rather than to work out the problems. I have seen several banks which have sold at less than par because of this issue.

Airlines' recovery performances over the summer have been very uneven, with North American carriers having had a good summer while European airlines experienced starts and stops. Asia did not have a good summer, with Covid flare-ups in China in prime February and later summer periods that significantly affected domestic travel, and international traffic is abysmal.

Similarly, the rest of Asia exhibited low international traffic, with some countries just recently getting past zero Covid regimes and opening up, such as Australia, Singapore and Thailand.

Unlike US carriers, some airlines have not had the luxury of building up a cash reserve heading into the upcoming second low winter months in operations. This will add additional pressures on airline financiers who have already restructured lease and financings with longer tails. It can be questioned whether those parties are still willing to undertake a second round of support and if their lenders and sponsors will support such action.

Additionally, one of the more stressed initiatives in aviation is an increased focus on

"From those highly distressed initial months, the market has moved slowly towards a rebound along with the increased global vaccination rates, although country entry restrictions still stifle the market."

David Yu, senior Istat certified aviation appraiser and chairman of China Aviation Valuation Advisors sustainability. Emphasis on sustainable fuels, electrification and hydrogen technologies will require significant amounts of cash and financing to develop the initiatives. This will be a difficult additional pressure on the airlines and the aviation ecosystem at a time when there is greater cash needs to be used to strengthen balance sheets and replenish reserves. This is an added argument for not withdrawing government support so quickly.

Environmental, societal and governance, or ESG, is an increased focus on investors and, in turn, driving more emphasis by banks. Modern equipment is preferred to older, less-efficient aircraft with its more sustainable characteristics. This emphasis is putting pressure on older technology aircraft and the ones that are less desired by the market. These are the very aircraft that are mainly used by lower credit airlines and lessors which need the financing the most. The focus on new sustainable initiatives, while well intentioned, will also put additional pressures on airlines and banks to spend additional capital. In some instances, I have seen values collapse.

The first wave of restructurings of airlines and leases have already occurred and are ongoing but we are in a position where we will see more increased pressure on airlines' cash needs in the upcoming winter months. Lessors and banks have taken the brunt of these pressures given the lack of options available.

I am seeing more banks take the painful decision to call in loans or accept losses. Many loan books have been traded, although there have been some encouraging results for more supported airlines. When there are fewer remarketing options for non-performing aircraft, restructuring the leases is the best alternative. In the meantime, lessors are taking the brunt of delayed or lack of rental payments by stepping up and filling some of those funding gaps.

The level of borrowing among lessors is truly worrying. While headlines boast of the millions raised in liquidity and this will ensure no immediate defaults, the level of debt is probably unsustainable and merely pushes the problem to a future date.

Those with older assets have a shorter period in which to get their houses in order and, in some cases, the values and earning potential of their aircraft will not be sufficient to justify the debt raised. This is the same dilemma from the banks' perspective because there are not many other alternatives for homes. The problems are just being postponed but banking regulations, such as Basel IV, may yet bring the house down.

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How deals have been restructured may also raise some alarm bells. There are rumours of security deposits having been converted to rent, maintenance reserves recategorised as rent and leases reworked to allow for end-of-lease compensation.

Lease extensions may also only work when assets continue to have a positive outlook in terms of future employment and, where old assets have been extended, there is a serious risk that the obligation may outlast the usefulness of the asset. Some lessors may have spent the maintenance reserves received (especially if these are termed "additional rent") and may now struggle to repay lessees for works accomplished.

One of the main questions facing banks is, can they continue to kick the proverbial can down the road and reschedule payments for lessors and airlines as the need for cash in the winter months intensifies?

Traditionally, a banker had a close relationship with his borrower to obtain both a deal and also to work through some of the issues. Now procedures often dictate after these loans are under or non-performing, they are transferred to a separate workout team. This would diminish the role of the relationship and focus more on the hard facts of each case. I have seen examples of this in action and my view would be that this may take a perfectly workable situation and label it a distressed deal. The solution may be as simple as allowing the current team to continue managing the transaction.

The banks are still active and have continued to fund the loans of high-grade credits of both airlines and lessors. These higher-grade credits typically have rated debt and are publically listed. They have access to the banking markets as well as the syndicated structured finance markets. This includes enhanced equipment trust certificates and ABS markets, which have bounced back and continued to see new issuances at attractive funding levels and rates such as the recently issued $894 million aircraft loan ABS SALT 2021-1 sponsored by Stonepeak and Bellinger, and the Sky Leasing-sponsored SLAM 2021-1, among others.

This has extended to granting new blind warehouse facilities and revolvers to lessors. Some of the recent ones include Goshawk's extension of its $500 million warehouse facility in August, Griffin Global Asset Management's $1 billion deal in April 2021 and Sky Leasing's $600 million warehouse facility in January 2020, completed at the edge of the crisis.

Higher yield credits, on the other hand, have had more difficulties in the financing market. Only top-notch airline and lessor credits are being considered by bank loan committees. Will the banks live to regret their decisions? Time will tell.

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Lessor financing charges onwards

This year has confounded most expectations as investors help lessors to bounce back from the lows of the pandemic, writes **Hugh Davies**.

Despite a decline in activity during 2021 because of the Covid-19 pandemic, the outlook for lessor financing remains strong heading into 2022 with lessors big and small able to access a range of financial products.

Airfinance Journal's Deal Tracker shows that leasing companies have raised about $65 billion in total financing in the nine months ended 30 September, including the $28 billion of unsecured loans raised by Aercap for the acquisition of GECAS.

This compares with just under $51 billion in the same period in 2019. Asset-backed securitisations and the unsecured markets have remained vibrant throughout the year, accounting for $28.7 billion of deals.

David Berkery, partner at A&L Goodbody, sees plenty of optimism heading into next year.

"In the second-half of 2020, only the most bullish of commentators would have predicted that 2021 would see as much ABS [asset-backed securities] activity, as many loan sales and interests rates as low as we have seen. Even as passenger numbers remain depressed, the recovery from a financing perspective is charging ahead," Berkery tells *Airfinance Journal*.

He notes that more than 45 airlines have filed for Chapter 11 or another formal restructuring process since the beginning of the Covid-19 crisis, compared with only one major lessor seeking court protection from its creditors.

"The risk teams in major lessors are really sophisticated and the fact that we have seen so few lessor defaults during a global pandemic is testament to the robustness of lessors. They remain attractive to investors even as airlines continue to struggle," says Berkery.

ABS deals held up well during 2021, accounting for $3.6 billion of the roughly $65 billion of financing raised by lessors in the nine months ended 30 September, according *Airfinance Journal*'s Deal Tracker, down from about $5.4 billion in the same period in 2019.

ABS deals have stabilised more recently, providing smaller lessors and asset managers the ability to tap the structured capital markets early in their existence in order to accelerate growth without the need to access unsecured financing.

"In the second-half of 2020, only the most bullish of commentators would have predicted that 2021 would see as much ABS activity."

David Berkery, Partner, A&L Goodbody

"The ABS market now is probably is as good as it was prepandemic. Terms may be slightly looser but in terms of liquidity and demand it's very strong," says Tye Holmes, managing director at MUFG.

"Our debt has to fit within the profile of the lease but with lease rate factors for modern narrowbodies and widebodies creeping downwards, it becomes much more difficult for bank debt to play a role in those types of financings," he adds.

MUFG's aviation exposure has shifted slightly to lessors during the pandemic, says Holmes, mostly because the largest transactions have been with lessors, but also a result of the competitive nature of sale and leaseback terms as deliveries start to increase.

"Our exposure has shifted slightly towards lessors, but that's only been a function of market dynamics and also size of those deals. It doesn't mean we haven't been bidding on airline transactions; it's just that many transactions are won by lessors who we will then also look at to support," adds Holmes.

Berkery says there was a large divergence between the options open to investment grade (IG) lessors and other players in 2020, arguing this may change post-Covid-19 as players seek out IG rating status.

"The ability of the IG-rated players to raise cash at good rates during that period really differentiated them from the rest of the market. It's no surprise to see others aspiring to join that club, most recently with Castlelake doing so through its Castlelake Aviation Finance DAC vehicle, and I expect that trend to continue," he adds.

Castlelake Aviation, the newly formed aircraft leasing company, established and managed by affiliates of Castlelake, recently issued $1.18 billion, five-year senior secured term loan B to support the strategy to complement its existing aviation investment portfolio by focusing on new-generation and younger mid-life aircraft.

With the recovery on the horizon, Goshawk Aviation returned to the US private placement market for the first time in three years in September, issuing $202.5 million of new unsecured notes.

Goshawk, which previously raised financing in 2016, 2017 and 2018, says it is the first aircraft lessor to access the unsecured market since the Covid-19 pandemic began.

The issuance comprises tranches of five-, seven- and 10-year notes and the transaction successfully priced on 12 August, achieving its lowest blended coupon in the unsecured private placement market.

Jim Bell, partner at Watson Farley & Williams, tells *Airfinance Journal* that the performance on the Goshawk transaction highlights the wall of money still out there for the sector.

"Most of those big lessors to a certain extent last year were worried that their usual sources of unsecured or ABS funding wouldn't be around, so they went out and sourced funding from elsewhere, like export credit financing," he says.

"Then towards the end of last year those big lessors became aware there was a lot of cash on the market and a lot of people saw those lessors as a very safe bet," adds Bell.

For those larger lessors which had already completed unsecured private placements, they knew by the back end of last year that that money was still on tap and available, according to Bell.

"For them, it's very much been about going back to unsecured private placements and ABS deals, and so not much has really changed in terms of financing outside of those smaller lessors for whom it's still tricky and very much depends on who the underlying lessees are."

New entrants

Established aircraft lessors have witnessed an increased supply of money from new entrants chasing fewer deals in search of yield which has artificially raised the price of aircraft, making transactions more competitive.

Bell notes the focus on new narrowbody deals into premium airlines both before and after the pandemic has created a crowded investor space.

"Not that many players have left the market in reality and others, like private equity, have either entered or re-entered the market. If lots of participants want to do the same types of deals then that will drive the pricing down. For those deals, pricing is lower than it was prepandemic," he says.

"It then becomes a question of when those investors start thinking about slightly riskier deals, and that's when the market gets interesting," adds Bell.

One leasing executive tells *Airfinance Journal* that it will not be a slam dunk for new entrants looking to raise capital.

"There's plenty of strong active platforms that have good access to capital... The existing guys are here and they have access to capital and they want to do

"Not that many players have left the market in reality and others, like private equity, have either entered or re-entered the market."

Jim Bell, a partner with Watson Farley & Williams

business. The question is whether there's going to be enough business for all of us," he says.

Secured lending from commercial banks was dramatically reduced in the January-September period in 2021, accounting for $5.9 billion of lessor funding sources compared with $14.4 billion in the same period in 2019.

Berkery says the message for most commercial banks throughout the pandemic is that they continue to be open for business but that lending criteria is often too stringent for lessors to meet.

"This created opportunities for a number of new alternative lenders (largely backed by private equity) such as Volofin, Valkyrie and Castlelake to increase their market share," he adds.

This type of financing was tapped primarily by smaller lessors and new platforms, such as Azorra Aviation or Griffin Global Asset Management, which turned to warehouse facilities.

Azorra recently closed a $500 million warehouse credit facility with Credit Suisse Securities (USA) acting as lead arranger and sole structuring agent.

The limited-recourse facility has a two-year availability period and a five-year term overall, funding recent and pending aircraft.

Griffin closed a $1 billion five-year senior secured warehouse facility in April, providing flexibility to target a range of deal types and asset classes.

More recently, the more traditional commercial banks have responded with greater flexibility than they had shown in the past 12 to 18 months, according to Berkery.

In August, Hong Kong-listed BOC Aviation signed unsecured syndicated $935 million credit facilities comprised of a $500 million revolving credit facility and a $435 million term loan facility, both with a tenor of five years.

After a strong response from lenders following the launch into general syndication, the facilities were increased to a combined final size of $935 million from an initial launch amount of $750 million.

Bank of Communications, BNP Paribas, Citigroup Global Markets Singapore, DBS Bank, The Hongkong and Shanghai Banking Corporation, MUFG Bank, Oversea-Chinese Banking Corporation and United Overseas Bank are the original mandated lead arrangers and bookrunners, and were among 16 financial institutions participating in the facilities.

September saw CDB Aviation close a facility agreement backed by 13 Airbus and Boeing aircraft, valued at about $660 million.

The transaction brought the lessor's executed financings year-to-date to a total of $2.53 billion.

Secured with Airbus A320, A350-900 and Boeing 737 Max 8 and 787-9 aircraft, the deal marked the first large-sized portfolio financing executed by the lessor since the onset of the Covid-19 pandemic.

September saw CDB Aviation close a facility agreement backed by 13 Airbus and Boeing aircraft, valued at about $660 million

Calm down and move on

Investors have been frustrated that their aircraft deals over the past 18 months had to be restructured on much less profitable terms. It is, however, time to move on, Sumitomo Mitsui Finance and Leasing managing executive officer, Shinichiro Watanabe, tells **Dominic Lalk**.

In October, the International Air Transport Association forecast that net industry losses will fall to $11.6 billion in 2022 after a $51.8 billion loss in 2021.

Although all regions are expected to improve their collective financial performance compared with 2020, North America will perform the best, and is expected to see a $5.5 billion loss in 2021 transform to a $9.9 billion profit in 2022.

All other regions will see reduced losses in 2022 compared with 2021. The Asia-Pacific, in particular, remains a cause for concern for the industry as it continues to suffer some of the most draconian travel restrictions. While there has been some alleviation in restrictions, significant improvements in international markets are not expected until later in 2022.

This, too, is giving pause to industry veteran aircraft financier Shinichiro Watanabe, managing executive officer at Tokyo-based Sumitomo Mitsui Finance and Leasing (SMFL), one of the largest Japanese leasing companies and the majority shareholder of SMBC Aviation Capital (SMBC AC), the Ireland-based platform with more than 510 aircraft in its current owned and managed fleet, plus an additional 235 committed and on-order aircraft.

Market recovery

"Europe and the US are clearly still leading the industry recovery. SMBC AC has been very active in doing new business again in Europe. There are other great recovery markets, like Russia, Mexico – even India is coming back quickly. The countries with big domestic markets are clearly leading the recovery. Indigo in India is in a great position to lead the recovery. Also, in China we are seeing a good pickup in demand again. People want to fly," Watanabe tells *Airfinance Journal*.

"Asia has been leading the growth of the aviation market for the past 10 years, but now for the past 18 months Asia has been the worst performer. Here in Asia we have been and continue to be busy doing a lot of restructurings rather than new deals. That's the problem. But, if we compare the situation three months ago to the situation now, I think we are making it step by step forward, there is movement. It is slow but steady in all places in Asia, except China," he says.

South-East Asia pain

Industry players are acutely aware of the industry crisis in Indonesia. The archipelago is considered the worst locale in a region, suffering from massive overcapacity and previous over-ordering.

"Indonesia remains a big concern for us. We have already decided to take our aircraft back from Lion Group and their associated airlines. We are moving these aircraft to Europe, in line with strong demand there. They are all very young aircraft still. Easyjet has shown interest in the [Airbus] A320s. LCCs [low-cost carriers] in Europe are now preparing for the next spring/summer season. They need aircraft next March and April," says Watanabe.

SMBC AC had 15 units with Lion carriers - A320s and 737NGs - some delivered as recently as 2018.

SMBC AC, with the backing of the larger SMBC group, acquired the 15 aircraft via sale and leasebacks with the Lion Group, or by buying them from Lion's in-house lessor, Transportation Partners.

Most lessors report they feel dismayed by Lion's lack of transparency in its attempts to renegotiate its leases. The same complaints and frustration, however, have often been voiced over Indonesian flag carrier Garuda Indonesia and its inability to push through its restructuring efficiently.

"As for flag carrier Garuda, the restructuring takes a long time. I'm not aware of Garuda talking to the lenders about obtaining new liquidity facilities, so I'm

not sure how the government is going to rescue Garuda or support its rehabilitation. The process remains very unclear," says Watanabe.

"Indonesia is a big country and through SMBC AC we have quite a lot of exposure to airlines there. We have always known that doing business there was relatively riskier than other countries, but we were always hopeful because politics and the government have always made big promises to clean things up. However, the cleaning up that was promised never happened. It all just stayed the same for the past 10 years or so," says Watanabe.

"There's corruption everywhere, in the big cities and especially in the more local and remote areas where we do business in construction and equipment leasing. The issues are huge. They are all governance issues, just like with Garuda. In summary, we need to be patient with Indonesia in general and as for Garuda, we expect that restructuring to take at least another 12 months," adds the Japanese aircraft financier.

The SMBC conglomerate is less exposed to other Southeast Asian "troublemakers", including Malaysia-based Air Asia Group. Through the operating lessor, SMBC's exposure to Air Asia is limited to five young A320 aircraft. This is in contrast to certain US platforms, which have more than 20 aircraft placed with the cash-strapped group.

"Air Asia's liquidity situation is very tough because they basically get no government support at all. Luckily, we only have some exposure to Air Asia but not a lot," says Watanabe.

The bright spots in the Asia-Pacific are the fully restructured and recapitalised Malaysia Airlines, the ongoing rehabilitation of Philippine Airlines (PAL) and another Filipino carrier, low-cost Cebu Pacific.

"The Philippine Airlines restructuring was pretty transparent from the beginning, especially compared to cases like Garuda and Lion. After securing liquidity facilities from the lenders, the shareholder also pledged support. That's a good package and a good excuse for the government to step in and offer support," says Watanabe.

"We have one A350-900 left with PAL – the other went to Lufthansa," he adds. "We were very quick at getting our aircraft out. PAL is pretty much a done deal for us. The same goes for Thai Airways, where like everyone else we are restructuring our [two] A350 aircraft on quite long PBH [power-by-the-hour] periods combined with term extensions.

"Another positive for us is the relationship we have developed with Cebu Pacific, also in the Philippines, the largest airline there now. We have done not only A321neo Jol [Japanese operating lease], but also Jolco [Japanese operating lease with call option]

"The cleaning up that was promised never happened. It all just stayed the same in Indonesia."

Shinichiro Watanabe, managing executive officer, Sumitomo Mitsui Finance and Leasing

with them and they keep paying their rentals to us. They are very flexible and easy to deal with. I see a lot of potential with Cebu," says Watanabe.

Jol and Jolco

The market for Jol and Jolco structures is still active despite the pandemic, says SMFL's managing executive officer, although investors in some cases were forced to stomach bitter truths about their anticipated returns.

Many aircraft in SMBC AC's portfolio of almost 180 managed aircraft are units owned by Japanese investors under Jol and Jolco structures. As everyone else during the pandemic, Watanabe and his team have had to have difficult conversations with disappointed aircraft backers.

"Jolco financing is long-term, fixed rental, cheap funding for the airline. It is also intrinsically linked to the Japanese tax regime. In many ways, this structure is not flexible. In a Jolco deal, it is not easy for us to say 'OK' to airlines when they ask for special accommodation, even if it's just a short six-month lease rental deferral," explains Watanabe.

"Jolco financings are very complex and restrictive. We cannot just agree to early returns of aircraft just like that. The whole Jolco structure is based on tax incentives. All the tax benefits will be destroyed if an airline returns an aircraft after four or five years only," he says.

Airlines with a decade-long experience in Japanese financings are well aware of both their benefits and limitations, but much legwork is required explaining the intricacies to less-established airlines often dabbling for the first time with Jol and Jolco arrangements as they start diversifying their financings.

"Of course, we try our best to educate new entrants in the market and alleviate concerns. This happens on both sides – we talk to our small and medium investors here in Japan, but also the airline credit hoping to enter and secure Jol and Jolco arrangements," says Watanabe.

"The kinds of Lufthansa, British Airways, they know what they're doing, they have been doing it for many, many years. We don't need to explain anything to them. With others, however, especially the ones that entered Jol and Jolco financings at the peak, in 2015-16, including some Latin American, Southeast Asian and Indian operators, they don't really know our Japanese aircraft Jolco investors cannot just accept early aircraft returns because of the tax structure, so we need to do a lot of explaining on all sides, but of course particularly to our investors here in Japan whom we look after," he adds.

"There may also from time to time be a case where the arrangers and advisers on the deals are not in Japan, so when that happens, we need to look after their Japanese investors, too," says Watanabe.

Frustrated investors

"Investors rely on us to negotiate with the airlines for transaction restructuring. I can tell you that sometimes there was quite a lot of frustration when we told them that basically they had no other choice but to accept restructured contracts, especially when they need to sign them long term. When this is the case, investors unfortunately must accept that their ROI [return on investment] will be much lower than expected," says Watanabe, citing the Latin American restructurings as a case in point.

"In Latin America, all the major airlines have entered Chapter 11, so we were forced to do a lot of restructuring and renegotiating with them, but also with their lenders and even distressed funds at the last stage. This has been going on for almost a year now.

"We have seen a lot of DIP [debtor-in-possession] financing, so airlines have equity again to restart operations, although significant restructuring costs, as the region's carriers adjust to new business realities, are expected to continue to weigh on financial performance. Aeromexico is a good example where lenders started buying again. When this is the case, we encourage our investors to accept a lower lease rental," adds Watanabe.

Lack of alternatives

A major limitation in Jol and Jolco financings is that small and medium-size investors have no individual negotiating power, meaning they must collectively accept and comply with the new terms as their deals get renegotiated.

"In the TK [tokumei kumiai] structure, we got a chairperson, an arranger that negotiates with all the investors and then we negotiate with the airline. Individual Jolco investors cannot really oppose a restructuring. The only option is to not do business with us anymore.

"Some of the investors may never come back if they had a very bad experience, but we must accept that. Sometimes the only thing we can really tell them then is that, hopefully, perhaps after five years, when the market has recovered, they might be able to sell their asset in the market. But for now, they must accept a lower rental – that's painful, but such is reality. They have to calm down and move on," says Watanabe.

Lessons learnt

"What we need to do now is to make some unhappy investors happy again by driving them to the right lessee credits," he says. "The number one lesson learnt is to be more selective when vetting Jolco lessee credits going forward because of the inflexibility of the investors and the TK structure.

"However, in the case of Jol, they are the owners of the aircraft, so it is them who decide, even with regards to small changes in the contract, that is their choice and prerogative. Many people have the impression that Jol and Jolco are very similar, but to be honest with you they are very different."

Watanabe adds: "Jolco investors can enjoy great tax benefits – it's a very good investment usually, but at the same time they got almost zero flexibility. Jolco is also still one of the cheapest and most stable financing solutions for airlines, but they need to bear in mind that there is very little room for flexibility, so terms cannot simply and easily be changed, if at all, including when Covid-19 strikes."

Typical Jolco investor pool

"If we talk about a typical narrowbody, that's about $50 million these days. Normally, the equity portion is 25%, 30% max, so we are talking about $18 to $20 million. For a widebody, it's of course higher, so we're talking about an equity portion of $40 to $60 million max," explains the financier. Watanabe adds that the typical investment size for a Jolco investor is about $1 million, although some arrangers offer even smaller tickets for as low as $300,000. The large ticket investors, however, could be providing $5 million to $10 million, or even more than that.

As such, in a typical narrowbody Jolco financing, the investor pool is between 10 and 20 parties; for a widebody aircraft, the pool holds up to 50 investors.

Deals observed in the market this year include Jol and Jolco financings on virtually all new-technology aircraft series, including A220, A320, A320neo, A321neo and A350-900/-1000 aircraft, as well as 737 Max and 787 deals.

The lessee credits involved include Air France-KLM, All Nippon Airways, Cathay Pacific, British Airways, Japan Airlines, Lufthansa, Pegasus Airlines, Turkish Airlines and Etihad Airways. Lufthansa recently disclosed that Jolco financings contributed €700 million ($829 million) to its Covid-19 warchest in the first six months of 2021.

"For Jolco, the airlines from the Middle East and Europe remain very strong and they also finance a lot of their widebody aircraft in this market. We have had Emirates financing deliveries with Japanese investor funds for many years. Etihad, Turkish Airlines and Pegasus also. They all have good support from their governments and strong business models. I heard Etihad recently began to look at financing A350-1000 aircraft under Jolco structures," says Watanabe.

Deals in the making

"When we started selling aircraft Jolco equity again in April this year we were a bit cautious and unsure how much we could sell. But, as it turned out, our concerns were unfounded. We sold out pretty quickly," says Watanabe.

He adds: "We did deals on Air France A350 and ANA 787-9 aircraft, and also on a Cathay Pacific A350. That equity sold especially quickly, in about a month's time only. The ANA transaction was very popular, too. ANA is regarded as a premium credit now more than ever because they didn't request any kind of deferral or assistance throughout the pandemic."

SMBC's aviation team is also looking again to deepen its ties with fast-growing Turkish carrier Pegasus Airlines. They have already financed eight Pegasus A320neo-family deliveries in the Jol and Jolco market and are expecting to add to the tally in the coming months.

"We are planning to sell Pegasus in the second half. They have a big A320neo and A321neo fleet-renewal campaign. They're a big airline now; they have a very strong business proposition. Pegasus has now taken over Ataturk airport in

> *"What we need to do now is to make some unhappy investors happy again by driving them to the right lessee credits."*
>
> **Shinichiro Watanabe**, managing executive officer, Sumitomo Mitsui Finance and Leasing

Istanbul, the old home of THY. They are a low-cost airline and they focus now on connecting passengers from Central Asia and the Middle East to Europe via Istanbul. From a lender's perspective, Turkey is a good country. We have had very good experiences with airlines there," says Watanabe, referencing 15 previous deals with Turkish Airlines.

Financing A220 aircraft presents various advantages and opportunities over other aircraft types for Japanese investors, including its relatively modest price tag, which makes it a great "entry model" for first-time investors, as well as the A220's sustainability credentials, says the SMFL executive, citing recent competitor transactions involving Air France and Delta Air Lines A220 aircraft financed under Jol structures.

Equity sales

"Last year, Jolco investors were quite nervous about their cash position because of Covid-19, so they have kept cash in hand. That means that this year many are coming back to aircraft Jolco because now they know, and they can better predict the impact on their cash flow," reports Watanabe.

"That's why we've been a little less active for originating and underwriting Jolco equity in the last 18 months. However, we are going to be more active again from this autumn and we have sold out and underwritten a lot of equities this year already. The market is still very strong. We are going to sell more aircraft equity in the second half, so that means we need to underwrite more, too," he adds.

Typically, the second half of the Japanese fiscal year, the six months from 1 October, sees stronger demand for Jol and Jolco structures because that is when the year ends, and companies are looking for tax solutions.

"There are so many companies that are making a lot of money from this Covid-19 situation," says Watanabe. "This means they have equity to place and need solutions for their tax. I can tell you that we have already sold the equity we were planning to sell for the whole year, from 1 April until now [September]."

Capital markets continue to lead aircraft finance

The capital markets have proven that they remain an attractive financing vehicle for the aircraft finance sector, especially for leasing companies. **Olivier Bonnassies** reports.

Capital markets have bounced back this year with ample liquidity available for the sector as aircraft leasing and financial institutions have supported the growth of the industry. Lessors, in particular, have responded positively to airline asset sales, whether new or used, since the beginning of the Covid pandemic.

In the first nine months of 2021, the capital markets remained largely open to aircraft lessors with companies from all jurisdictions retaining access to unsecured loans, which accounted for almost $34 billion of the $65 billion lessors raised in fresh funding from 1 January through 30 September 2021.

Unsecured bond issuances contributed $25 billion to lessor financings in the first nine months, with issuers benefiting from market conditions. Secured loans and asset-backed securitisations (ABS) added $5.8 billion and $3.6 billion, respectively, with some ABS issuances, especially in the second quarter, achieving record pricing levels on the senior tranche.

Some investors have shifted their focus from public term aviation ABS to private credit deals, attracted to the yield pick-up, tailored risk exposure and ease of execution. The lack of deal supply may have prompted a move at the private market in both the loan and note format. And there is the growing role of private credit, which adds further flexibility to how various asset classes can access capital. Drew Fine, a partner at Milbank, says there are a lot of deals in the private market but private credit deals have not taken away from the ABS market.

"Most lessors that are regular issuers in the ABS market are returning to the market. Out of the six issuances that could launch in the final quarter of this year, five of them are past issuers of aircraft ABS," says Fine, who adds that the so-called lessor enhanced equipment trust certificate (EETC) has also been used as a financing/trading tool by lessors in addition to ABS issuances because the lessor EETC is an excellent tool to finance or sell pools of aircraft leased to one, two or three airlines.

The leasing companies are at their best when they are able to operate in the ordinary course of business without interference from lenders/noteholders.

Drew Fine, partner, Milbank

The lessor EETC is a mechanism for lessors to conduct a streamlined Section 4(a)(2) private placement financing for concentrated portfolios.

"Everything lessors can do with an ABS issuance can be done with a lessor EETC but there is no requirement to have lessee diversity," he says.

"Originally, the lessor EETCs were exclusively debt issuances but now they are being used to sell debt and equity and that is unique. We are working on several lessor EETC financings – certain of them are pure financings while the equity portion is being sold on others. These deals are going to continue."

Richard Sharman, a partner at Holland & Knight, says private credit deals can be faster and available for smaller portfolios or individual aircraft and they should be expected to cost a premium versus public ABS deals.

"Public ABSs provide debt solutions for a specific set of transactions where there is a threshold portfolio size and enough diversification and it has to go through a process including rating agencies, etc..."

He adds: "If you have five different lessees, then the ABS market is not open – for ABSs you need at least 15 aircraft and eight, nine or 10 different lessees. Therefore, the portfolio you are able to source will impact your available funding options and, at this time, good-quality assets are not as readily available as they were before the pandemic."

ABS trend – refinancing

The second quarter saw some ABS issuances featuring brand new liquid assets and achieving record low pricings. But Fine says mid-life assets are "definitely feasible" for ABS transactions.

"The ABS portfolios that are being launched in the final quarter of this year include mid-life assets," he says.

He observes that issuers are also refinancing existing deals. "The ABSs closed in 2015-17 are ripe for refinancing since the market is robust and these ABSs can be financed without paying any prepayment premiums to the investors."

Fine explains that prepayment premiums are normally no longer payable after four or five years from the issuance date.

"An ABS becomes less attractive after seven years as it will go into full cash sweep (meaning the equity gets no money) and perhaps have a step-up in interest rate. Once an ABS gets to approximately four or five years from issuance, issuers start to consider refinancing, as they don't want to risk being in a challenging refinancing market as they get closer to seven years."

The Castlelake refinancing transaction showed that there is a strong market for refinancing ABS deals.

Bank market

Banks are active to support lessors and airlines in large facilities, but traditional asset financing on a bilateral basis has been limited over the past 18 months.

Milbank's Fine says there is plenty of bank financing available for strong airlines and seasoned aircraft leasing platforms.

"On the aircraft leasing side, there are several new warehouse facilities being provided by banks, and those will eventually lead to ABS transactions. Many of the new entrants have their new warehouses and some existing leasing companies are entering into new warehouses," he adds.

The banks have also been active providing term loan financings, so it is not only the capital markets providing debt for the industry, he observes.

"Although many traditional lenders have provided financing, the industry has welcomed new alternative lending platforms. These platforms largely consist of aggregators of institutional money acting like banks and becoming a big source of financing for the aviation space," he says.

"Banks are still participating in big ticket facilities supporting the airlines and the lessors, but there are different types of financing facilities for different purposes: the capital markets cannot provide a warehouse facility or a secured revolving credit facility, but banks can. If you want a revolving credit facility, a warehouse facility or a delayed draw, you go to the banks. If you want a long-term, single draw financing like an, EETC or ABS, you can go to the capital markets."

Fine says the capital markets can provide more flexible solutions for lessors.

"During Covid-19," he says, "the industry was hit by lease/financing defaults and deferrals. Lessors with capital markets financings like ABSs were able to restructure their portfolios and work with their lessees in the ordinary course of business without any interference from the noteholders since the noteholders are passive. In many cases, if you do a financing with banks and a lessee defaults, the banks will want to be involved in any restructuring of the lease."

For him, the leasing companies are "at their best" when they are able to operate in the ordinary course of business without interference from lenders/noteholders.

"This is one of the reasons why the large leasing companies have appetite for unsecured debt issuances," he says.

"Post-Covid, bank warehouse facilities have been more restrictive on the types of aircraft which may be financed and the quality of the lessees. Since warehouse facilities lead to ABSs, this should lead to ABSs with higher quality portfolios."

Fine adds: "The financing and ABS market continues to be very robust. Investors are eager to purchase aircraft-secured debt and we are hopeful the trend will continue where we have seen each new issuance top the previous one. I don't know if the pricing will go down even further, but it seems that it will remain quite attractive."

Sharman agrees that there is a strong appetite for capital market transactions.

"More and more investors are looking for yield and investment solutions. As in many cases, traditional bank debt is not readily available for many types of transactions and they naturally turn to the capital markets at this time."

He sees bank appetite coming back, especially lenders which have active capital markets franchises which will support the transaction with limited recourse warehouse debt to be taken out by a capital markets deal.

"Some banks have focused on relationship transactions with first or high second-tier coveted airline credits, often derisked with an insurance wrapper. The bank market for limited recourse warehouse to support an ABS has come back quite strongly as those banks look to support their capital markets franchises. However, limited recourse lending with no capital markets exit is likely to be the last to come back."

Sharman adds: "Over time, there is an expectation that, as the market settles and banks are clearer on what their balance sheet looks like, bank appetite will come back for a wider range of products.

"It may happen, at some point soon, that banks who have a good quality book will realise that the hits they have taken are not that significant, and they will have an asset book which is running down and it will then depend how badly they want to maintain that by doing new deals," says Sharman. "In that scenario, those banks may push for new deals using a wider variety of structures."

Where have all the 90-seaters gone

The regional market has proved more resilient to the Covid pandemic than many sectors of the commercial aircraft market, but producing a successful 90-seater is a challenge for manufacturers. **Geoff Hearn** reviews those on offer.

The sub-100-seat market appears to have been less affected by the Covid crisis than other commercial aviation sectors, and some industry insiders argue it has been boosted by the need for airlines to save cash by switching from larger aircraft as traffic levels dropped.

However, making a successful aircraft with about 90 seats has proved difficult for manufacturers. The continuing restrictions imposed by US pilot scope clauses do not help.

US restrictions

The three main US carriers are a huge potential market for regional aircraft. However, these large airlines with their high overheads struggle to operate small aircraft economically. The solution has been to hive-off regional operations to subsidiaries and affiliates with lower cost structures.

In the face of pilot union objections, the size and number of aircraft that can be operated by such entities are restricted. The detail of the limitations varies from airline to airline, but in all cases the operation of aircraft in the 90-seat category is precluded.

The economics of aircraft of this capacity are at best marginal when saddled with the cost structure of the major US carriers.

US carriers are a huge potential market for regional aircraft

Limited market

The specific size of the potential 90-seat market is difficult to ascertain, because industry forecasts tend to cover a broader size category. Uncertainty surrounding the future of pilot scope clauses also complicates predictions. However, the market's relatively small scale is evident from Boeing's most recent forecast, which anticipates 2,390 regional jet deliveries over the next 20 years. This compares to a prediction that 32,660 new single-aisle models will enter service over the same period.

Lack of choice

For airlines which identify a need for aircraft with about 90 seats, the options are limited. The list of models offering just below 100 seats is made up largely of aircraft no longer in production or development models that may not make it into service.

The first-generation Embraer 175, which can accommodate a maximum of 88 passengers, is the only western-built aircraft with a capacity near to 90 seats that has a substantial order backlog (173, as of 15 October). The absence, as yet, of an E2 version of the E175 is perhaps indicative of the challenges facing manufacturers of 90-seat aircraft.

New models with just over 100 seats are available, but their success has been limited. At the top end of the scale, the new-technology Airbus A220-100 is part of the European manufacturer's current production offering. However, its lack of sales compared with the larger A220-300 suggests either that the smaller variant is not the optimal design, or that its market is more limited. Both may be true.

The story is similar for the other new design at the top end of the category – the E190-E2. The second-generation of the E190 is not stretched from the original model, but cabin design has pushed typical seating layouts to more than 100 seats. Despite the efficiency gains, the new model has recorded fewer sales than its larger stablemate – the E195-E2.

This is in contrast to the fate of the respective first-generation models. Apart from Embraer and Airbus, there are no western manufacturers currently producing

Current, recent and proposed aircraft types with capacity of about 90 seats

Manufacturer	Type	Typical seats	Maximum seats
De Havilland	Dash 8-400	74	90
Embraer	E175	76*	88
Spacejet	M100	76*	88
Bombardier/Mitsubishi	CRJ900	88	90
Comac/Avic	ARJ21-700	85	95
Spacejet	M90	88	96
Embraer	E190	98	114
Sukhoi	SSJ	98	108
Bombardier/Mitsubishi	CRJ1000	100	104
Embraer	E190-E2	106	114
Airbus	A220-100	110	133

*Maximum allowed by US scope clauses


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aircraft in the size category. The picture is more positive among non-western manufacturers. Sukhoi continues to build and deliver the Superjet SSJ100, which is a genuine 90-seater, but sales and operations are increasingly restricted to Russian domestic carriers.

Chinese manufacturer Comac/Avic produces the ARJ21. The current-production model is the -700 variant, which typically accommodates about 85 passengers. A stretched (-900) model is planned, which could have up to 105 seats. Orders are almost entirely from Chinese carriers.

The sector has traditionally attracted would-be new entrants, but the efforts of Japanese manufacturer Mitsubishi to launch an aircraft in the 70- to 100-seat category have been a protracted saga. The latest iteration, branded as the Spacejet, offered two models – the M90 and the smaller M100. However, development has been frozen and there are no signs that it will be restarted as losses on the programme have severely impacted the parent company.

Orders

Non-western companies, it seems, hold the most significant backlogs for aircraft with about 90 seats.

The manufacturer claims it has received 616 orders for the ARJ21 model from 23 customers, but does not indicate how many have been delivered. Indonesian airline Transnusa is the first and only non-Chinese customer and is due to receive 30 aircraft by 2026. The aircraft are, however, coming via China Aircraft Leasing (CALC).

In the case of the other non-western competitor – the SSJ100 – Fleet Tracker identifies an order backlog of 216 aircraft. Thanks in part to its origins as a joint venture with western companies, the aircraft is certificated in Europe and has been sold outside the CIS, but like its Chinese counterpart, it now relies virtually exclusively on domestic carriers for orders.

Secondary market

The absence of new-build aircraft is probably contributing to an improving secondary market for regional models as the recovery from the Covid pandemic gets underway. A number of appraisal companies have told *Airfinance Journal* that they have seen a bounce-back in trading activity in the segment this year. However, there is also a view that some of the activity is opportunistic in the light of low pricing.

The ARJ21 has a substantial backlog of domestic orders

Chris Beer, managing director, Skyworld Aviation, a company which specialises in trading regional aircraft, confirms that market activity has picked up. In particular, he says there are an increasing number of well-funded new entrants that are keen to exploit new opportunities.

In the absence of new models in the 90-seat category, there still appears to be a market for older types that are at the top end of the regional aircraft market. For example, Skyworld has placed a number of Avro RJs over the past 12 months. Although some of the aircraft will be parted out, some are going back into airline service.

Turboprop territory?

The 90-seat market has not been a traditional domain for the turboprop market, but this has not precluded various manufacturers from talking up the economic benefits of propeller aircraft in this size category.

The Dash 8-400 does offer a 90-seat configuration but this is very much at the extremity of the aircraft's capacity and the layout offers comfort and stowage levels that would be unattractive for many potential customers. Given that production has been paused, the Canadian-built aircraft looks unlikely to be developed into a genuine 90-seater.

ATR has talked of developing a 90- to 100-seat aircraft, but this project appears to have been discarded, not least because the European manufacturer is concentrating on its 70-seat market, where it faces reduced competition. In a sign that this lack of competition may be temporary, Embraer said in August that it is moving ahead with the development of a new turboprop design to compete in the 70- to 90-seat regional aircraft sector.

The company told *Airfinance Journal* in June that the turboprop segment brings good stability and is due for an update because current aircraft are based on 30-year-old platforms. The Brazilian manufacturer is looking to produce a 70-seat and a 90-seat variant. However, entry into service is not planned before 2027, even if the programme is launched, as the company hopes, in 2022. It is not clear which of the two proposed variants will be the initial model.

In the absence of new regional jet projects, there is a possibility that turboprops might be able to fill a gap, not least because of their better environmental credentials. This advantage might, however, be eroded because all manufacturers are increasingly looking to green technologies for future models. Sustainable aviation fuel, for example, is becoming increasingly available.

In the absence of concrete proposals by manufacturers, it is difficult to compare how 90-seat turboprops would compare with similarly sized regional jets in terms of operating cost.

Analysis by *Airfinance Journal* for 70-seaters shows that, at current fuel prices, the average cost per seat of a turboprop is about 19% lower than a comparable regional jet on a 200-nautical mile sector. The advantage decreases significantly as sector length increases. If the cost benefits of a 90-seat turboprop are similar, which seems likely, there appears to be an opening for a new turboprop.

However, the turboprop versus regional jet debate becomes more complicated when comparing total operating cost. The higher speed of regional jets can translate into higher productivity, which offsets capital costs. This benefit typically increases for longer routes.

Overcoming negative perceptions

To succeed, a 90-seat turboprop will have to appeal to the North American market, where operators have overwhelmingly preferred regional jets to turboprops, not least because passenger acceptance has proved problematic. Any new design will have to overcome these negative perceptions.

A new-technology turboprop might overcome some of the resistance – a rear-engined design, for example, might overcome interior noise issues. What role pilot scope clauses will continue to have is also unclear. So the risks for a manufacturer in developing a new 90-seater, are substantial.

Indicative relative cash operating costs at current fuel price

($1.9 per USG)

	Typical regional jet	Typical turboprop
Relative trip cost	Base	84%
Relative seat cost	Base	81%

Typical turboprop is based on average of Dash 8-400 and ATR72-600 costs. Typical regional aircraft is average of CRJ900 and E170. Assumes 200-nautical mile sector and current fuel price ($1.9 per US gallon).

A330neo – a path to recovery

Airbus says its smallest widebody is ideally placed to benefit from a post-Covid recovery. **Geoff Hearn** looks at the background to the claim.

The Airbus A330neo models are described by the manufacturer as entry-level widebody aircraft. The European manufacturer formally launched the re-engined versions of the A330-200 and A330-300 at the 2014 Farnborough air show. The replacements were designated as the A330-800 and A330-900, respectively, and were assigned the marketing designation Neo (new engine option).

The aircraft are intended to complement the European manufacturer's A350 models and help compete against the smaller members of the Boeing 787 family.

The A330neos are the same size as the aircraft they replace, but incorporate the A350-style cabin, which allows an increase in capacity. Airbus claims the new cabin allows the installation of up to 10 more seats in the A330-900 compared with its predecessor, but *Airfinance Journal* believes typical configurations are more likely to accommodate five or six extra passengers.

The Rolls-Royce Trent 7000 is the only engine available on the A330neo variants and contributes much of the fuel burn savings. A new nacelle design adds to the improvements obtained by the installed engine.

In addition to the new engine, the A330neos have an increased wingspan, resulting primarily from the adoption of wingtips based on the technology of the A350's sharklets.

Air Belgium is the latest A330neo operator

A330neo deliveries per year

	2018	**2019**	**2020**	**2021** (to 1 September)
A330-800			3	1
A330-900	3	41	10	8

Source: Airfinance Journal Fleet Tracker, 31 October 2021

Market developments

In common with all widebody models, A330neo orders and deliveries have been severely impacted by the Covid pandemic. The A330-800 was struggling for orders since its launch, but the 98 A330-900 sales recorded in 2019 represented the best annual figure for the model since the 110 orders received in its launch year. Any momentum was, however, halted with no orders received during the first year of the pandemic (2020).

Recent developments in the market have given the manufacturer some cause for optimism. At the end of July, Airbus announced that German airline Condor Flugdienst had selected the A330neo to renew its long-haul fleet with plans to introduce 16 A330-900s. The airline has signed an agreement with Airbus for the purchase of seven aircraft, and intends to lease a further nine units. Condor will operate the A330neo on its international long-haul network to the Americas, Africa, the Caribbean and Asia.

Deliveries picking up

Airbus suggests that thanks to its mid-sized capacity and range versatility, the A330neo is the ideal aircraft to support operators in their post-Covid-19 recovery and carriers have started to take aircraft as they look to recover from the pandemic.

In March, Corsair received its first A330-900, on lease from Avolon. The airline is an existing A330 operator and plans to take a total of five A330neos, three of which had been delivered by mid-October. In September, Bangkok-based Lion Group affiliate Thai Lion Air took delivery of a -900 model. This is the only A330neo in the airline's fleet because previous deliveries have been transferred to Lion Air in Indonesia.

The Lion Group confirmed an agreement with BOC Aviation in 2018 covering eight A330-900s, which included an option to acquire four of the aircraft on delivery. *Airfinance Journal* understands that this option has not been exercised. Air Belgium is the latest operator of the Airbus widebody, having taken delivery of the first of two aircraft in early October.

The market's enthusiasm for financing A330neos is being tested. Philippine's Cebu Pacific Air has approached the leasing community with a request for information seeking financing for the first five of its 16 A330-900s, sources indicated to *Airfinance Journal* in August. The Manila-based carrier has three deliveries scheduled in 2021 and two in the first half of next year.

A330neo orders per year

	2014	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021** (to 31 October)
A330-800	10	0	0	0	8	6	1	0
A330-900	110	52	42	10	20	98	0	7

Source: Airfinance Journal Fleet Tracker (includes subsequently cancelled orders)

Aircraft characteristics

	A330-800	A330-900
Seating/range		
Max seating	406	440
Typical seating	220-260	260-300
Maximum range (nautical miles)	8,150	7,200
Technical characteristics		
MTOW (tonnes)	251	251
OEW (tonnes)	110	115
MZFW (tonnes)	176	181
Fuel capacity (litres)	139,090	139,090
Engines	Trent 7000	Trent 7000
Thrust (lbs/kn)	68,000 /303	68,000 /303
Fuels and times		
Block fuel 1,000nm	10,940kg	11,280kg
Block fuel 2,000nm	20,390kg	21,040kg
Block fuel 4,000nm	39,290kg	40,520kg
Block time 1,000nm	184 minutes	184 minutes
Block time 2,000nm	299 minutes	299 minutes
Block time 4,000nm	529 minutes	529 minutes
Source: *Air Investor 2021*		
Fleet data		
Entry into service	2020	2018
In service	4	52
Current and planned operators	3	25
In storage	0	10
On order	11	264

Source: Airfinance Journal Fleet Tracker, 31 October 2021

Operating cost

Airbus claims a 14% improvement in fuel burn per seat for the A330neos over the corresponding predecessor models, but this factors in the full 10 additional seats that the manufacturer says can be accommodated in the new models. The headline Airbus figure is for a 4,000-nautical mile sector and the company says it will be less on shorter sectors.

Airfinance Journal's previous analysis of operating costs confirms the A330neos provide a significant improvement over their predecessors but suggest that the competing 787 models retain an advantage in terms of cash operating cost per trip and per seat.

This operating cost disadvantage casts some doubt on Airbus's hopes that A330neo orders will proliferate as the market recovers from Covid. However, the manufacturer has always recognised that it would need to price the new A330s competitively to counter the smaller 787 models. The lower development costs compared with the Boeing aircraft should allow the manufacturer some flexibility to reduce capital costs and therefore total operating costs.

An appraiser's view

Olga Razzhivina, senior Istat appraiser, Oriel

The Airbus A330neo family, which was launched in a seeming rush at Farnborough 2014, is the Airbus solution to the A350-800 cancellation. The speed lessors signed up for options, and orders, encouraged by launch pricing and positive feedback from one or two airlines, suggested this would be a highly liquid asset. The single-source Trent 7000 powerplant also pointed to reduced fleet fragmentation.

Despite these good omens, the A330neo has so far fallen short of expectations, the Covid-19 pandemic notwithstanding.

The smaller -800 variant accounts for only 15 orders after the cancellation of orders by Hawaiian Airlines, which took advantage of a tax incentive and switched to the 787 models.

The larger -900 variant makes up the bulk of the orderbook, mirroring the prevalence of the A330-300 over the smaller -200 in the previous-generation family.

Deliveries started in late 2018 with the launch customer TAP Air Portugal. The operator base includes only a handful of first-tier airlines – Delta Air Lines being the most prominent. The remainder is made up of small national carriers (including Uganda Airlines and Air Mauritius), charter operators (such as Iberojet and Hi Fly Malta) and Asian low-cost carriers (including Lion Air and Air Asia). There are six aircraft that are built, but which have yet to be delivered to Air Asia X. This raises concerns over the outstanding 72 orders from the struggling long-haul low-cost carrier.

The rest of the orderbook is not as solid as Airbus would like. The backlog includes 28 orders from Iran Air, 40 orders from unannounced customers and 27 orders from lessors Avolon and GECAS, which have yet to be placed with airlines. Avolon has been reducing its orderbook over 2019 and 2020 with seven cancellations.

Despite the long-haul travel disruption caused by the Covid-19 pandemic, new orders continued coming in, albeit in small numbers, including an order for one -800 from Air Greenland and for seven -900s from Condor Flugdienst.

We are not as optimistic as the original equipment manufacturers or the lessors which have signed up for the product, believing at best it will be a 600-unit production run, with deliveries petering out during the latter half of the 2020s.

We expect the -900 will remain the dominant variant, with the -800 occupying a very small niche. It is possible that the A330neo will cannibalise some potential A350 orders and may even erode the Boeing 787's market share. However, the A330neo needs more orders from first-tier airlines to help it avoid becoming a niche type with high volatility and impaired value retention.

Oriel view of current market value ($m)

Build year	2018	2019	2020	2021 (new)
A330-800			63.0	77.0
A330-900	68.0	70.0	82.0	95.0

Maintenance status is assumed to be half-life, except for new aircraft, for which full-life is assumed, and for one-year-old aircraft, where 75% life is assumed to remain.

Oriel view of indicative lease rates ($'000s/month)

Build year	2018	2019	2020	2021 (new)
A330-800			630	660
A330-900	625	650	680	740

Rating agency unsecured ratings

Airlines

	Fitch	Moody's	S&P
Aeroflot	BB(stable)	-	-
Air Canada	B+(stable)	Ba3(neg)	B+(neg)
Air New Zealand	-	Baa2(stable)	-
Alaska Air Group	BB+(neg)	-	BB-(positive)
Allegiant Travel Company	-	Ba3(positive)	B+(stable)
American Airlines Group	B-(stable)	B2(neg)	B-(Stable)
Avianca Holdings	D	-	D(NM)
British Airways	BB(neg)	Ba2(neg)	BB(neg)
Delta Air Lines	BB+(neg)	Baa3(stable)	BB(Stable)
Easyjet	-	Baa3(stable)	BBB-(neg)
Etihad Airways	A(stable)	-	-
Grupo Aeromexico	-	-	D(NM)
GOL	B-(stable)	B3(stable)	CCC+(positive)
Hawaiian Holdings	B-(stable)	B1(neg)	CCC+(positive)
International Consolidated Airlines Group	-	Ba2(neg)	BB(neg)
Jetblue	BB-(stable)	Ba2(Positive)	B+(Positive)
LATAM Airlines Group	WD	-	-
Lufthansa Group	-	Ba2(neg)	BB-(neg)
Pegasus Airlines (Pegasus Hava Tasımacılıgı Anonim Sirketi)	BB-(neg)	-	B (stable)
Qantas Airways	-	Baa2(neg)	-
Ryanair	BBB(neg)	-	BBB(neg)
SAS	-	Caa1(neg)	CCC(neg)
Southwest Airlines	BBB+(neg)	Baa1(stable)	BBB(Positive)
Spirit Airlines	BB-(stable)	B1(positive)	B(positive)
TAP Portugal (Transportes Aereos Portugueses, S.A.)	-	Caa2(neg)	B-(watch neg)
Turkish Airlines	-	B3(neg)	B(neg)
United Airlines Holdings	B+(stable)	Ba2(neg)	B+(stable)
Virgin Australia	WD	-	-
Westjet	B(neg)	B3(neg)	B-(neg)
Wizz Air	BBB-(stable)	Baa3(neg)	-

Source: Ratings Agencies - 29/10/2021

Lessors

	Fitch	Moody's	S&P	Kroll Bond Ratings
Aercap	BBB-(watch neg)	(P)Baa3(stable)	BBB(stable)	-
Air Lease Corp	BBB(Stable)	-	BBB(stable)	A-(neg)
Aircastle	BBB(stable)	Baa3(Stable)	BBB-(stable)	-
Avation PLC	WD	-	CCC(Developing)	-
Aviation Capital Group	-	Baa2(stable)	BBB-(stable)	A-(neg)
Avolon Holdings Limited	BBB-(Stable)	Baa3(stable)	BBB-(neg)	BBB+(neg)
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)	-
Dubai Aerospace Enterprise	BBB-(Stable)	Baa3(stable)	-	BBB+(neg)
Fly Leasing	-	B1(Stable)	BB-(neg)	BBB-(neg)
Global Aircraft Leasing	-	B1(neg)	-	-
ICBC Financial Leasing	A(stable)	A1(stable)	A(stable)	-
ILFC (Part of Aercap)	BBB-(watch neg)	Baa3(stable)	-	-
Macquarie Group Limited	A-(Stable)	A3	BBB+(stable)	-
Marubeni Corporation	-	Baa2(stable)	BBB(stable)	-
Mitsubishi UFJ Lease	-	A3(stable)	A-(stable)	-
Park Aerospace Holdings	BBB-(Stable)	Baa3(Stable)	-	-
SMBC Aviation Capital	A-(neg)	-	A-(stable)	-
Voyager Aviation	B(Stable)	WD	-	WR

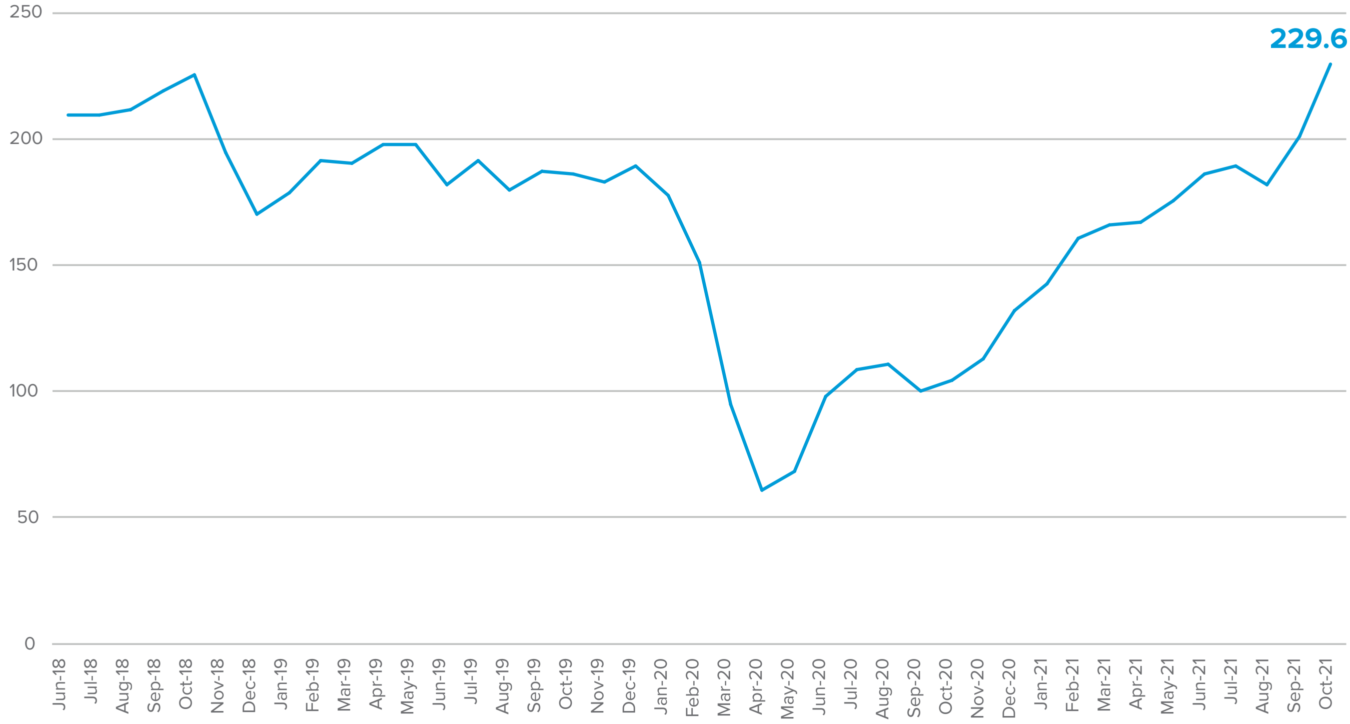
Source: Ratings Agencies - 29/10/2021

Manufacturers

	Fitch	Moody's	S&P
Airbus Group	BBB+(stable)	A2(neg)	A(neg)
Boeing	BBB-(stable)	Baa2(neg)	BBB-(neg)
Bombardier	WD	Caa1 (Stable)	CCC+(Stable)
Embraer	BB+(neg)	Ba2(neg)	BB(neg)
Rolls-Royce plc	BB-(neg)	Ba3(neg)	BB-(stable)
Raytheon Technologies Corp	-	Baa1(stable)	A-(neg)

Source: Ratings Agencies - 29/10/2021

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



Source: *US Energy Information Administration*

Commercial aircraft orders by manufacturer

	Gross orders 2021	Cancellations 2021	Net orders 2021	Net orders 2020
Airbus (30 September)	167	134	33	268
Boeing (30 September)	630	360	270	-471
Bombardier - Mitsubishi Heavy Industries	0	0	0	0
De Havilland of Canada	0	0	0	0
Embraer	78	0	78	20
ATR	6	0	6	5

Based on *Airfinance Journal* research and manufacturer announcements until 30/10/2021

Recent commercial aircraft orders (August-October 2021)

Customer	Country	Quantity/Type
Alaska Airlines	USA	12 737 Max
Bain Capital Griffin International	USA	Five 737 Max
Delta Air Lines	USA	30 A321neo
LATAM Airlines Group	Chile	Seven A320neo, 21 A321neo
Jet2	United Kingdom	36 A321neo
Jet2	United Kingdom	15 A321neo
777 Partners	USA	8 737 Max
Unidentified Customer		Two 737 Max
Unidentified Customer		10 777-200F
Unidentified Customer		Seven 787-9
United Airlines	USA	Eight 737 Max 8

Based on *Airfinance Journal* research August-October 2021

New aircraft values ($ million)

Model	Values of new production aircraft*
Airbus	
A220-100	32.6
A220-300	36.8
A319neo	36.7
A320	41.5
A320neo	49.2
A321	48.5
A321neo	54.5
A330-200	72.4
A330-200 Freighter	84.0
A330-300	80.6
A330-800	92.2
A330 900 (neo)	104.0
A350-900	145.8
A350-1000	159.1
A380	169.5
ATR	
ATR42-600	15.5
ATR72-600	19.3
Boeing	
737-800	43.4
737 Max 8	46.9
737 Max 9	49.0
747-8F	181.3
767F	78.8
777-300ER	141.7
777F	159.1
787-8	114.1
787-9	139.8
787-10	148.7
Mitsubishi	
CRJ900	24.4
DeHaviland	
DHC8-400	19.7
Embraer	
E175	25.8
E190	26.5
E190-E2	31.1
E195-E2	33.9
Sukhoi	
SSJ100	22.3

*Based on ISTAT appraiser inputs for Air Investor 2021

New aircraft lease rates ($'000 per month)

Model	Low	High	Average
Airbus			
A220-100	209	247	228
A220-300	230	273	256
A319neo	239	290	256
A320	238	310	279
A320neo	285	347	315
A321	260	370	310
A321neo	335	404	359
A330-200	394	606	515
A330-200 Freighter	535	750	654
A330-300	451	689	660
A330-800	585	703	652
A330 900 (neo)	668	803	726
A350-900	880	1,094	944
A350-1000	975	1,239	1,081
A380	807	1,435	1,227
ATR			
ATR42-600	104	136	124
ATR72-600	105	152	140
Boeing			
737-800	244	314	284
737 Max 8	262	325	296
737 Max 9	272	340	311
747-8F	1,214	1,485	1,347
767F	490	660	369
777-300ER	855	1,083	952
777F	1,043	1,207	1,140
787-8	705	867	747
787-9	810	1,038	887
787-10	910	1,118	943
Mitsubishi			
Mitsubishi CRJ900	165	205	178
DeHaviland			
DHC8-400	115	150	141
Embraer			
E175	178	225	200
E190	200	215	210
E190-E2	200	250	259
E195-E2	220	269	242
Sukhoi			
SSJ100	35	176	124

The new, **gluton-free, reality**

Adam Pilarski, senior vice-president at Avitas, looks at how real-life observations overwhelm theoretical predictions in today's highly uncertain and changing world.

As I have been saying for some time, we are moving away from theoretical analysis to come up with predictions about the future to other methods of making forecasts. We are distilling reactions to experiments and real-life developments, which in current circumstances are more useful than drawing conclusions via theoretical analyses.

This year's Nobel Prize winners in economics were praised for new methods to ascertain knowledge from natural experiments. What is the result of some policies does not necessarily follow predictions of orthodox economic theory but can provide us with great new insights. The world experiments a lot in the field of medicine, economics and business.

Covid-19 changed how we see reality and are able to predict the future. While all forecasters in aviation fairly much accept that we are facing greater uncertainties than in the past, they almost uniformly agree on some facts. They believe that when recovery eventually happens, it will be in domestic markets first, ahead of the upturn by international travel that non-stop flights will resume earlier than connecting ones, and that single-aisle aircraft will do better for the time being than widebody units.

All this makes perfect sense because we are trying to minimise contact with other humans, especially in other countries. This theoretically reasonable prediction hit home when I experienced my first international trip since the official beginning of Covid, in March 2020. I had previously only taken a number of domestic flights, both for business and leisure.

In early October, I attended the annual Europe/Middle East/Africa Istat meeting in the fabulous city of Edinburgh, Scotland. More than 800 people showed up and at least one reception had over 500 attendees. There is obviously a huge demand for face-to-face meetings in our industry, but many people did not make it. Out of the 19 members of Istat's board of directors, about half of them did not show up. A big part of the reason for this was the incredible obstacles and difficulties to make the trip.

My personal experiences were not as gruelling as those facing others but I just want to provide the readers with some details of my trip.

I am fully vaccinated, including the third, booster, shot. But I still had to file many bureaucratic forms to travel. I also had to take a Covid test less than 72 hours before the first flight, had to have proof that I reserved another test for the day after arrival in Scotland and then take another test the day before my flight back home to the USA. Despite being fully vaccinated, I had to take three Covid tests for the trip.

Our author at the *Airfinance Journal* Dublin 2020 conference.

> *"Out of the 19 members of Istat's board of directors, about half of them did not show up. A big part of the reason for this was the incredible obstacles and difficulties to make the trip."*

Filing the evidence of all this, reserving and taking the tests altogether probably cost me two person days of work and some money spent on the tests. This, in addition to all the new of joys of flying, such as sitting on the aircraft wearing a mask virtually full time and even not getting a meal on a nine-hour flight. It turns out that you can no longer request a special meal (gluten-free, in my case). I still do not understand how not giving me a gluten-free meal is related to Covid and the new aviation environment.

Overall, this calculation of the cost/benefit of travel does not include the chance of getting a positive Covid result (or even a false positive, which causes the same outcome without the actual pain of experiencing the disease), which would put me in jail (read "quarantine") for a number of days.

A number of people I talked to refrained from travelling because, even if they showed the utmost caution in observing all the rules to avoid the virus, they still faced the chance (albeit small) of getting a false positive test result.

This trip lets me more fully understand the logic underlying decision-making by potential international travellers. My personal experience was fairly benign. A number of fellow Istat board members faced much more serious realities. These involved, because they live in countries deemed risky by the UK authorities, being forced to quarantine for a number of days and then being forced to a similar ordeal on return to their home country. Overall, their few days' trip to Scotland would involve missing work for almost a month, in addition to all the expense and pain of testing and the psychological cost of increased uncertainty and possible exposure to the virus.

In light of this, it is amazing to me to see how many people showed up in Edinburgh. The future of aviation will be determined by the outcomes of the many new policies and strategies that are being implemented right now. These outcomes will help us chart a new path for our industry.

AIRFINANCE JOURNAL

An *Airfinance Journal* special supplement

Leasing Top 50 2021

Leasing Top 50 2021

We are very pleased to deliver our annual survey of the aircraft operating lease industry, the *Airfinance Journal* Leasing Top 50. This is especially so, as we will be launching a significant new data product in early 2022 covering the leasing sector, *The Lessor Analyst*. This will offer data and analysis on individual lessor financials, portfolio ratings, bond and ABS pricing.

This year's Leasing Top 50 shows the number of aircraft managed by the top 50 lessors at 10,954 (up 3.6% on last year) with a current market value per Avitas as of 1 October 2021 of $293 billion (up 5% on last year). The leased percentage of western-built commercial aircraft is 46%.

The leasing sector has been a crucial partner to the world's airlines and OEMs through the pandemic by taking delivery of direct orders and closing many purchase and leasebacks, on new and used equipment.

There have been some costs, however, with generous rent deferrals granted to their customers. Impairments have increased significantly which, combined with higher debt, means leverage has increased. Aircraft off-lease are much higher due to the many bankruptcies and fleet restructurings.

This is reflected in the aggregate industry financials presented in Leasing Top 50. *Airfinance Journal* has sourced audited financial statements for more than 30 of the Leasing Top 50 lessors. Of these, we have selected 22 companies that represent the largest lessors for inclusion in this study. This includes the recently available "Condensed combined carve-out" financials for GECAS.

The figures for the 22 lessors show that total revenue declined 10.3% to $23.4 billion in the latest financial years for the lessors. A large component was the reduction in lease revenue which resulted in a 9.3% decline in average lease yield to 12.6%. Fortunately there was also a reduction in average interest cost from 5.9% to 5.4%. Combining these factors and large asset impairments, net income declined from $6.2 billion to a loss of $141 million. Interest cover declined from 3.5x to 2.6x while leverage (debt/equity) (excluding GECAS) increased from 2.6x to 2.8x. Some lessors ameliorated their increase in leverage through asset disposals and deferrals of aircraft purchases. Others made opportunistic counter-cyclical investments in the depth of the pandemic.

Sensing opportunities in a dislocated market, new investors have come to market and the result has been a return to the 0.5% to 0.6% monthly lease rate factors for purchase and leasebacks of the new, most desirable aircraft types.

On the positive side, there have been many new airline start-ups that have absorbed some of the aircraft which have become available. And, at least in 2020, long-term US dollar interest rates declined, resulting in record low average debt costs. They have edged up in 2021, however, and the outlook for 2022 is for more increases, which does not bode well for cash flows.

Another positive has been the increased availability of debt finance, especially for the new investors entering the space. In the second quarter of 2020 the aviation bank debt market was effectively closed. Since then, we have seen many traditional lenders return to the market, including for increased/extended revolving credits and numerous new secured debt providers come to the fore, especially from private equity firms. New lending platforms have also come to the aircraft finance market competing with banks.

The unsecured bond market has continued to welcome the investment grade lessors, with $19 billion raised in 2020 and $42 billion in 2021 year-to-date, including Aercap's record $21 billion issue in October to fund the acquisition of GECAS.

This has been supported by the stability of unsecured bond ratings through the pandemic. Notably, the rating agencies tend to have "triggers" for ratings review if leverage (debt/equity) exceeds three times. As noted above, the rated lessors have experienced increased leverage in the last 18 months. This remains something to watch.

Three sub-investment grade lessors facing challenges in repaying their unsecured bond issues as of a year ago have restructured their way out of trouble. Work continues on the Nordic Aviation Capital restructuring.

The ABS market had been less active in 2021 but has seen a recent flurry of activity with four issuances in the last month. October year-to-date issuance has reached approximately $6.8 billion.

All-in-all, with the resumption of flights and the lessors' robust balance sheets, the aircraft leasing industry is in much better shape than appeared likely in the second quarter of 2020. We hope you find some useful insights from this year's Leasing Top 50.

"On the positive side, there have been many new airline start-ups that have absorbed some of the aircraft which have become available."

Michael Duff, Product Director
Airfinance Journal

Top 50 **managers by number of aircraft**

Rank	Manager	Total	% change since last year		Turboprop	Regional jet	Narrowbody	Widebody
1	*Gecas	**1,168**	↓	-2.9%	20	205	812	131
2	*Aercap	**1,028**	↓	-1.7%	-	14	767	247
3	Avolon	**570**	↑	5.2%	-	-	451	119
4	BBAM	**519**	↓	-1.0%	-	2	385	132
5	SMBC Aviation Capital	**505**	↑	15.6%	-	-	445	60
6	Nordic Aviation Capital	**485**	↓	-0.2%	286	191	8	-
7	Air Lease Corporation	**444**	↑	15.9%	-	3	329	112
8	BOC Aviation	**396**	↑	18.6%	-	-	319	77
9	ICBC Leasing	**393**	↑	12.3%	-	14	339	40
10	Aviation Capital Group	**342**	↓	11.8%	-	-	327	15
11	DAE Capital	**337**	↓	-3.7%	55	-	221	61
12	Castlelake	**265**	↑	3.9%	16	19	184	46
13	Bocomm Leasing	**258**	↑	10.7%	-	11	217	30
14	Aircastle	**257**	↓	-7.6%	-	7	223	27
15	CDB Aviation	**239**	↑	8.1%	-	20	174	45
16	Carlyle Aviation Partners	**228**	↓	-8.1%	-	-	197	31
17	Orix Aviation	**220**	↑	6.3%	-	-	186	34
18	Jackson Square Aviation	**189**	↑	11.8%	-	-	167	22
18=	Macquarie Airfinance	**189**	↓	-1.0%	-	3	175	11
20	Goshawk	**182**	↓	-0.5%	-	1	164	17
21	Deucalion Aviation Limited	**149**	↑	12.9%	-	-	125	24
22	Avmax	**142**	↑	1.4%	60	70	10	2
23	China Aircraft Leasing Company	**138**	↑	3.0%	-	-	124	14
24	AMCK Aviation	**131**	→	0.0%	-	-	125	6
25	CMB Financial Leasing	**129**	↑	15.2%	-	5	105	19
25=	Standard Chartered Bank	**129**	↓	-2.3%	-	-	124	5
27	Falko	**120**	↓	-2.4%	16	104	-	-
28	Cargo Aircraft Management	**111**	↑	6.7%	-	-	8	103
29	Fortress Transportation	**108**	↑	11.3%	-	-	91	17
29=	Altavair Airfinance	**108**	↑	16.1%	-	4	49	55
31	Chorus Aviation	**104**	↑	14.3%	74	22	8	-
32	CCB Leasing	**93**	↑	9.4%	-	-	80	13
33	JP Lease Products & Services	**87**	↑	22.5%	-	-	66	21
33=	Aircraft Leasing & Management	**87**	→	0.0%	-	13	59	15
35	Merx Aviation	**85**	↑	13.3%	-	-	77	8
36	ASL Aviation Group	**83**	↑	59.6%	16	-	55	12
37	State Transport Leasing Company	**78**	↑	4.0%	-	38	33	7
37=	Alafco	**78**	↑	1.3%	-	-	67	11
39	FPG Amentum	**75**	↑	8.7%	-	-	61	14
40	Aviator Capital Management	**72**	↓	-16.3%	-	3	53	16
41	Avia Capital Leasing Cyprus	**70**	↓	-12.5%	-	-	60	10
41=	Jetran International	**70**	↑	11.1%	6	19	40	5
43	ABC Financial Leasing	**68**	↑	9.7%	-	5	54	9
44	Genesis Aircraft Services	**67**	↑	3.1%	-	-	67	-
45	Elix Aviation Capital	**63**	↑	-4.5%	63	-	-	-
46	Tokyo Century Leasing	**62**	↓	-29.5%	-	3	42	17
47	VEB Leasing	**61**	↓	-3.2%	1	35	10	15
48	GTLK Europe	**60**	→	0.0%	-	-	50	10
49	Wings Capital Partners	**56**	↑	3.7%	-	-	54	2
49=	Sberbank Leasing	**56**	→	0.0%	-	20	30	6
	Total	**10,954**	↑	**3.6%**	**613**	**831**	**7,817**	**1,693**

Source: Lessors and AFJ Fleet Tracker as of 30 June 2021

** We were very pleased to receive fleet updates from 75 lessors in preparation for this study. Unfortunately, some of the major lessors did not provide their updated data. In particular, we are aware that our fleet sizes for 737NGs and A320s for GECAS and Aercap are higher than disclosed in the recent SEC filing by Aercap. We are working to identify the new owners of these additional aircraft and the results will be available on AFJ Fleet Tracker as soon as possible. Numbers may not total exactly due to rounding.*

Top 50 **managers by $MV of fleet** ($m)

Rank	Manager	Total	% change since last year	Turboprop	Regional jet	Narrowbody	Widebody
1	*Aercap	**$27,569**	↓ -3.6%	-	$398	$15,794	$11,377
2	*Gecas	**$20,307**	↑ 0.5%	$169	$868	$14,449	$4,822
3	SMBC Aviation Capital	**$18,954**	↑ 17.0%	-	-	$13,857	$5,097
4	BBAM	**$18,528**	↓ -4.7%	-	$18	$9,814	$8,696
5	Avolon	**$18,291**	↑ 5.5%	-	-	$11,106	$7,184
6	Air Lease Corporation	**$18,176**	↑ 12.1%	-	$27	$9,778	$8,370
7	BOC Aviation	**$15,966**	↑ 21.1%	-	-	$10,161	$5,805
8	ICBC Leasing	**$13,738**	↑ 12.2%	-	$247	$10,532	$2,959
9	Aviation Capital Group	**$9,519**	↑ 11.1%	-	-	$8,487	$1,032
10	Bocomm Leasing	**$8,829**	↑ 14.3%	-	$151	$6,762	$1,916
11	DAE Capital	**$8,622**	↓ -5.1%	$574	-	$4,611	$3,436
12	CDB Aviation	**$7,877**	↑ 15.5%	-	$239	$5,513	$2,126
13	Jackson Square Aviation	**$6,923**	↑ 9.0%	-	-	$5,361	$1,562
14	Orix Aviation	**$6,240**	↑ 7.0%	-	-	$4,373	$1,867
15	Goshawk	**$5,947**	↓ -7.2%	-	$12	$4,506	$1,429
16	Aircastle	**$4,844**	↓ -7.3%	-	$131	$3,896	$818
17	CMB Financial Leasing	**$4,682**	↑ 16.1%	-	$86	$3,420	$1,176
18	Nordic Aviation Capital	**$4,438**	↓ -7.9%	$2,097	$2,186	$155	-
19	Castlelake	**$4,235**	↑ 7.0%	$31	$143	$3,134	$928
20	China Aircraft Leasing Company	**$4,148**	↓ -0.1%	-	-	$3,603	$546
21	Standard Chartered Bank	**$3,712**	↓ -9.1%	-	-	$3,625	$87
22	AMCK Aviation	**$3,483**	↓ -4.6%	-	-	$3,279	$203
23	CCB Leasing	**$3,461**	↑ 2.7%	-	-	$2,500	$961
24	Altavair Airfinance	**$3,313**	↑ 17.9%	-	$27	$953	$2,333
25	Macquarie Airfinance	**$3,263**	↓ -5.7%	-	$27	$2,964	$272
26	Aircraft Leasing & Management	**$3,250**	↑ 0.3%	-	$223	$1,635	$1,392
27	Alafco	**$3,025**	↓ -5.3%	-	-	$1,996	$1,030
28	Deucalion Aviation Limited	**$2,836**	↑ 29.4%	-	-	$2,011	$825
29	Carlyle Aviation Partners	**$2,717**	↓ -13.9%	-	-	$2,366	$351
30	Tokyo Century Leasing	**$2,598**	↑ 6.6%	-	$34	$1,104	$1,460
31	ABC Financial Leasing	**$2,532**	↑ 10.9%	-	$84	$1,736	$712
32	FPG Amentum	**$2,368**	↓ -5.5%	-	-	$1,516	$852
33	JP Lease Products & Services	**$2,221**	↑ 18.2%	-	-	$1,259	$961
34	Amedeo Limited	**$2,219**	↓ -14.8%	-	-	-	$2,219
35	Merx Aviation	**$2,131**	↑ 23.8%	-	-	$1,624	$507
36	IAFC	**$2,066**	↑ 26.5%	-	-	$934	$1,133
37	Novus Aviation	**$1,815**	↑ 32.3%	-	-	$523	$1,291
38	Seraph Aviation Management	**$1,686**	↑ 30.1%	$9	$74	$478	$1,124
39	Avia Capital Leasing Cyprus	**$1,637**	↑ 10.1%	-	-	$1,543	$95
40	GTLK Europe	**$1,624**	↓ -8.6%	-	-	$952	$672
41	Minsheng Financial Leasing	**$1,479**	↓ -0.6%	-	-	$1,190	$289
42	Wings Capital Partners	**$1,408**	↓ -4.2%	-	-	$1,257	$151
43	Avic Leasing	**$1,364**	↑ 22.6%	-	$29	$1,245	$90
44	Everbright Financial Leasing	**$1,344**	↑ 106.8%	-	$18	$1,185	$142
45	GOAL Clients	**$1,343**	↑ 4.4%	$100	-	$1,076	$168
46	SPDB Financial Leasing	**$1,336**	↑ 6.5%	-	$65	$1,057	$214
47	Skyworks Leasing	**$1,335**	↓ -12.8%	-	-	$659	$676
48	Sberbank Leasing	**$1,283**	↓ -6.4%	-	$198	$850	$235
49	VEB Leasing	**$1,278**	↓ -12.1%	$5	$465	$234	$574
50	Chorus Aviation	**$1,235**	↑ 10.0%	$724	$341	$170	-
	Total	**$293,196**	↑ **5.0%**	**$3,709**	**$6,092**	**$191,232**	**$92,164**

Source: Lessors and AFJ Fleet Tracker as of 30 June 2021
Source: AVITAS Blue Book Market Values as of 01 October 2021
** We were very pleased to receive fleet updates from 75 lessors in preparation for this study. Unfortunately, some of the major lessors did not provide their updated data. In particular, we are aware that our fleet sizes for 737NGs and A320s for GECAS and Aercap are higher than disclosed in the recent SEC filing by Aercap. We are working to identify the new owners of these additional aircraft and the results will be available on AFJ Fleet Tracker as soon as possible. Numbers may not total exactly due to rounding.*

Top 50 beneficial owners by number of aircraft

Rank	Beneficial Owner	Total	Turboprop	Regional jet	Narrowbody	Widebody
1	*Gecas	1,043	17	118	793	115
2	*Aercap	992	-	14	727	251
3	Avolon	524	-	-	411	113
4	Nordic Aviation Capital	485	286	191	8	-
5	ICBC Leasing	403	-	14	349	40
6	BOC Aviation	377	-	-	299	78
7	Air Lease Corporation	355	-	2	252	101
8	SMBC Aviation Capital	328	-	-	307	21
9	Aviation Capital Group	295	-	-	284	11
10	DAE Capital	282	53	-	174	55
11	Castlelake	280	10	21	199	50
12	Aircastle	255	-	7	221	27
13	CDB Aviation	238	-	20	175	43
14	Carlyle Aviation Partners	228	-	-	197	31
15	Bocomm Leasing	220	-	7	189	24
16	NBB Leasing Clients	215	-	-	130	85
17	Macquarie Airfinance	189	-	3	175	11
18	Jackson Square Aviation	188	-	-	168	20
19	Goshawk	162	-	-	148	14
20	Avmax	139	59	68	10	2
21	AMCK Aviation	130	-	-	124	6
22	China Aircraft Leasing Company	112	-	-	100	12
23	Cargo Aircraft Management	111	-	-	8	103
24	Standard Chartered Bank	110	-	-	105	5
25	JP Lease Products & Services	106	-	-	78	28
26	Chorus Aviation	104	74	22	8	-
27	Regional One	98	16	82	-	-
28	Falko	96	16	80	-	-
29	KKR Aviation Funds	92	-	4	40	48
30	CCB Leasing	89	-	-	77	12
30=	Fortress Transportation	89	-	-	72	17
32	CMB Financial Leasing	81	-	-	75	6
33	Fly Leasing	79	-	-	70	9
34	State Transport Leasing Company	78	-	38	33	7
34=	Alafco	78	-	-	67	11
36	Deucalion Aviation Funds	75	-	-	59	16
37	Aviator Capital Management	72	-	3	53	16
38	VTB Leasing	70	-	-	60	10
38=	Jetran International	70	6	19	40	5
40	Genesis Aircraft Services	67	-	-	67	-
41	**Merx Aviation	66	-	-	63	3
42	Elix Aviation Capital	63	63	-	-	-
43	Horizon Aviation	61	-	-	61	-
44	VEB Leasing	59	1	35	8	15
45	Sberbank Leasing	56	-	20	30	6
46	IAFC	55	-	-	30	25
47	Fuyo General Lease	54	-	5	44	5
48	GTLK Europe	53	-	-	46	7
50	Truenoord	52	17	34	-	1
50=	Incline Aviation	52	-	-	45	7
	Total	**9,575**	**618**	**807**	**6,679**	**1,471**

Source: Lessors and AFJ Fleet Tracker as of 30 June 2021

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*** Orix Aviation and Merx Aviation got credit for 50% each of the Kornerstone aircraft*

Top 50 **beneficial owners by $MV of fleet** ($m)

Rank	Beneficial Owner	Total	Turboprop	Regional jet	Narrowbody	Widebody
1	*Aercap	$27,998	-	$398	$15,191	$12,409
2	*Gecas	$19,634	$159	$681	$14,237	$4,557
3	Avolon	$17,843	-	-	$10,527	$7,316
4	BOC Aviation	$16,131	-	-	$9,794	$6,337
5	Air Lease Corporation	$16,017	-	$18	$8,236	$7,764
6	ICBC Leasing	$14,010	-	$247	$10,805	$2,959
7	SMBC Aviation Capital	$11,863	-	-	$9,750	$2,113
8	NBB Leasing Clients	$9,868	-	-	$4,208	$5,660
9	Aviation Capital Group	$8,363	-	-	$7,488	$875
10	CDB Aviation	$7,850	-	$239	$5,553	$2,058
11	DAE Capital	$7,798	$556	-	$3,912	$3,329
12	Bocomm Leasing	$7,636	-	$108	$6,042	$1,485
13	Jackson Square Aviation	$6,886	-	-	$5,403	$1,483
14	Goshawk	$5,326	-	-	$4,155	$1,171
15	Aircastle	$4,747	-	$131	$3,799	$818
16	Castlelake	$4,669	$22	$193	$3,308	$1,145
17	Nordic Aviation Capital	$4,438	$2,097	$2,186	$155	-
18	AMCK Aviation	$3,449	-	-	$3,246	$203
19	China Aircraft Leasing Company	$3,273	-	-	$2,885	$388
20	Macquarie Airfinance	$3,263	-	$27	$2,964	$272
21	CCB Leasing	$3,224	-	-	$2,348	$876
22	Standard Chartered Bank	$3,110	-	-	$3,023	$87
23	Alafco	$3,025	-	-	$1,996	$1,030
24	CMB Financial Leasing	$2,928	-	-	$2,503	$424
25	KKR Aviation Funds	$2,856	-	$27	$904	$1,924
26	Carlyle Aviation Partners	$2,717	-	-	$2,366	$351
27	JP Lease Products & Services	$2,574	-	-	$1,425	$1,149
28	IAFC	$2,066	-	-	$934	$1,133
29	Fly Leasing	$1,992	-	-	$1,404	$588
30	Fuyo General Lease	$1,717	-	$78	$1,278	$361
31	VTB Leasing	$1,637	-	-	$1,543	$95
32	Incline Aviation	$1,621	-	-	$1,153	$468
33	Avic Leasing	$1,574	-	$29	$1,220	$325
34	ABC Financial Leasing	$1,491	-	$31	$1,255	$204
35	**Orix Aviation	$1,469	-	-	$911	$557
36	Minsheng Financial Leasing	$1,375	-	-	$1,190	$185
37	GOAL Clients	$1,343	$100	-	$1,076	$168
38	GTLK Europe	$1,342	-	-	$890	$451
39	**Merx Aviation	$1,330	-	-	$1,173	$157
40	Tokyo Century Leasing	$1,313	-	-	$1,083	$230
41	Sberbank Leasing	$1,283	-	$198	$850	$235
42	Deucalion Aviation Funds	$1,273	-	-	$875	$398
43	Chorus Aviation	$1,235	$724	$341	$170	-
44	Cargo Aircraft Management	$1,227	-	-	$30	$1,197
45	Investec	$1,224	$33	$59	$163	$969
46	VEB Leasing	$1,223	$5	$465	$178	$574
47	Novus Aviation	$1,204	-	-	$317	$887
48	Wings Capital Partners	$1,193	-	-	$1,042	$151
49	Sky Leasing	$1,081	$67	-	$935	$79
50	Horizon Aviation	$1,065	-	-	$1,065	-
	Total	**$253,773**	**$3,763**	**$5,455**	**$166,958**	**$77,597**

Source: Lessors and AFJ Fleet Tracker as of 30 June 2021
Source: AVITAS Blue Book Market Values as of 01 October 2021
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*** Orix Aviation and Merx Aviation got credit for 50% each of the Kornerstone aircraft*

Top 50 lessors' orderbooks

Rank	Beneficial Owner	Total	Turboprop	*Regional Jet	Narrowbody	Widebody
1	Air Lease Corporation	**340**	-	-	277	63
2	Aercap	**275**	-	36	218	21
3	China Aircraft Leasing Company	**274**	-	30	244	-
4	Avolon	**239**	-	-	217	22
5	Gecas	**235**	-	-	219	16
6	SMBC Aviation Capital	**222**	-	-	222	-
7	Bocomm Leasing	**136**	-	-	136	-
8	ICBC Leasing	**119**	-	53	66	-
9	BOC Aviation	**113**	-	-	105	8
10	CDB Aviation	**111**	-	-	111	-
11	Ilyushin Finance Corporation	**93**	-	27	65	1
12	Avia Capital Services	**85**	-	-	85	-
13	Alafco	**71**	-	-	70	1
14	Nordic Aviation Capital	**68**	48	-	20	-
15	Aviation Capital Group	**59**	-	-	57	2
16	Macquarie Airfinance	**51**	-	-	51	-
17	China Huarong Financial Leasing	**50**	-	20	30	-
18	ABC Financial Leasing	**45**	-	-	45	-
19	Goshawk	**40**	-	-	40	-
20	Timaero Ireland	**35**	-	-	35	-
21	Everbright Financial Leasing	**30**	-	-	30	-
22	VEB Leasing	**27**	-	2	25	-
23	Aircastle	**24**	-	24	-	-
24	Jackson Square Aviation	**23**	-	-	23	-
25	Accipiter	**20**	-	-	20	-
25=	Lease Corporation International	**20**	-	-	20	-
27	777 Partners	**19**	-	-	19	-
28	Sberbank Leasing	**14**	-	-	14	-
28=	State Transport Leasing Company	**14**	-	14	-	-
28=	DAE Capital	**14**	-	-	14	-
31	Aerolease Aviation	**10**	-	10	-	-
32	Hong Kong Int. Av. Leasing	**6**	-	-	-	6
32=	Willis Lease Finance	**6**	-	6	-	-
34	SPDB Financial Leasing	**5**	-	-	5	-
34=	CIB Leasing	**5**	-	5	-	-
36	Middle East Leasing	**4**	-	-	4	-
37	Acia Aero	**3**	3	-	-	-
37=	Minsheng Financial Leasing	**3**	-	3	-	-
37=	CIAF Leasing	**3**	-	3	-	-
37=	GTLK Europe	**3**	-	-	3	-
41	Aerostar Leasing	**2**	2	-	-	-
42	Pearl Aircraft Corporation	**1**	-	1	-	-
42=	CMB Financial Leasing	**1**	-	-	1	-
	Total	**2,918**	**53**	**234**	**2,491**	**140**

Source: Lessors and AFJ Fleet Tracker as of 30 June 2021
Source: as per OEMs` input and press releases
**Includes 10 MRJ aircraft. Mitsubishi MRJ program has been suspended indefinitely and is likely to be cancelled*

Top 50 **lessors' orderbooks** ($m)[1]

Rank	Beneficial Owner	Total	Turboprop	**Regional Jet	Narrowbody	Widebody
1	Air Lease Corporation	**$23,019**	-	-	$14,173	$8,846
2	Aercap	**$15,853**	-	$1,224	$11,647	$2,982
3	China Aircraft Leasing Company	**$14,011**	-	$1,140	$12,871	-
4	Avolon	**$13,850**	-	-	$11,318	$2,532
5	Gecas	**$13,556**	-	-	$11,680	$1,876
6	SMBC Aviation Capital	**$11,542**	-	-	$11,542	-
7	Avia Capital Services	**$7,108**	-	-	$7,108	-
8	Bocomm Leasing	**$6,907**	-	-	$6,907	-
9	BOC Aviation	**$6,294**	-	-	$5,428	$866
10	CDB Aviation	**$5,806**	-	-	$5,806	-
11	Ilyushin Finance Corporation	**$5,709**	-	$1,119	$4,540	$50
12	ICBC Leasing	**$5,338**	-	$1,982	$3,356	-
13	Alafco	**$3,783**	-	-	$3,631	$152
14	Aviation Capital Group	**$3,404**	-	-	$3,100	$304
15	China Huarong Financial Leasing	**$2,260**	-	$760	$1,500	-
16	ABC Financial Leasing	**$2,250**	-	-	$2,250	-
17	Macquarie Airfinance	**$2,170**	-	-	$2,170	-
18	VEB Leasing	**$2,121**	-	$101	$2,020	-
19	Goshawk	**$2,088**	-	-	$2,088	-
20	Nordic Aviation Capital	**$1,835**	$1,190	-	$645	-
21	Timaero Ireland	**$1,785**	-	-	$1,785	-
22	Everbright Financial Leasing	**$1,500**	-	-	$1,500	-
23	Jackson Square Aviation	**$1,173**	-	-	$1,173	-
24	Accipiter	**$1,020**	-	-	$1,020	-
25	Hong Kong Int. Av. Leasing	**$994**	-	-	-	$994
26	777 Partners	**$969**	-	-	$969	-
27	Aircastle	**$788**	-	$788	-	-
28	Lease Corporation International	**$727**	-	-	$727	-
29	Sberbank Leasing	**$714**	-	-	$714	-
29=	DAE Capital	**$714**	-	-	$714	-
31	State Transport Leasing Company	**$707**	-	$707	-	-
32	Aerolease Aviation	**$473**	-	$473	-	-
33	Willis Lease Finance	**$303**	-	$303	-	-
34	SPDB Financial Leasing	**$250**	-	-	$250	-
35	Middle East Leasing	**$228**	-	-	$228	-
36	CIB Leasing	**$125**	-	$125	-	-
37	GTLK Europe	**$111**	-	-	$111	-
38	CIAF Leasing	**$97**	-	$97	-	-
39	Acia Aero	**$65**	$65	-	-	-
40	CMB Financial Leasing	**$51**	-	-	$51	-
40=	Pearl Aircraft Corporation	**$51**	-	$51	-	-
42	Minsheng Financial Leasing	**$45**	-	$45	-	-
43	Aerostar Leasing	**$15**	$15	-	-	-
	Total	**$161,810**	**$1,270**	**$8,914**	**$133,024**	**$18,602**

Source: Lessors and *Airfinance Journal*'s Fleet Tracker as of 30 June, 2021
Source: as per OEMs` input and press releases
** We applied Avitas base values to estimate the value of the order books. Estimates are gross and do not net pre-delivery payments already paid.*
***Includes 10 MRJ aircraft. Mitsubishi MRJ program has been suspended indefinitely and is likely to be cancelled.*

Lessor firm orders

Figure 1: Firm orders by body type

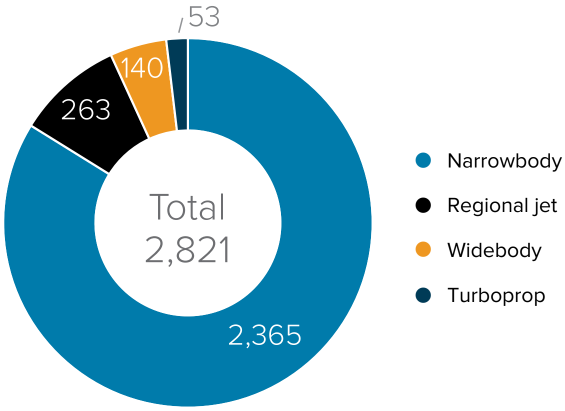


Figure 2: Firm orders by value by body type ($m)

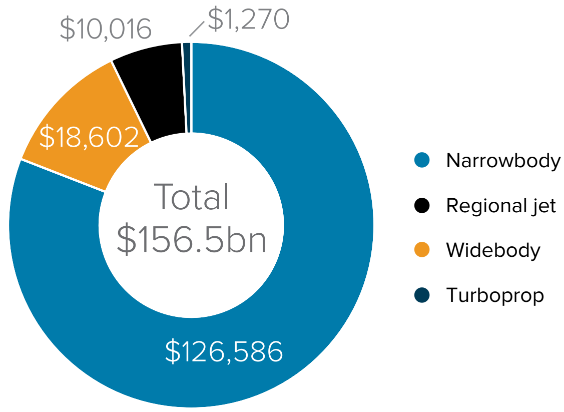


Figure 3: Firm orders by manufacturer

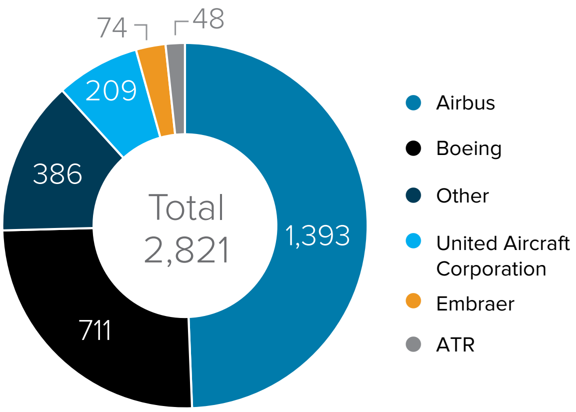


Figure 4: Firm orders by value by manufacturer ($m)

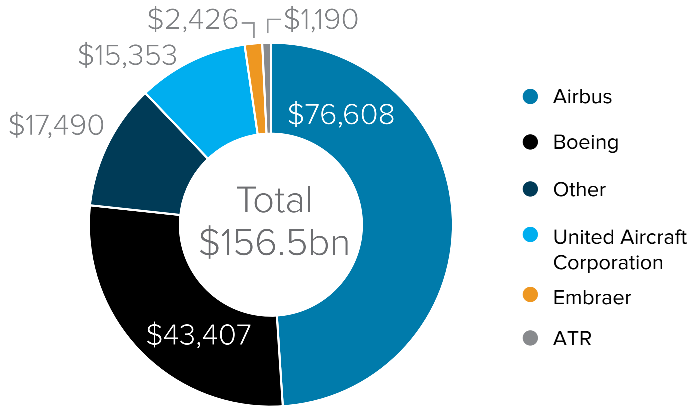


Figure 5: Firm orders by country of lessor

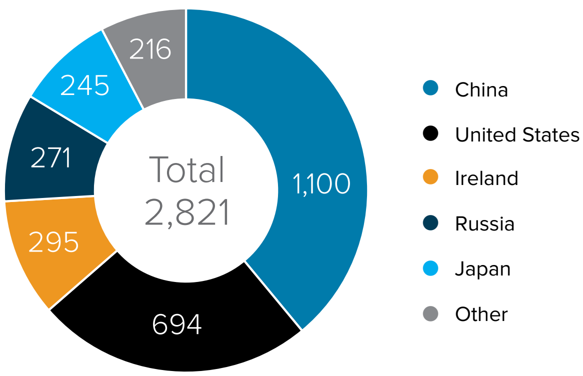
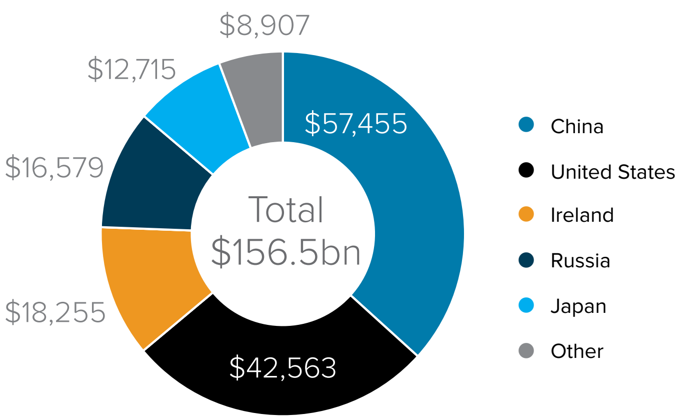


Figure 6: Firm orders by value by country of lessor ($m)



Source: Manufacturers and Avitas as of 30 June, 2021

** Calculated as of 2021 market list prices and Avitas Base Values*

***Includes 10 MRJ aircraft. Mitsubishi MRJ program has been suspended indefinitely and is likely to be cancelled.*

Trend analysis – Global aircraft leasing companies' financial performance

Airfinance Journal has sourced audited financial statements for more than 90 lessors and leasing entities, including more than 30 of the Leasing Top 50 lessors. Of these, we have selected 22 companies that represent the largest lessors for inclusion in this study. These are shown in table 1. Notably, we have full consolidated "Combined Carve-out" financial statements for GECAS for the first time as released in Aercap's October 2021 6-K. The "as-of" dates for the financials range from 31 December 2020 to 30 June 2021.

BOC Aviation Limited had a net income of $509.8 million

Table 1: The leasing entities included in the industry aggregates

Count	Leasing entity	Parent/country of operation	Date of most recent annual financials	Total Assets ($ bn)	Net Income ($ m)
1	AerCap Holdings N.V.	Netherlands/Ireland	31-Dec-20	42.0	-298.6
2	AerDragon Aviation Partners Limited	Ireland	31-Dec-20	1.3	26.0
3	Air Lease Corporation	USA	31-Dec-20	25.2	500.9
4	Aircastle Limited	Japan/USA	31-Dec-20	7.7	-333.2
5	Amedeo Air Four Plus Limited	UK	31-Mar-21	1.9	-223.7
6	Aviation Capital Group LLC	Japan/USA	31-Dec-20	12.4	104.0
7	Avation PLC	UK/Singapore	30-Jun-21	1.3	-84.9
8	Avolon Holdings Limited	China/Ireland	31-Dec-20	30.8	-36.6
9	Banc of America Leasing Ireland Co., Limited	USA/Ireland	31-Dec-20	2.3	60.3
10	BOC Aviation Limited	China/Singapore	31-Dec-20	23.6	509.8
11	CCB Aviation Corporation Limited	China/Ireland	31-Dec-20	2.2	-41.8
12	CDB Aviation Lease Finance DAC	China/Ireland	31-Dec-20	9.0	-101.3
13	Clover Aircraft Leasing Company Limited	China & Japan/Ireland	31-Dec-20	0.8	-1.6
14	Dubai Aerospace Enterprise (DAE) Ltd	UAE	31-Dec-20	12.7	228.9
15	FLY Leasing Limited	Ireland	31-Dec-20	3.2	-64.5
16	GECAS Combined Carve-out Financial Statements[1]	USA/Ireland	31-Dec-20	38.3	-162.5
17	Goshawk Aviation Limited	China/Ireland	31-Dec-20	8.1	4.6
18	Jackson Square Aviation Ireland Limited	Japan/Ireland	31-Dec-20	3.8	-8.0
19	Macquarie AirFinance Limited	Australia/UK	31-Mar-21	5.0	-211.2
20	Merx Aviation Finance Assets Ireland Limited	USA/Ireland	31-Mar-21	1.7	-79.6
21	ORIX Aviation Systems Limited	Japan/Ireland	31-Mar-21	4.4	0.6
22	SMBC Aviation Capital Limited	Japan/Ireland	31-Mar-21	16.0	13.6

Note all financial statements are consolidated, except for ORIX Aviation Systems Limited
[1] As published in AerCap 6-K, October 2021

Income statement

Table 2 shows the key aggregate income statement figures for these lessors.

The main takeaways resulting from the pandemic are:

- Lease revenue and gains on disposal of aircraft were down in the latest year as a result of renegotiations, deferrals of rentals and moving to cash accounting for certain lessees;
- Asset impairments increased to $3.5 billion (1.8% of opening Aircraft assets); and
- Net income fell from $6.2 billion to a small loss.

Table 4 shows the trend in lease yield, average interest cost and net spread.

Aircraft net investment was relatively flat as a result of negotiated delivery deferrals and issues with the Boeing 737 Max

Table 2: Aggregate industry income statement

Income statement - $ million	2018/19	2019/20	2020/21
Revenue			
Lease revenue	21,203	22,920	21,535
Gain (loss) on disposal of aircraft	1,130	1,421	542
Interest and other income	1,464	1,742	1,311
Total Revenue	**23,798**	**26,082**	**23,388**
Operating expenses			
Aircraft lease rental expense	(178)	(239)	(147)
Aircraft maintenance and transition costs	(510)	(397)	(444)
Asset impairment	(219)	(489)	(3,508)
Financial asset impairment	1	(32)	(625)
Goodwill impairment	-	-	(156)
Selling, general, admin and staff expenses	(1,625)	(1,670)	(1,506)
Other operating income	67	82	64
Other operating expenses	(173)	(295)	(231)
Total operating expenses excluding depreciation	(2,637)	(3,040)	(6,553)
EBITDA	21,161	23,042	16,836
Depreciation & amortisation	(8,606)	(9,492)	(10,030)
EBIT from continuing operating activities	12,554	13,550	6,805
Non-recurring gains and losses	(6)	27	(322)
EBIT after non-recurring gains and losses	12,548	13,577	6,483
Total finance costs	(5,768)	(6,645)	(6,474)
Profit before tax (PBT)	6,780	6,932	9
Income tax expense	(771)	(812)	(180)
Profit from continuing operations	6,010	6,120	(171)
Net income	6,082	6,232	(141)

Source: Leasing entities' financial statements and *Airfinance Journal*
Aggregate for 22 aircraft leasing entities. Numbers may not total exactly due to rounding.

Balance sheet
The balance sheet in table 3 reveals the following trends:
- Aircraft net investment was relatively flat as a result of negotiated delivery deferrals and issues with the Boeing 737 Max and Airbus A321neo family production;
- Finance lease receivables showed significant growth as some lessors were prepared to do large purchase and finance leasebacks for some of their customers;
- Growth in trade receivables reflected delayed payments and extended payment terms from lessees; and
- Cash showed significant growth as a result of additional financing, especially in the unsecured bond market and sale and leasebacks, to protect financial flexibility.

As the GECAS balance sheet is essentially un-levered, we show leverage both including and excluding GECAS. The latter is the better guide to the leverage trend for the industry as a whole, which reached 2.84x in the most recent annual statements. Another key parameter is the percentage of debt that is unsecured. As shown, this reached 67% in the most recent year.

Cash flow statement
Table 5 clearly shows the fall in net cash from operations and the significant reduction in investment and asset disposals. On the financing side we see record debt raising of $43 billion offset by $32 billion of repayment for net incremental borrowing of $11 billion (as reflected in the increase in leverage mentioned previously).

As can be seen, this was a fixed income banker's delight with total debt issuance costs reaching $379 million.

Unrestricted cash reached $10 billion at the most recent year-ends.

Table 3: Aggregate industry balance sheet

Balance sheet - $ million	2018/19	2019/20	2020/21
Assets			
Aircraft	185,677	198,062	200,881
Deposits for aircraft purchases	16,253	15,427	14,584
Assets held-for-sale	1,772	3,573	880
Finance lease receivables	2,159	4,366	4,046
Investments	2,820	3,374	3,391
Trade receivables	893	2,020	3,955
Intangibles	2,644	2,786	2,221
Cash and cash equivalents	6,268	6,260	9,961
Restricted cash	1,317	1,665	1,278
Other assets	5,876	9,605	9,696
Total assets	**225,679**	**247,139**	**250,892**
Liabilities			
Secured borrowings	38,265	36,941	36,272
Unsecured borrowings	75,194	82,792	92,768
Other loans and borrowings	921	1,289	107
Borrowings from group company	9,912	10,558	10,301
Subordinated debt	1,848	2,597	2,593
Security deposits	11,751	13,848	12,043
Other liabilities	8,637	15,734	14,884
Total liabilities	**146,528**	**163,758**	**168,968**
Equity	**79,151**	**83,381**	**81,924**
Total liabilities & equity	**225,679**	**247,139**	**250,892**
Debt/equity (times) including GECAS	N/A	1.58	1.70
Debt/equity (times) excluding GECAS	2.64	2.61	2.84
% unsecured debt	60%	63%	67%

Source: Leasing entities' financial statements and *Airfinance Journal*
Aggregate for 22 aircraft leasing entities. Numbers may not total exactly due to rounding.

Table 4: Aggregate industry key ratios

Cash flow - $ million	2019/20	2020/21
Lease yield (Lease revenue/Average aircraft assets)	13.9%	12.6%
Increase/(decrease) in lease yield		-9.3%
Average interest cost	5.9%	5.4%
Spread (Basic lease yield - Debt interest rate)	8.0%	7.2%
SG&A as % of Total Revenue	6.4%	6.4%
Asset impairments as % of opening PP&E	0.3%	1.8%
Credit losses as % of lease revenue	0.1%	3.0%
EBITDA/Total Finance Costs (x)	3.5	2.6
Return on Average Equity	8.4%	-0.2%

Source: Leasing entities' financial statements and *Airfinance Journal*
Aggregate for 22 aircraft leasing entities

Table 5: Aggregate industry cash flow statement

Cash flow - $ million	2018/19	2019/20	2020/21
Net cash from operations	**13,357**	**13,532**	**9,767**
Investing Activiies			
Investment	-40,052	-27,906	-19,961
Asset disposals	14,159	16,179	4,627
Total of Investing Activities	**-25,892**	**-11,727**	**-15,334**
Financing Activities			
Issuance of stock (net)	632	-36	-395
Proceeds from debt raising	33,304	28,887	42,520
Repayment of debt	-22,869	-26,543	-32,021
Security deposits (net)	1,390	997	182
Debt issuance costs	-216	-190	-379
Dividends paid	-1,113	-867	-585
Other	425	-4,135	-75
Total of Financing Activities	**11,554**	**-1,887**	**9,246**
Net increase (decrease) in cash	**-982**	**-82**	**3,680**
Free cash flow	-26,695	-14,374	-10,193
Discretionary cash flow	-27,807	-15,242	-10,779

Source: Leasing entities' financial statements and *Airfinance Journal*
Aggregate for 22 aircraft leasing entities

Lessor funding sources

The following chart shows funding sources accessed by the lessors in the 12 months ending 30 September 2021, using data from *Airfinance Journal*'s Deal Tracker.

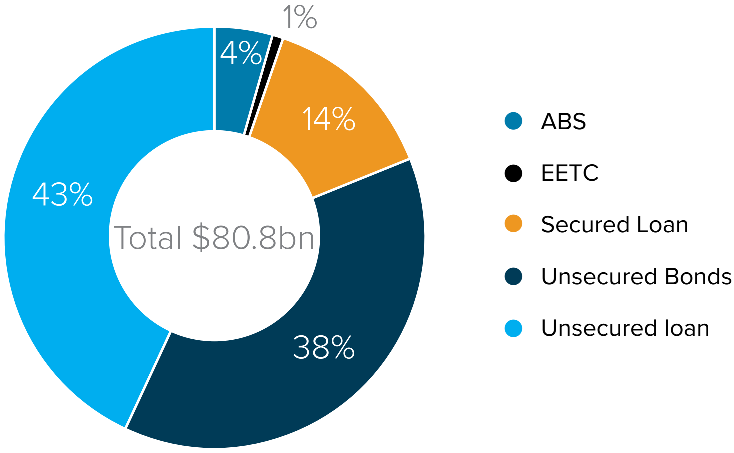
Overview

As can be seen in the chart, unsecured bonds were a large portion of the total. Perhaps more unexpected, unsecured bank loans contributed even more liquidity. Examination of the data reveals that Aercap was a large portion of the unsecured bonds issuance, and responsible for most of the unsecured loans, including a $19 billion bridge facility, a $4.3 billion revolving facility and a $5 billion commercial loan. BOC Aviation also arranged a $3.5 billion unsecured revolving credit with Bank of China and several other lessors arranged revolving credits of the order of $500 million each. Secured loans captured by our Deal Tracker database only totalled $11.1 billion and ABS was only $3.6 billion.

Unsecured bond issuance

Our analysis shows that the major lessors had $87 billion of unsecured bonds outstanding as of 30 September 2021, headed by Air Lease, Aercap, Avolon and BOC Aviation. Table 1 shows that most of the issuance has been since 2017 and has reached $42 billion in October 2021 year-to-date including Aercap's record $21 billion issuance.

Lessor funding sources 12 months ending 30 September 2021 - $ bn



Source: *Airfinance Journal*'s Deal Tracker

Table 1: Lessor unsecured bonds by year of issue

Lessor	2013	2014	2015	2016	2017	2018	2019	2020	2021	Grand Total
Air Lease Corporation		500	600	750	2,200	2,400	2,873	4,450	4,250	**18,023**
Aercap			500	1,000	2,400	2,350	3,600	4,000	1,000	**14,850**
Avolon					1,653	543	3,603	3,400	3,500	**12,699**
BOC Aviation	550	47	154	750	1,803	1,150	2,106	2,900	1,500	**10,960**
ICBCIL Finance Company				300	950	600	2,100	900	1,250	**6,100**
Aviation Capital Group			300		1,750	1,450		1,000	1,500	**6,000**
AVIC International Leasing				78		723	1,349	557	2,368	**5,076**
Aircastle				500	500	650	650	650	1,150	**4,100**
DAE						500		750	2,550	**3,800**
SMBC AC					500	500	500		1,000	**2,500**
CDB Aircraft Lease & Finance		400			400	900	130	500		**2,330**
CALC					500					**500**
FLY Leasing					10				390	**400**
Grand Total	**550**	**947**	**1,554**	**3,378**	**12,665**	**11,766**	**16,912**	**19,107**	**20,459**	**87,338**

Source: Cbonds & AFJ Deal Tracker

Coupons

Shown in table 2 is the (simple) average coupon paid by each lessor for all issues that remain outstanding. This clearly shows the declining coupons over the last three years with ICBCIL Finance Company with the lowest historic average coupon followed by BOC Aviation, SMBC Aviation Capital and Air Lease.

Aercap doesn't feature too well on the "lifetime" average but their year-to September 2021 average coupon of 1.75% and successful execution of the $21 billion financing of the GECAS acquisition in October deserves recognition. Other lessors have also had outstanding success in the last 10 months in achieving significantly reduced coupons compared to 2020.

Maturities

But bonds need to be paid back and/or refinanced! Table 3 shows the unsecured bond maturities as of 30 September 2021.

As can be seen there was $2.5 billion of maturities scheduled in the fourth quarter of 2021, stepping up to $12 billion in 2022, $13 billion in 2023 and then peaking at $18.3 billion in 2024. Note this excludes Aercap's record $21 billion issuance.

Just to quantify the potential exposure, a 2% increase in average coupons on $87 billion of debt would cost these lessors an additional $1.7 billion annually in interest expense.

Table 2: Lessor unsecured bonds - average coupon by year of issue

Lessor	2013	2014	2015	2016	2017	2018	2019	2020	2021	Grand Total
ICBCIL Finance Company				3.63	3.38		3.70	1.75	1.88	**2.80**
BOC Aviation	4.34			3.88	3.08	2.06	3.50	2.81	1.69	**2.95**
SMBC AC					3.00	4.13	3.55		2.10	**2.98**
Air Lease Corporation		4.25	3.75	3.00	3.16	3.81	3.38	2.94	1.77	**2.99**
CDB Aircraft Lease & Finance		4.25			3.50	3.00	2.87	1.50		**3.02**
DAE						5.25		3.75	2.29	**3.03**
AVIC International Leasing						4.63	3.48	3.43	1.70	**3.07**
Aviation Capital Group			4.88		3.19	4.13		5.50	1.95	**3.67**
AerCap			4.63	3.95	3.55	3.94	4.51	4.69	1.75	**4.11**
Avolon					5.00	5.31	4.49	3.97	2.47	**4.15**
Aircastle				5.00	4.13	4.40	4.25	5.25	4.05	**4.45**
CALC					5.10					**5.10**
FLY Leasing					5.25				7.00	**6.13**
Grand Total	**4.34**	**4.25**	**4.42**	**3.89**	**3.71**	**3.89**	**3.92**	**3.55**	**2.31**	**3.49**

Source: Cbonds & AFJ Deal Tracker

Table 3: Lessor unsecured bonds by year of maturity

$ million	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2079	Perpetual	Grand Total
Air Lease Corporation		2,500	2,450	2,873	2,300	3,400	1,000	1,000	500	1,400			600	**18,023**
AerCap	700	2,100	2,450	2,550	2,650	1,500	1,600	550				750		**14,850**
Avolon		1,136	1,423	2,490	1,100	3,150	2,650	750						**12,699**
BOC Aviation		1,047	2,100	2,297	1,858	1,308	803		798	750				**10,960**
ICBCIL Finance Company		1,400	600	1,850	900	850	250				250			**6,100**
Aviation Capital Group		1,000	650	1,300	800	1,500	750							**6,000**
AVIC International Leasing	878	1,661	559	1,515									462	**5,076**
Aircastle			1,150	500	650	650		750					400	**4,100**
DAE	500			1,300	500	750		750						**3,800**
SMBC AC		500	500	500		500		500						**2,500**
CDB Aircraft Lease & Finance	400		1,000	530			400							**2,330**
CALC		300		200										**500**
FLY Leasing				400										**400**
Grand Total	**2,478**	**11,644**	**12,882**	**18,305**	**10,758**	**13,608**	**7,453**	**4,300**	**1,298**	**2,150**	**250**	**750**	**1,462**	**87,338**

Source: Cbonds & AFJ Deal Tracker

Analysis of the **global leased fleet**

The *Airfinance Journal* Fleet Tracker database includes 11,190 aircraft (data as of 30 June 2021). Aircraft leased by "captive" lessors such as Synergy, Sunrise Asset Management, Arctic Aviation Assets, Aircraft Purchase Fleet, Transportation Partners and by the OEMs are excluded. Aggregate orders by the commercial lessors total 2,918 aircraft with an estimated cost of close to $160 billion. The average age of the existing leased fleet is 10.5 years.

The top 10 lessors (5,850 aircraft) account for 52% of the total fleet count (up from 49% last year). The smaller lessors provide value to the marketplace in dealing with older or more specialised aircraft. They also may be prepared to do business with some of the more challenging regions of the world or have leading positions in their niche markets.

Airlines with the most leased aircraft

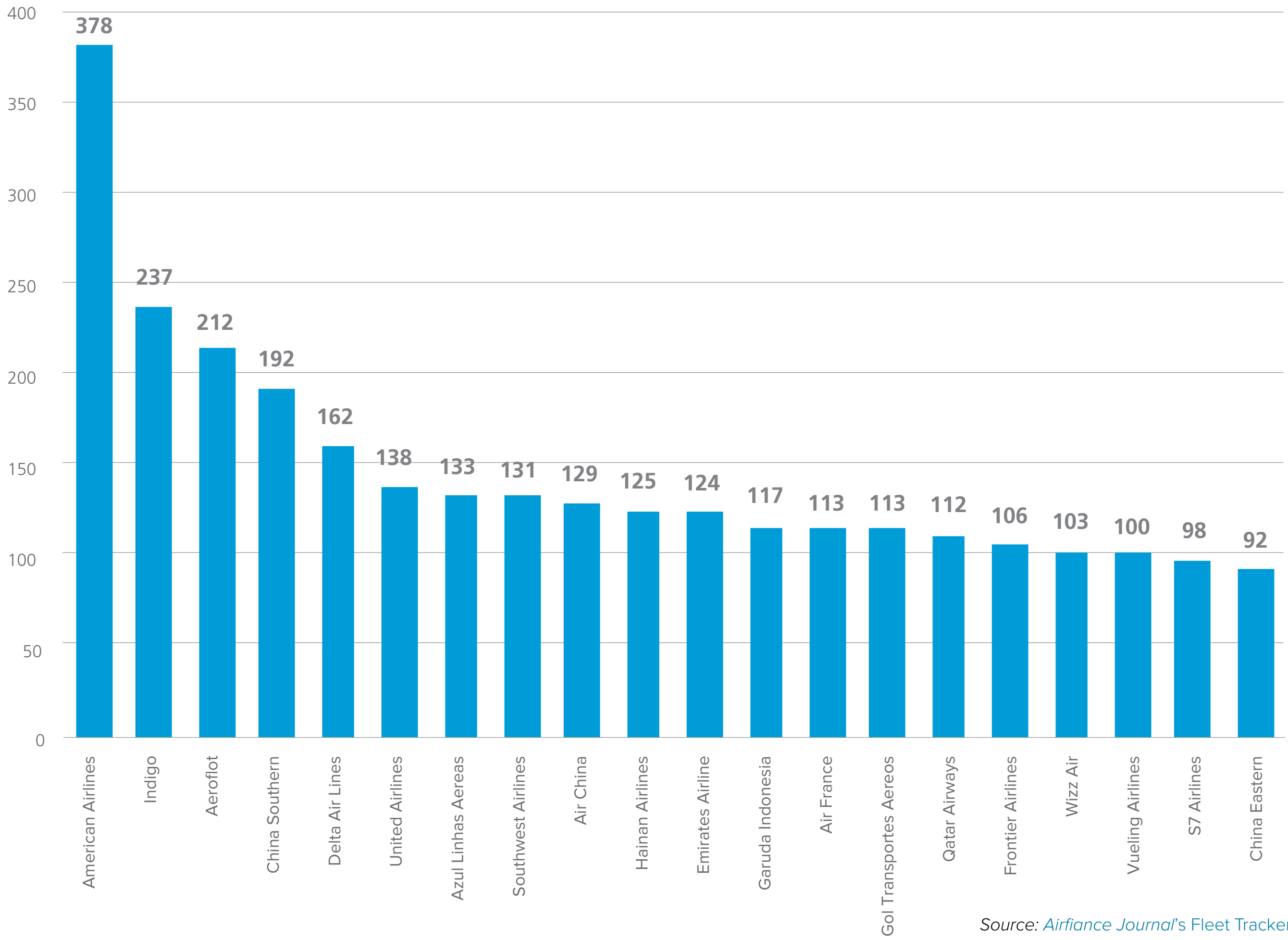
Figure 1 shows the top 20 lessees by number of aircraft. Just as the leasing industry is heavily concentrated in a relatively small number of players, the airlines to whom they are leasing are forming increasingly concentrated groups. Such concentration could reduce the ability of the lessors to diversify their portfolio risks due to concentrations of exposure. This is particularly the case in the Covid-19 era which has significantly reduced the credit quality of airlines.

American Airlines is far-and-away the largest lessee resulting from the merger with US Airways. The other US majors are also significant lessees but there is geographic diversity too across Europe and many emerging markets. But Indigo is catching them up!

Geographic distribution of leased aircraft

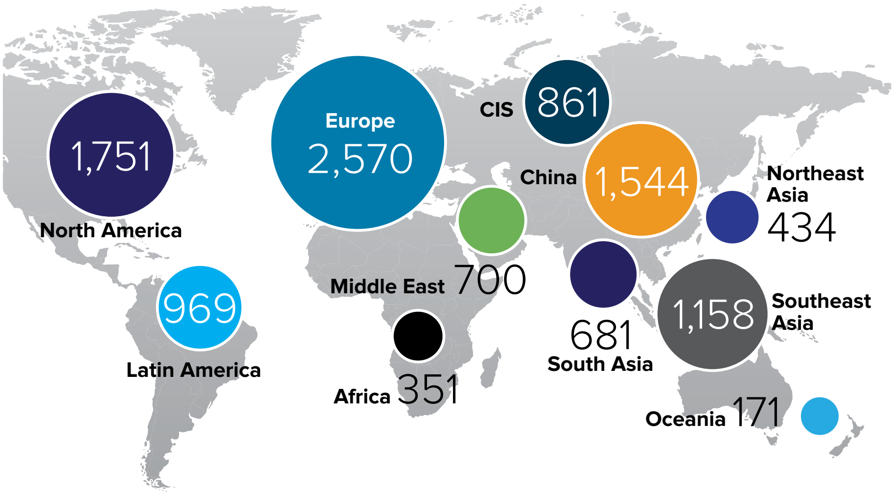
The geographic distribution of leased aircraft is shown in figure 2. While the chart shows Europe in the lead, this is because we split Asia-Pacific into sub regions given their varying dynamics. The territories of Hong Kong, Macau and Taiwan are included in the China segment. We also decided to show Russia and the CIS as a segment separate from Europe.

Figure 1: Biggest lessees by number of aircraft



Source: *Airfinance Journal*'s Fleet Tracker

Figure 2: Geographic distribution of leased aircraft



Source: Airfinance Journal's Fleet Tracker as of 30 June, 2021

By contrast, a total of 54 A320neo family aircraft have been delivered to lessors during 2021. The lessors' fleets include a total of 375 dedicated freighters.

Regional Jets

Nordic Aviation Capital is now top of this list, having taken over GECAS' long-standing number one position. Falko Regional Aircraft, Avmax, STLC, VEB Leasing and Truenoord Regional Aircraft Leasing are the next largest players in this segment.

Turboprops

Turboprops are a significant niche market, dominated by one lessor, Nordic Aviation Capital. However, other lessors have a presence, as shown in figure 5, attracted by historically higher yields. Leading the way in terms of new investment are Chorus Aviation Capital, Truenoord and Elix Aviation Capital. The other major players in the segment are shown on the chart.

Breakdown of Leased Fleet

Figure 3 shows a breakdown of the leased fleet by body-type of aircraft. A full 70% of the leased fleet is in the narrowbody category split mostly between the A320 and 737 families. Only 16% is widebody, though in value terms their share would be much more significant, especially with the A350 and 787 finding a lot of favour among lessors. A total of 82 delivered 737 Max aircraft are included in the lessors' fleets and 693 remain in the lessors' orderbooks even after 320 cancellations during 2021.

Figure 3: Leased aircraft body type

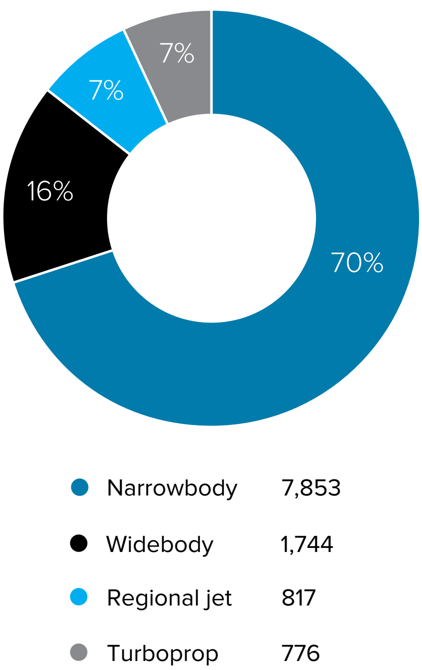
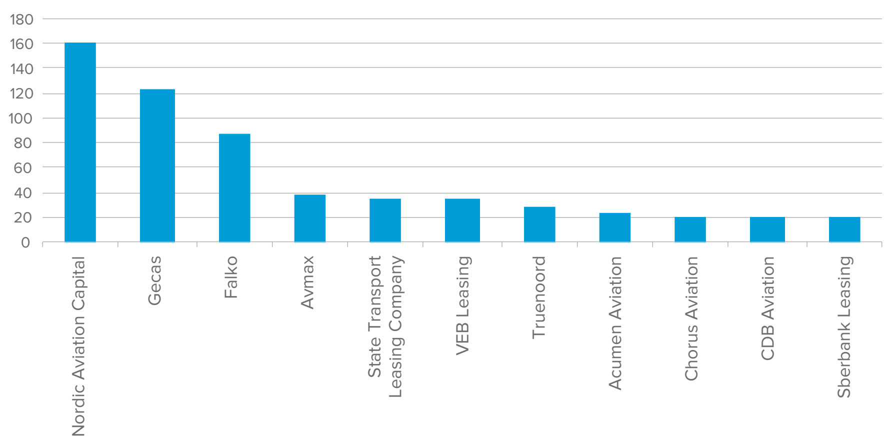
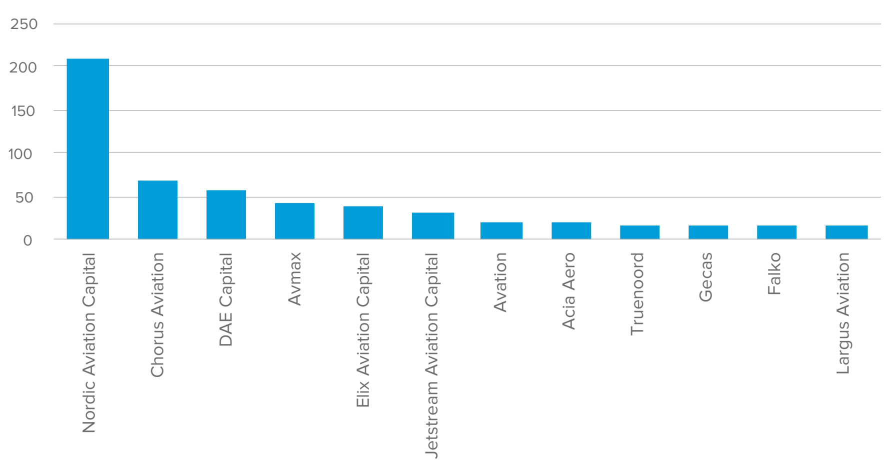


Figure 4: Top 10 lessors of regional jets



Source: Lessors and *Airfinance Journal*'s Fleet Tracker

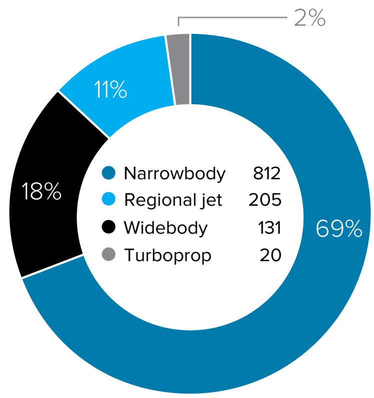
Figure 5: Top turboprop lessors



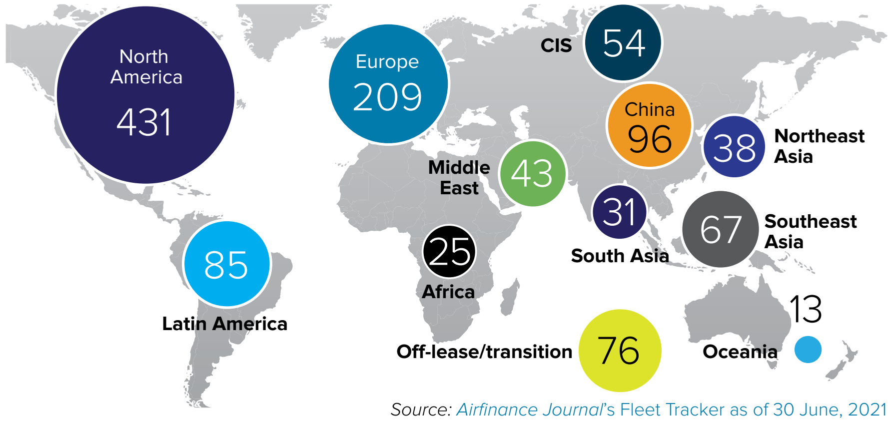
Source: Lessors and *Airfinance Journal*'s Fleet Tracker

1 GECAS

GECAS fleet by aircraft type

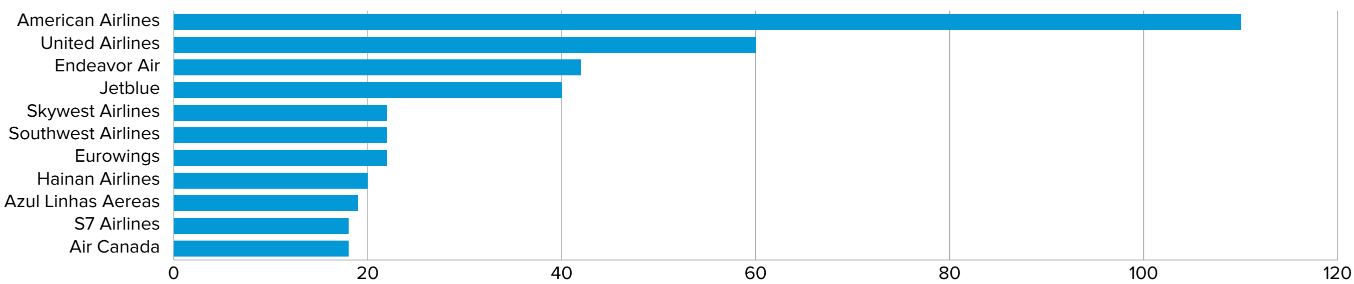


GECAS fleet by region of lessee



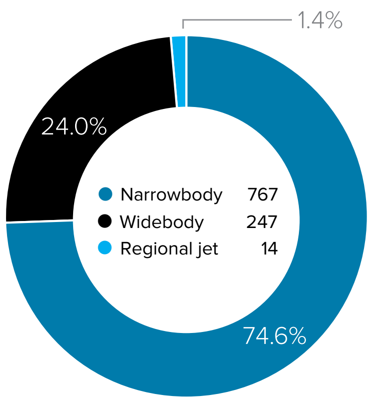
Source: *Airfinance Journal*'s Fleet Tracker as of 30 June, 2021

GECAS top lessees

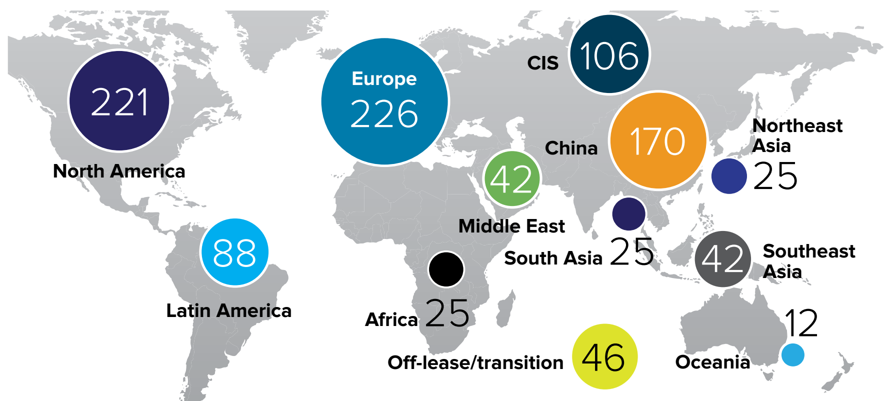


2 Aercap

Aercap fleet by aircraft type

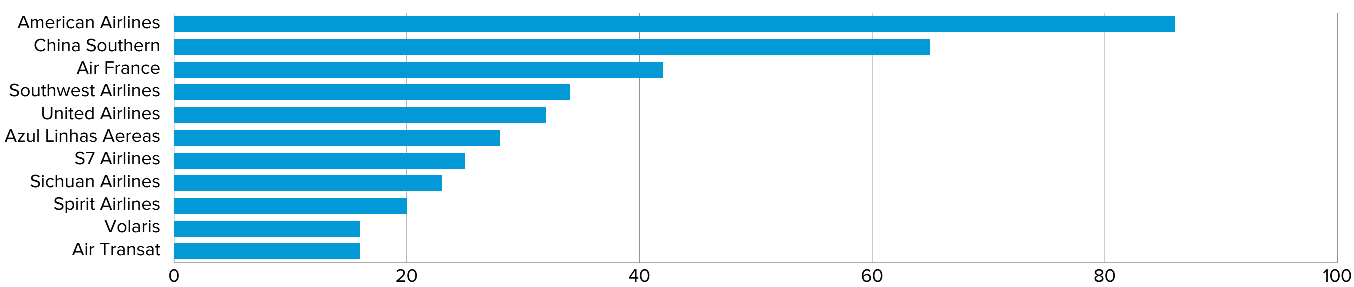


Aercap fleet by region of lessee



Source: *Airfinance Journal*'s Fleet Tracker as of 30 June, 2021

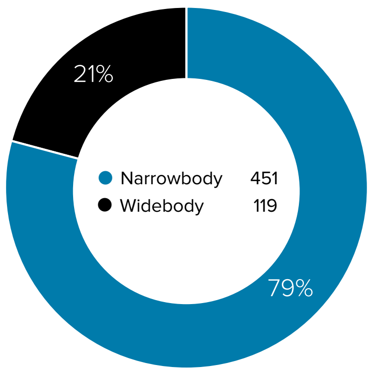
Aercap top lessees



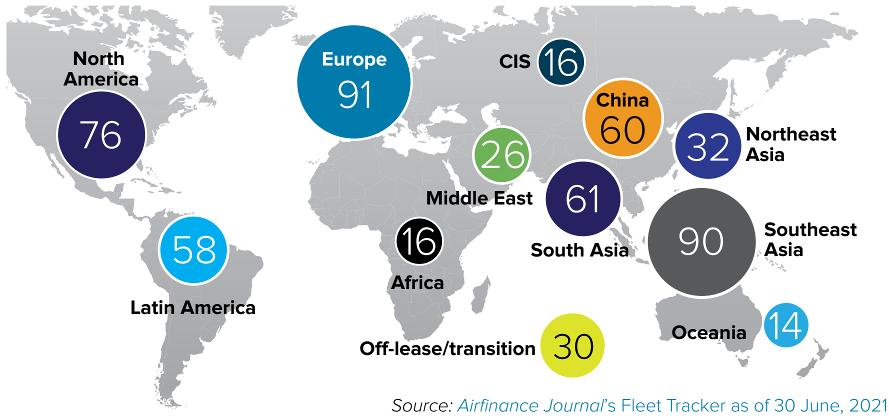
*We were very pleased to receive fleet updates from 75 lessors in preparation for this study. Unfortunately, some of the major lessors did not provide their updated data. In particular, we are aware that our fleet sizes for 737NGs and A320s for GECAS and AerCap are higher than disclosed in the recent SEC filing by AerCap. We are working to identify the new owners of these additional aircraft and the results will be available on AFJ Fleet Tracker as soon as possible.

3 Avolon

Avolon fleet by aircraft type

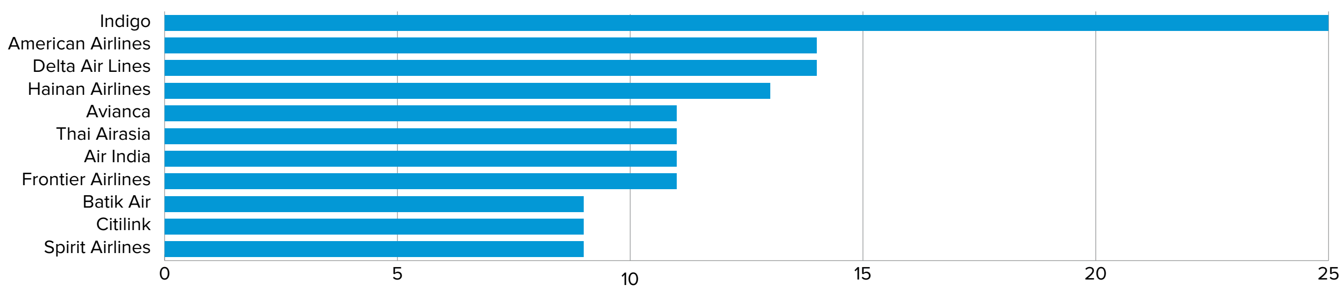


Avolon fleet by region of lessee



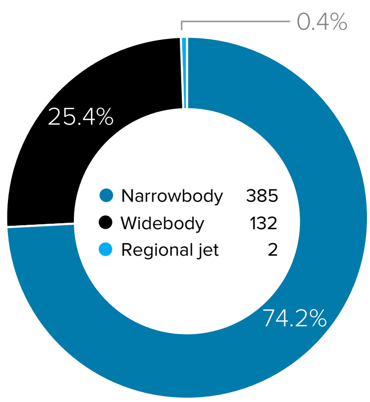
Source: *Airfinance Journal*'s Fleet Tracker as of 30 June, 2021

Avolon top lessees

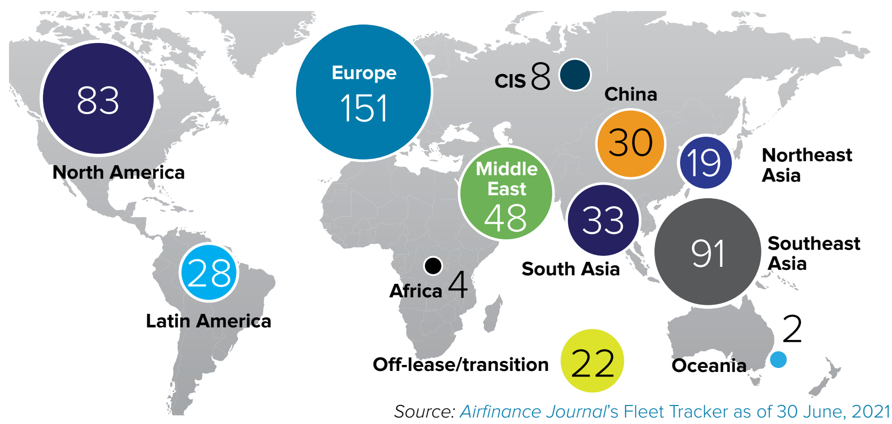


4 BBAM

BBAM fleet by aircraft type

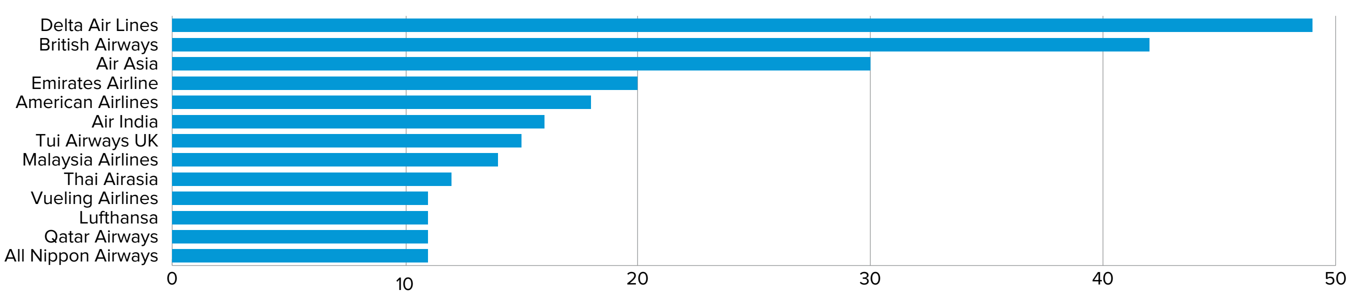


BBAM fleet by region of lessee



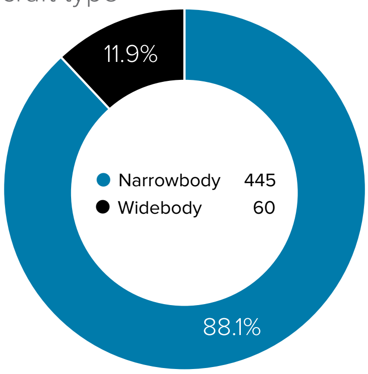
Source: *Airfinance Journal*'s Fleet Tracker as of 30 June, 2021

BBAM top lessees

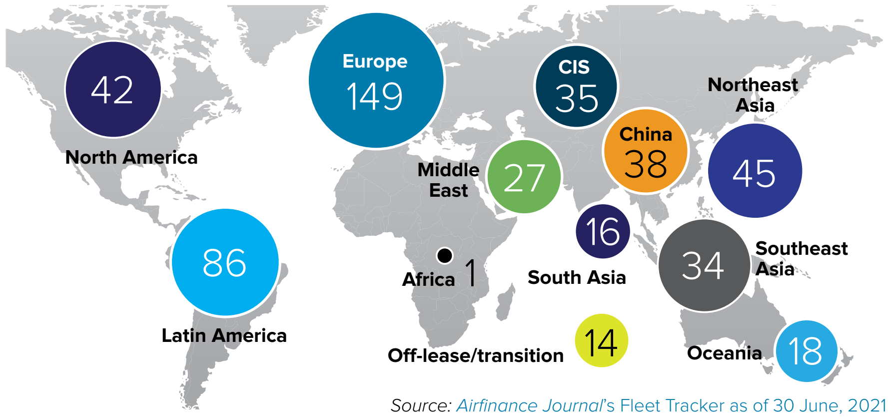


5 SMBC Aviation Capital

SMBC Aviation Capital fleet by aircraft type

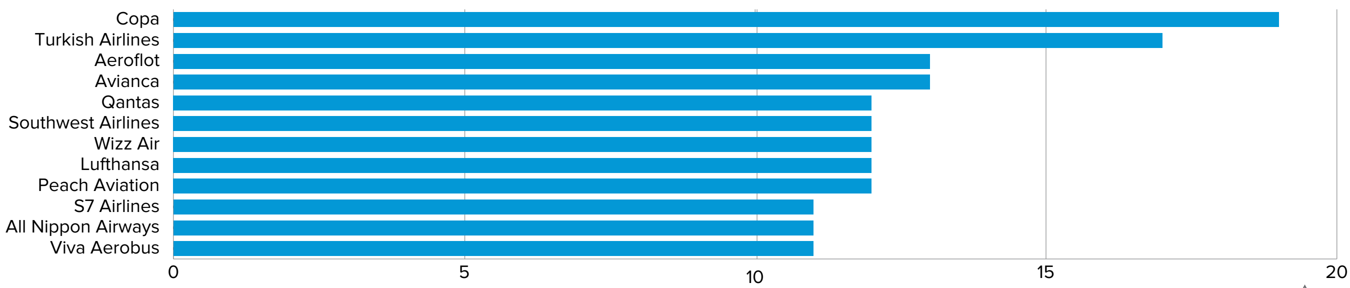


SMBC Aviation Capital fleet by region of lessee



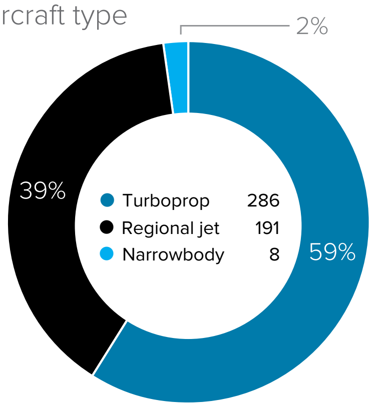
Source: *Airfinance Journal*'s Fleet Tracker as of 30 June, 2021

SMBC Aviation Capital top lessees

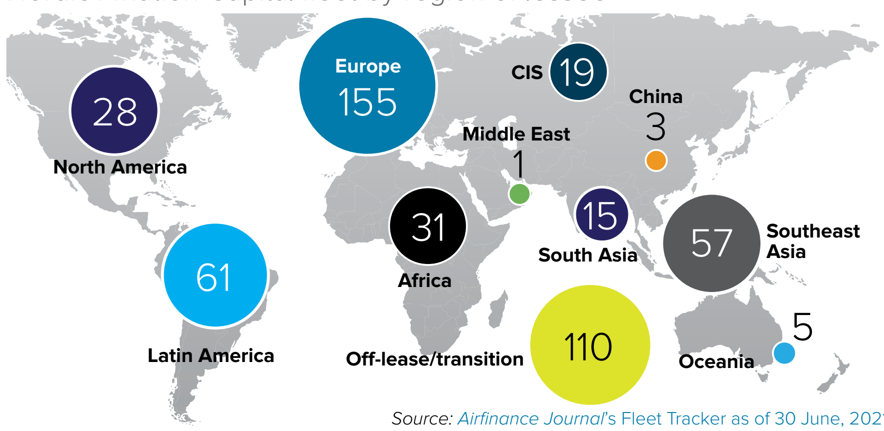


6 Nordic Aviation Capital

Nordic Aviation Capital fleet by aircraft type

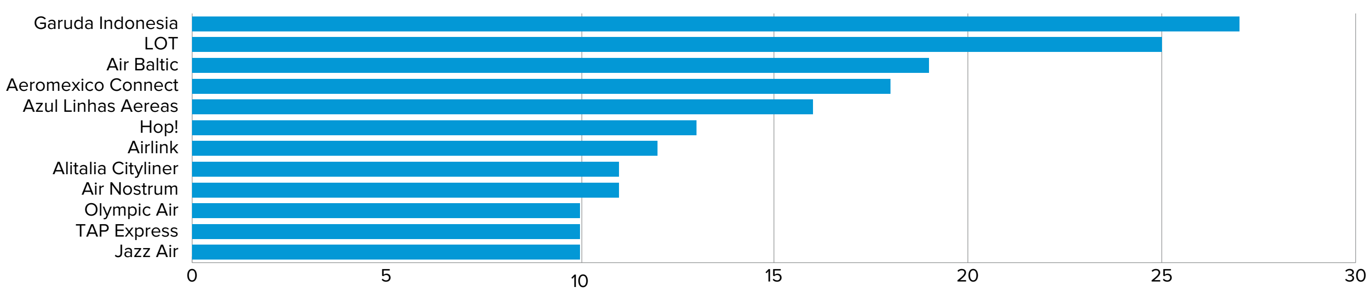


Nordic Aviation Capital fleet by region of lessee



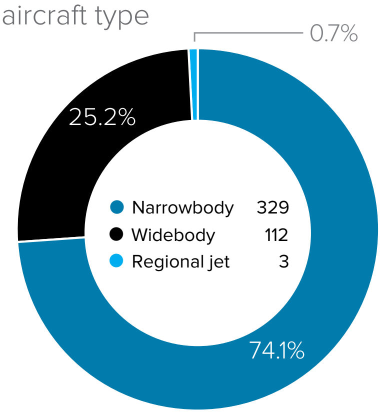
Source: *Airfinance Journal*'s Fleet Tracker as of 30 June, 2021

Nordic Aviation Capital top lessees

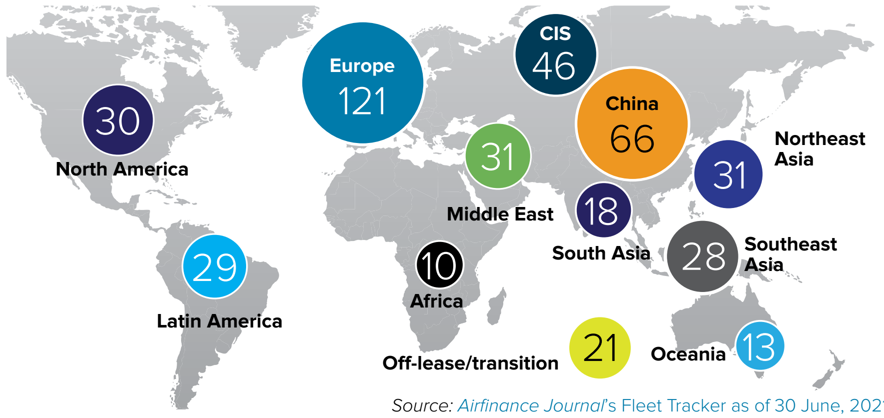


7 Air Lease Corporation

Air Lease Corporation fleet by aircraft type

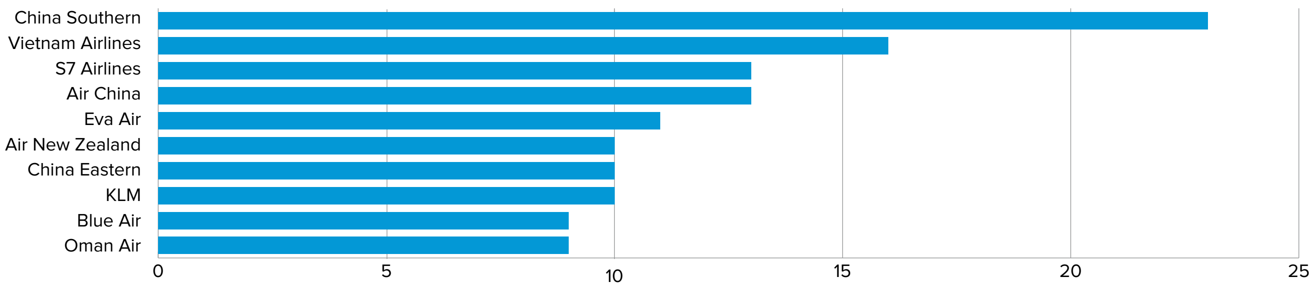


Air Lease Corporation fleet by region of lessee



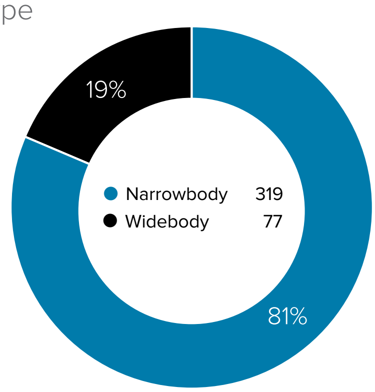
Source: *Airfinance Journal*'s Fleet Tracker as of 30 June, 2021

Air Lease Corporation top lessees

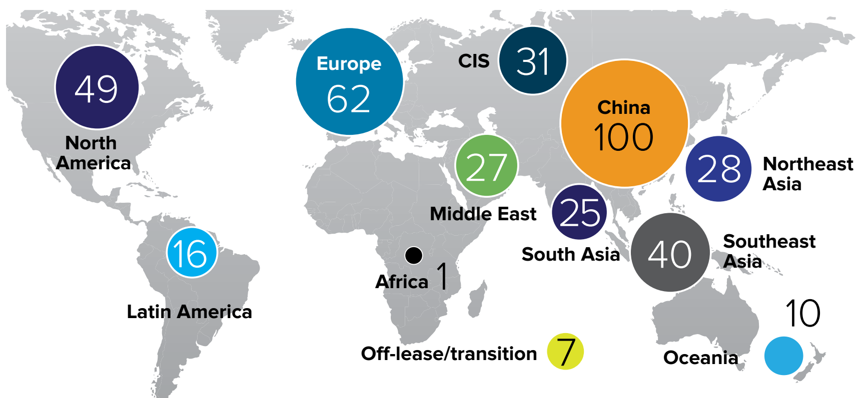


8 BOC Aviation

BOC Aviation fleet by aircraft type

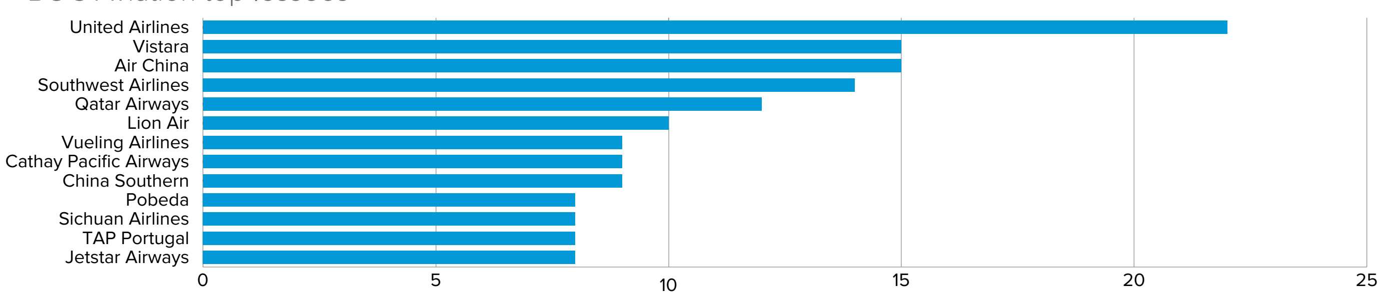


BOC Aviation fleet by region of lessee



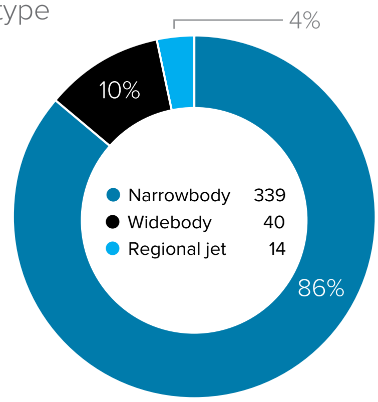
Source: *Airfinance Journal*'s Fleet Tracker as of 30 June, 2021

BOC Aviation top lessees

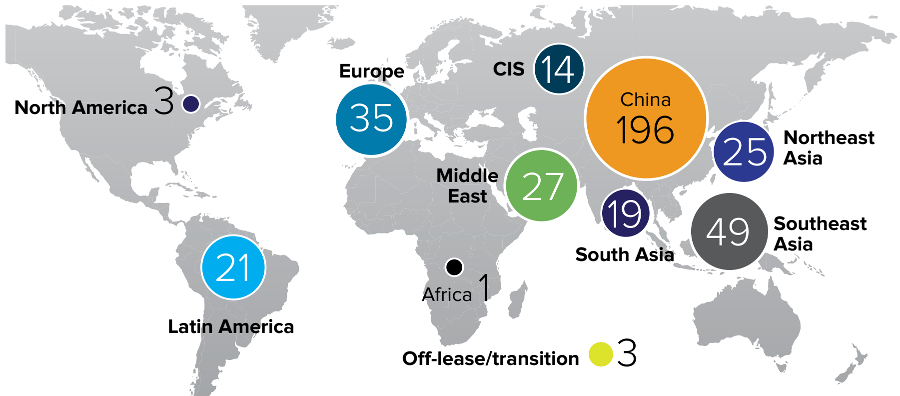


9 ICBC Leasing

ICBC Leasing fleet by aircraft type

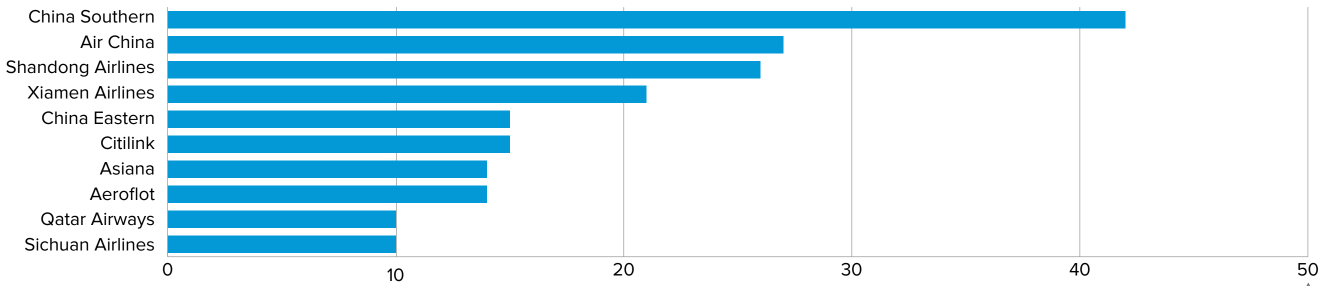


ICBC Leasing fleet by region of lessee



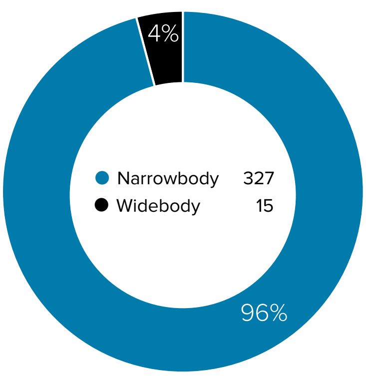
Source: *Airfinance Journal*'s Fleet Tracker as of 30 June, 2021

ICBC Leasing top lessees

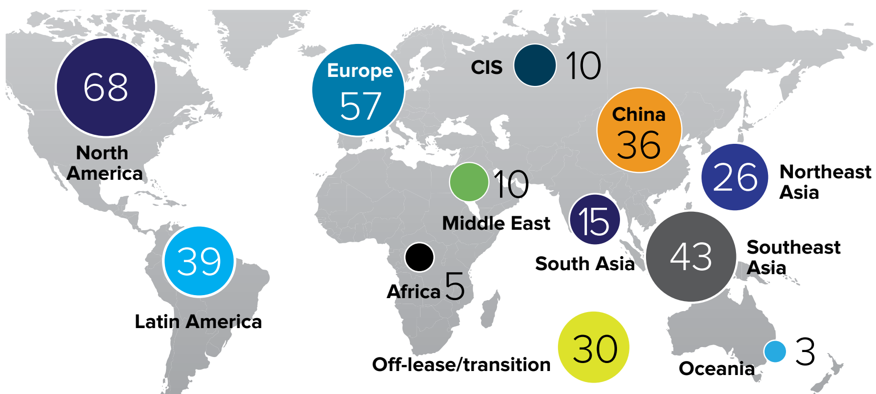


10 ACG

ACG fleet by aircraft type



ACG fleet by region of lessee



Source: *Airfinance Journal*'s Fleet Tracker as of 30 June, 2021

ACG top lessees