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Lord of the wings – the trilogy ends

Domhnal Slattery calls time on a career that has helped change the face of aircraft leasing

AIRLINE TOP 100 SUPPLEMENT | MARSH FRANCE | FEARS FOR 737 MAX DEALS IN TAIWAN

Winter's **new challenges**

More cuts in flights, further supply chain problems, rampant inflation and higher interest rates will continue the uncertainty throughout the coming months.

To glimpse what the winter months could mean for the global aviation industry, consider British Airways. As the European summer holiday rally ended, the British flag carrier announced plans to cut more than 10,000 flights from its winter schedule because of airport passenger caps at London Heathrow and thinning demand during the autumn and winter schedules.

The airport, which is the carrier's main hub, had to impose the cap in July as it struggled to handle staffing shortages and flight delays.

The cap extension will impact short-haul flights between late October and March 2023. The airline said total capacity for its winter schedule would be reduced by 8%, or about 5,000 round trips.

British Airways had already cut more than 30,000 flights over the summer and had hoped for a slow ramp-up approaching the winter; however, the passenger cap has derailed those plans.

It insists the impact on customers is "minimal", with most flights unchanged, but the move is a sign that labour shortages and supply chain issues will likely continue. But the carrier is not alone. Airports and airlines that cut jobs during Covid have found it difficult to secure staff as travel demand has returned.

Supply chain issues also have stymied production rate hikes. Airbus is aiming for an A320 production rate of 75 a month in 2025. However, supply chain constraints pushed back the timing for its interim target of 65 a month from mid-2023 to early 2024.

Rival Boeing has squashed talk of an increase in production to 38 units a month for the 737 Max because of supply chain complications. Its chief executive officer, Dave Calhoun, says supply chain issues could persist for the next 18 months because of longer-term constraints on aircraft production from engine makers such as General Electric and Raytheon Technologies.

Boeing is producing an average of 31 737 Max units a month.

Raytheon chief executive officer, Greg Hayes, has said skilled labour is needed. "There are a lot of things we can't get done because we don't have the people," he said in a CNBC interview during the Farnborough air show.

But the winter months will present new challenges for the airlines. Perhaps the most pressing is that rock-bottom interest rates are no more.

British Airways, in its winter flight cuts, set the scene for more aviation gloom and US Federal Reserve chairman, Jerome Powell, did the same at the central bankers' symposium in Jackson Hole, Wyoming. He reaffirmed a commitment to raise interest rates to quell inflation in his speech on 26 August.

He says the "overarching focus right now is to bring inflation back down to our 2% goal", and that the US Fed "will keep at it until we are confident the job is done".

In just four months, the Fed has raised the funds rate from a target range of 0.25%-0.5% to 2.25%-2.5%.

Meanwhile, Eurozone inflation rose to a record 9.1% in the year to August, according to Eurostat. The figure prompted calls for the European Central Bank (ECB) to hike interest rates aggressively to stem Ukraine war-fuelled prices.

The ECB is expected to raise interest rates at its next meeting on 8 September, after increasing them in July for the first time in a decade.

Unsurprisingly, the UK reported annual inflation of 10.1% in the year to July, according to the latest figures from the Office for National Statistics, or the worst in the G7. The Bank of England will release its next interest rate decision on 15 September, but pundits expect the central bank to raise them to 2.25% from 1.75%

In contrast, China reported relatively benign inflation as lockdowns put pressure on consumer spending and overall economic activity.

Still, additional lockdowns threaten to exert more economic woes. As *Airfinance Journal* went to press, Chengdu imposed a citywide lockdown, confining 21 million residents to their homes as part of the country's zero-Covid policy ahead of the mid-October meeting of the ruling Communist Party, when President Xi Jinping is expected to secure an unprecedented third term.

Meanwhile, the US dollar continues to strengthen to levels not seen in nearly two decades. Buying, funding, leasing and fuelling aircraft is an expensive business, and a strong greenback is of tremendous concern for non-US airlines as their costs are mostly dollar-denominated. Higher costs and pricier debt only will make payments more difficult in a worsening operating environment.

That said, there is little incentive for the US central bank to curb dollar increases, which help ease its inflationary pressures.

The pressure is unlikely to ease anytime soon. A post-pandemic aviation market involving ongoing supply chain bottlenecks, labour shortages, currency challenges and economic uncertainty was never in doubt. But that's not going to make this winter feel any warmer.

LAURA MUELLER
Content director
Airfinance Journal

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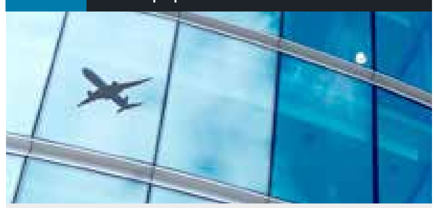

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MUFG names Trauchessec as global head of aviation


Olivier Trauchessec

Japanese lender Mitsubishi UFJ Financial Group (MUFG) promoted Olivier Trauchessec to the head of global aviation role in August.

Trauchessec has been with the bank since 2016, joining from BNP Paribas as managing director, head of transportation, leasing and asset finance for the Americas.

In 2019, MUFG named Trauchessec as head of global origination and structured solutions when the bank established an aviation finance office in New York.

He had led the BNP Paribas aviation desk in the Americas since 2000. From 1996 to 2000, he served as vice-president of aircraft finance in the bank's Paris office.

Trauchessec began his career at BNP Paribas in 1994, serving in the bank's Montreal office. As assistant vice-president in specialised financing, he helped create the department and developed the specialised financing activity in Canada.

He had been co-heading the global aviation department since last December along with Vicente Alava-Pons, who left the bank in July, according to sources.

Tarnaud Laude is **ATR**'s new CEO

ATR's board members, Airbus and Leonardo, have named Nathalie Tarnaud Laude as its new chief executive officer, effective in September.

She succeeds Stefano Bortoli, whose four-year mandate expires on 17 September. Bortoli will take on a new leadership role at Leonardo.


Nathalie Tarnaud Laude

Tarnaud Laude joins from NH Industries where she was president and senior vice-president head of the NH90 programme for Airbus Helicopters. She joined Airbus Helicopters in 2017 as head of treasury. Before this, she held various senior positions at EADS and Airbus in strategy, programmes, technology and finance.

She started her career at The Boston Consulting Group in 1995 before moving to CCF Securities as a risk manager in 1997.

Tarnaud Laude joined Aurel Leven Securities as senior equity research analyst in 2000 before moving to EADS in 2005.

She was vice-president mergers and acquisitions for more than five years and vice-president Airbus group innovations for almost four years.

In July, ATR appointed Antonio Di Gennaro as senior vice-president finance and chief financial officer (CFO).

He replaced Giovanni Tramparulo who held the position since 2016. Tramparulo was in charge of customer and structured finance, accounting, treasury, taxes, controlling, credit and risk management and internal control.

Di Gennaro brings more than 15 years' experience as a finance and operations business leader and joins ATR from PZL Swidnik, a Leonardo Helicopters company, where he was CFO and a member of the management board since 2018.

SGR adds aviation finance lawyer

Smith, Gambrell & Russell (SGR) has appointed Gemma Patterson as a senior associate in the firm's global transport group based in the London office.

Patterson joined SGR from White & Case, London, where she was a member of the energy, infrastructure, project and asset finance group specialising in asset finance transactions.

She has more than a decade of experience working on a wide range of cross-border asset, project and corporate finance transactions involving export credit agency-supported financing, commercial debt financing, operating, finance and tax-based lease structures, restructurings, refinancings and sales and purchases.

Previously, Patterson worked in the London, Paris and Tokyo offices of international law firms and completed a secondment to the marine and aerospace finance department of Japan Bank for International Cooperation.

"Gemma's experience in international asset finance and leasing transactions further deepens the bench strength of SGR's global transport group, and we are pleased to welcome her to the firm," says Stephen Forte, SGR's chairman and managing partner.

Her arrival follows the hiring of Adrian Beasley, also from White & Case, in April.

Daly moves to **Castlelake**

Castlelake has hired Maeve Daly as managing director, head of underwriting, based in Dublin. Daly is an experienced professional in the aviation and aerospace industry with more than 10 years' experience leading global teams.

She joined from Avolon where she spent the past 10 years in the pricing department. Daly joined as a pricing analyst in 2012 and was promoted to vice-president pricing in 2019.

In 2021, Daly was appointed vice-president transaction structuring. She started her career at Allied Irish Bank Capital Markets as a risk analyst.

Avolon hires Clifford Chance lawyer

Edward Powell has joined aircraft lessor Avolon as a lawyer, based in Dublin.

Powell joined from Clifford Chance, where he spent 12 years with the asset finance team.

He was a senior associate at Clifford Chance specialising in asset finance – in particular, aviation finance. Powell's clients have included banks, leasing companies and airlines for the negotiation and preparation of documents for the financing, registration, sale and purchase, leasing, chartering and operation of aircraft and other transportation assets.

Natwest appoints new specialist asset finance head

Natwest has appointed Jacob Lloyd as head of specialist asset finance (SAF).

Lloyd previously worked in the energy sector, will lead the SAF business in Natwest corporate and institutional, heading up sub-sector teams in aviation, rail, energy, commercial transport and corporate lease finance.

As a director of aviation asset finance between 2018 and 2021, Lloyd was responsible for origination and execution of the bank's mandate in the aviation sector. He delivered growth in the portfolio over a 24-month period following Natwest's re-entry in the aviation market.

Before that, Lloyd was an associate director of large corporate and sectors at Royal Bank of Scotland.


Jacob Lloyd

AFG boosts Singapore team

Aircraft Finance Germany (AFG) has appointed Kira Chong as vice-president of sales based in Singapore.

Chong has more than 20 years' experience in various management and sales and marketing roles in business and commercial aviation.

Before joining AFG, she worked for Boeing and Bombardier in sales and marketing positions. She was also responsible for the marketing efforts in Asia-Pacific for Titan Aviation Leasing, a cargo aircraft lessor.

In July, AFG confirmed that Tohru Saito was joining its team as vice-president sales in Japan.

Saito has more than 30 years' experience working for Japan Airlines in various executive roles and across different departments: maintenance; aircraft and engine selection; design and engineering; and group fleet planning.

AEI appoints aircraft lease specialist as head of fund

US private equity firm AE Industrial Partners (AEI) promoted Nathan Dickstein to managing director and head of the AE Industrial Partners Aerospace Opportunities Fund in August.

Dickstein, who joined AEI in 2020, has about 15 years' investment experience in aircraft and engine leasing at investment funds, banks and leasing companies.

Before joining AEI, he worked for several investment firms where he was responsible for originating and managing aircraft- and aviation-related investments.

"Over the past two years, Nathan has proven himself to be an innovative and exceptional leader who has helped lead the charge to identify and obtain attractive assets for the firm's Aerospace Opportunities Fund," says Mike Greene, managing partner of AEI.

Agote leaves **Bpifrance Assurance Export**

Eric Agote will leave Bpifrance Assurance Export on 16 September.

Agote has been the head of unit - Airbus Unconditional Guarantee for Bpifrance Assurance Export since January 2017.

Prior to that he headed the air transport unit for Coface since 2008.

In a farewell note Agote said that for all Airbus Commercial aircraft and ASU-related matters he has been responsible for, Camille Plattard will be the new head for this activity from 5 September.

Avolon hires BBAM marketing executive

Daniel Silberman has joined operating lessor Avolon as managing director, Americas.

Silberman was previously at BBAM as head of marketing, Latin America. For almost 12 years he had been in charge of origination and remarketing of aircraft leases, purchases and sale and leaseback transactions in Latin America.

Before that, he was responsible for marketing, origination and debt sourcing for aircraft and engine lease and purchase transactions at Automatic for seven years.

Silberman started his aviation career at Lan Airlines as a fleet and insurance analyst where he managed the leased portfolios of Lan Chile and Ladeco, negotiated general and aviation insurance, and participated on the first brand-new aircraft acquisition carried out by Lan under private ownership in 1997.

He also worked at Residco as director of market development and Antartik Aviation Management as commercial director.

Aircastle promotes chief strategy officer to CFO

Aircastle has appointed Roy Chandran as its new chief financial officer (CFO), replacing Aaron Dahlke.

In July, the company announced the resignation of Dahlke and said that Chandran would serve as the interim CFO until a successor was identified.


Roy Chandran

Chandran was appointed Aircastle's chief strategy officer in March 2020. Before joining Aircastle in 2008, he was a director at Citi in the global structured solutions group, having originally joined Salomon Brothers in 1997.

Chandran holds a BS in chemical engineering from the Royal Melbourne Institute of Technology, Australia, and obtained his MBA from the International Institute of Management Development, Switzerland.

Aircastle's chief executive officer, Mike Inglese, says: "We are pleased to have Roy succeed Aaron as our chief financial officer, particularly given his extensive capital markets experience and relationships. Roy's willingness to immediately step into the interim assignment and quickly accept the permanent role underscores the depth of our management bench and succession-planning processes."

BOC Aviation 'frustrated' by OEM delays

The lessor continues to pursue vigorously Russia-related insurance claims after successfully drawing all letters of credit held as collateral, writes **Dominic Lalk**.

Managing director and chief executive officer of Hong Kong-listed BOC Aviation, Robert Martin, said that the lessor's first-half operating environment has broadly been driven by three themes: demand for travel; supply side issues for airlines and aircraft manufacturers driving wage inflation and delays; and third, the ever-changing role of governments impacting the industry.

"First, the demand environment for our airlines across most of the world has significantly improved with China and Japan lagging the rest of the market. Rising levels of passenger traffic and a strong fare-setting environment are allowing airlines particularly in North America, the Middle East and parts of Europe to offset the impact of higher jet fuel prices, wages and interest rates to report better earnings," he told investors in late August.

"[Global industry recovery] has been achieved with limited contribution from China, the world's second-largest passenger market, whose borders remain largely closed to international travellers and where domestic activity remained volatile during the first half.

"However, we know that China has great potential. In 2019, China recorded 74 million international passenger journeys; in 2021, that number was less than 1.5 million. We are confident of a rapid recovery in Chinese outbound travel as border controls are relaxed, which should then ripple across Asia, the Pacific and to Europe," he adds.

On supply chain issues, Martin says there are broadly two types of challenges: one hitting the airlines, where because of the rapid ramp up of demand, carriers, airports and air traffic control authorities are having labour difficulties as they gear up skilled workforces and face wage inflation in doing that.

Martin identifies this as "one of the greatest obstacles to the full return of air traffic to 2019 levels".

On the same point, he notes the aircraft manufacturing supply chain is still behind in production targets, causing delivery delays.

"In reflection of this, airframe manufacturers have modified their production targets, especially for the single-aisle aircraft that dominate their skylines," he says, citing an anticipated A320neo-family ramp up to 65 aircraft a month from the first quarter of 2024 from 45 a month currently. Boeing, however, he adds, has "delayed to an unspecified future date" a previously announced increase to 47 Max deliveries a month from 31.

"Our capital expenditure in the first half continued to be frustrated by these manufacturer delivery delays. These resulted in the slippage of nine aircraft deliveries into later periods that were originally scheduled for delivery in the first half, as supply chain and regulatory issues hampered manufacturer production and delivery," says Martin.

On the impact of governments on the industry, BOC Aviation says it has observed both positive and negative influences.

"We were pleased to see the rolling back of border controls and regulations on [Covid-19] testing procedures for travel. We very much appreciate that the Singapore government renewed the Aircraft Leasing Incentive Scheme by another five years and thank the Economic Development Board for its support.

"The Russia-Ukraine situation produced a flurry of controls in the form of different sanctions from multiple governments. These sanctions were rushed through approval by governments, particularly in the EU and UK. These have impacted both lessors and our insurers and will keep lawyers busy for many years. This may require a complete rethinking of aviation insurance," says Martin.

The BOC Aviation chief operating officer, David Walton, added more colour on the firm's "Russia situation" and its insurance claims arising from it.

Walton says that BOC Aviation initially had 18 aircraft in the owned fleet and three in the managed fleet on lease to Russian airlines but was able to repossess one owned and two managed units, which have already been remarketed to other airline customers.

"We also successfully drew 100% of the letters of credit that we held as collateral, contributing to the $223 million in cash collateral that we were able to offset against the write-down of the net book value of the owned aircraft that remained in Russia at 30 June 2022," says Walton.

"The cash collateral we held represented 28% of the net book value of those aircraft, which we believe was the highest cash recovery against Russia-related write-downs for our peer group.

"We filed insurance claims on the relevant policies in order to recover our losses and we intend to continue to vigorously pursue those claims."

BOC Aviation reported a net loss after tax of $313 million in the first half of 2022 because of the Russia-Ukraine conflict. Excluding the impact of this one-off event, its core net profit after tax was $206 million.

Lease rental income dropped by 5% compared with the first half of 2021, reflecting a 3% decline in the net book value of its fleet related to the write-down of aircraft that remain in Russia and the absence of $31 million in revenue from the second quarter related to these aircraft, says lessor chief financial officer, Steven Townend.

BOC Aviation's two largest expenses in the first half were depreciation and interest, and together they accounted for 90% of the first-half total when the effects of the one-time write-down are excluded. Depreciation – the lessor's largest expense item – increased by 4% year-on-year, in line with fleet growth.

However, finance expenses – the second largest item – declined 3% to $229 million, reflecting lower debt balances and stable cost of funds at an average of 2.9%, the same as in 2021.

In the six months to 30 June, BOC Aviation's total revenues and other income increased 8% to $1.2 billion. It ended the period with total assets at $23 billion.

Operational first-half highlights at the Singapore-based, Hong Kong-listed lessor included the completion of a Boeing 777-300ER operating lease mandate with Thai Airways, the placement of seven 737 Max 8s from its orderbook with Turkish Airlines and the remarketing of four former Cathay Pacific A320s to Batik Air and two ex-Aeroflot A320s with Royal Jordanian, as exclusively revealed by *Airfinance Journal*.

Sale of the century

The unprecedented loss event for aircraft stranded in Russia because of the invasion of Ukraine is close to its first third-party claim trades against insurers. **Laura Mueller** reports.

Lessors are nearing the first third-party trade of claims against insurers for failure to pay out on contingent all-risk or contingent war risk insurance related to aircraft stranded in Russia.

These claims were brought to the fore after Aercap filed a UK high court lawsuit in June against AIG and other insurers. The lessor filed a $3.5 billion claim in late March after the Russian government passed a law to allow airlines to register assets locally. Before the invasion, Aercap had 135 aircraft and 14 engines worth $3.1 billion in Russia, or roughly 5% of its entire fleet; however, the lessor was able to recover certain assets.

Aercap argues in its court filing that insurers owe $3.5 billion under an all-risk insurance policy it paid into. This figure exceeds the $2.5 billion value of its assets stranded in Russia, which include 113 aircraft and 11 engines, following the recovery of 22 aircraft and three engines.

"There is certainly demand from a number of lessors, who are interested in exploring a sale and there are a number of investors who are interested in acquiring," Niels Jensen, a partner and co-head of the aviation finance team at Vinson & Elkins tells *Airfinance Journal*.

While Jensen would not be drawn on pricing, or the exact timing of the first trade, he says on the buy side, and sell side, "there is active interest, and people are exploring and are engaging advisers to explore a transaction".

He expects a transaction could close by the end of the year, but insists it is "too early" to tell how deep the market is for claim trades.

The demand on the buy side stems from private equity and hedge funds.

"These are the ones asking for us to do analysis," he says. "I would be surprised if there was lessor-to-lessor trading. And I think it will all be financial buyers, and that's certainly what we've seen so far."

Asked why private equity (PE) would be of interest, Jensen says: "Even for your typical private equity fund, there are different pockets of capital, there are different strategies, different funds. You have people that are on the credit side, and they generally have a lower return expectation than someone on the traditional PE side.

"One might be able to enter into a sort of a litigation funding arrangement with an attractive coupon on it. Think of like high-yield type of lending transactions, it is a bit of a hybrid, versus someone who is looking to LBO [leveraged buyout] companies and you know, make a 15-20-plus return on it.

"So, depending on which pocket of capital you tap into, which desk does the trade, there might be different strategies, and again, different return expectations. We are actively exploring all of them. I think there might be trades on both sides of the house."

While the market for trades could theoretically be as big as the Russian insurance claims market of roughly $15 billion, according to S&P Global, Jensen says the actual trading volume will be much lower.

"We need to do enough analysis, enough price discovery, to see how many lessors will be interested in trading. If I'm a lessor and I think 'this is a home run, I will win this case', then it's just the sort of distraction and the expense of litigating, 'but fine, I'll do it, then I might not be willing to sell this for a significant discount' – which would obviously not leave a lot of room for a financial buyer to come in and make the required return.

"But then if you have someone who says, 'I just want to be done with this, close the books, it's a drain on my resources. I might be more willing to get rid of the claim at a steeper discount'. The realistic size of the market will become more evident as we get to the stage of price discovery."

The feasibility of a market for these insurance claims depends on the jurisdictions, the legal systems involved and the structure of the potential assignment, he says.

Most lessor contingency insurance policies are written out of London, so, in the absence of an agreement to confer exclusive jurisdiction elsewhere, the firm would expect that claims against London-based insurers could be brought before the courts of England.

It is aware that some Irish-based lessors agreed in their insurance contracts that claims under their policies could also be brought before the courts of Ireland.

"It's a pretty complex trade. There are factual differences between the claims, different policy wording, different approaches by the airlines in question taken that might influence the pertinent fact pattern in front of a court. So not all of these claims are necessarily going to have the same odds."


Niels Jensen

He says jurisdictions will influence whether a trade is successful.

"Some are going to be in Ireland, some in the UK, or in the US under state law. So that, again, will affect the strength of the claims or the odds of winning your claim from a lessor's perspective, which is obviously then relevant to the investor because you are looking to buy into something to make a return and so your price has to reflect the chance of success."

Also different jurisdictions have different limitations in terms of litigation funding.

Jensen does not believe sales will necessarily appeal more to public lessors, which need to appease shareholders.

"The write downs seem to have largely happened already... and a number of lessors have taken write downs to move on, while still pursuing these claims and feeling bullish about them. It's premature to predict how much of this will trade, but the expectation is that there will be some trading."

Jensen insists the firm is still in the early stages of exploring the sales, but talks are progressing with real interest. He would "almost be surprised" if before the end of the year, a couple of deals did not close.

Taiwan tensions fear for 737 Max, investors and insurers

Escalating tensions across the Taiwan Strait are not just quashing hopes for a foreseeable return of the 737 Max in China. They are also alarming aircraft investors and insurers. Some say the time to act is now, **Dominic Lalk** reports.

Following Russia's invasion of Ukraine, the air finance community is taking a hard look at its exposure to Taiwan and China, report sources. Insurers have already reacted, say market insiders, with some no longer willing to underwrite new deals with operators from the island and others charging considerable premiums for doing so.

And what about Boeing? Is there any realistic chance the Boeing 737 Max can make a return to China in the foreseeable future, industry movers and shakers discuss.

"The world and our industry are watching closely for sure. We can no longer close our eyes to at least the possibility that the situation might escalate," a banking source in Singapore tells *Airfinance Journal*. He adds that "it's time to learn from mistakes" and that the industry must not be caught so "off guard again the way happened with the war in Ukraine".

For others, it is still business as usual. "We have not changed our policy of leasing and lending into Taiwan," says another Singapore-based banker. "A risk review may take place at some point but I'm not aware that we've changed any of our policies or risk profiles recently.

"There is renewed interest in country risk after the Russian invasion at our shop – with special focus on the mainland and the possibility of aggression into the island," a Tokyo-based financier tells *Airfinance Journal*.

The executive notes that the threat is perceived differently by different countries. "In the US, the only question seems to be when it will happen, not if. Here in Japan, we are still not so sure yet. However, as a matter of fact insurance limits do highlight the possibility, so the leasing industry will need to incorporate this whether they like it or not."

The discussions took place on the back of new aircraft financing campaigns from carriers in Taiwan.

Market entrant Starlux Airlines, for instance, is looking to finance its order for Airbus A350 widebody aircraft, counting 17 firm orders. The carrier launched during the pandemic and operates three A330neos and eight A321neos. All of those aircraft were financed by American lessors. GECAS

Air Lease has committed to placing eight A330-900s and an A350-900 with Starlux

(now Aercap) signed for the first 10 Starlux A321neos, Aviation Capital Group (ACG) for the next three. Air Lease (ALC) has committed to placing eight A330-900s and an A350-900 with Starlux.

Meanwhile, flag carrier China Airlines (CAL), too, is expected to tap US-financing for its August order for 16 Boeing 787-9s, plus eight options, which will replace its A330 fleet.

Other Taiwanese carrier, EVA Air, has signed many aircraft financings with GECAS, ALC and other US firms, including ACG and Jackson Square Aviation. It also tapped the Japanese operating lease and Japanese operating lease with call option markets from time to time.

These markets are expected to remain closed to Taiwanese operators following Russia's invasion of Ukraine. "We just cannot trust that China will not do the same and keep our aircraft too," says a Japanese financier.

Boeing's 737 Max

As *Airfinance Journal* went to press, there were still no 737 Max aircraft in service in China. Although its regulators recertified the Max in December 2021, no Chinese carriers have resumed deliveries or revenue flights with the Max.

"Beijing frequently uses orders from Airbus or Boeing as political pawns, and deteriorating relations between Beijing and Washington continue to hold Boeing hostage. The recent trip by House Speaker Nancy Pelosi to Taiwan, which China considers a renegade province, poured oil on the smouldering fire.

"There is no realistic prospect in the foreseeable future of Beijing clearing delivery of the Maxes to its airlines," Scott Hamilton from *Leeham News* said in August.

Nevertheless, or perhaps because of it, as suggested by some, Chinese lessor Minsheng Leasing in July reconfirmed an order for 14 Max aircraft. The viability of that $1.7 billion list price commitment is of course debatable, not least because of the spotty track record of some Chinese firms when it comes to fulfilling their commitments.

In 2015, Boeing and Minsheng Leasing signed a memorandum of understanding in Paris for the purchase of 30 737s, a mix of 737NG and Max aircraft. That order was later converted to Max aircraft only, say sources. In any case, no 737NG aircraft were ever directly delivered from Boeing to Minsheng since the agreement was signed.

When Minsheng agreed its first Boeing order in 2015, the lessor's executives cited the potential of marketing the aircraft to carriers, including Ruili Airlines. Ruili has placed orders for 36 737 Max aircraft but has not taken delivery of a single unit to date. It also placed an order for six 787-9s, with none delivered as of now and no engine selection specified, according to Boeing.

Adding to the complexities involved in financing aircraft in China is a recent suspension of new overseas special purpose vehicles (SPVs) by watchdog China Banking and Insurance Regulatory Commission, freezing new transactions for certain players.

Looking at the bigger picture, while no one in the industry has a crystal ball, many are worried about the recent developments surrounding China and Taiwan. Some industry executives told *Airfinance Journal* that if China declares war on Taiwan, the industry fallout could be far greater than just experienced with Russia and Ukraine.

The magnitude of aggregate claims against insurers and reinsurers from the Russian aggression remains unclear. Worst-case scenario estimates are in the range of $10 billion to $15 billion, the largest in aviation history.

Aircraft insurance rates and terms are already tightening as contracts come up for renewal. What the numbers could look like if China invades Taiwan remains anyone's best guess.

China freezes lessors' new overseas SPVs

Chinese finance lease players have been dealt orders from the top prohibiting them from expanding their overseas platforms, market sources tell **Elsie Guan**.

New overseas special purpose vehicles (SPVs) of China-based financial leasing firms regulated by the China Banking and Insurance Regulatory Commission (CBIRC) have been suspended by the state watchdog if they are not established by lessors' qualified subsidiaries, market sources tell *Airfinance Journal*.

Qualified subsidiaries refer to specialised leasing subsidiaries established by financial leasing companies in Chinese free-trade zones, bonded-tax zones and overseas markets to engage in financial leasing business in accordance with relevant laws and regulations, as defined by the CBIRC in 2014.

Only a few China-based financial leasing companies received official approvals from the CBIRC to establish overseas qualified subsidiaries, including ICBC Financial Leasing, Bocomm Financial Leasing and CMB Financial Leasing.

Dilemma

Certain Chinese lessors appear to be barred from expanding their business overseas, based on orders from the CBIRC.

"There were previously cases where transactions were conducted via incompletely approved aircraft leasing platforms. Grandfather rules apply to those transactions as a matter of fact or they become subject to certain restructuring, but new businesses are generally not allowed," says Justin Sun, a partner at Holman Fenwick Willan.

From a legal perspective, a grandfather rule is a provision in which an old rule continues to apply to some existing situations while a new rule will apply to all future cases. Those exempt from the new rule are said to have grandfather rights or acquired rights.

"It is not a total suspension but a freeze on new transactions," a market source who wishes to remain anonymous tells *Airfinance Journal*.

Lessors usually set up SPVs to manage their aircraft or other leased assets. It is usual for a lessor to have hundreds of SPVs because one SPV often holds just one aircraft asset. After existing SPVs are completed, new aircraft transactions will be limited accordingly.

"Therefore, existing SPVs are generally not affected by the regulation, while new SPVs are not allowed to be established unless they are expressly approved by the CBIRC," adds Sun.

> *"There were previously cases where transactions were conducted via incompletely approved aircraft leasing platforms."*
>
> **Justin Sun**, partner, Holman Fenwick Willan

"Financial leasing companies are willing to coordinate with the CBIRC and apply for qualified subsidiaries based on the regulator's requirements, but the problem is that the CBIRC does not approve their applications," says the anonymous source.

There are various accounts as to what might have prompted the CBIRC review, although market sources quizzed by *Airfinance Journal* agree that lessors' individual situations were behind the expected-to-be-temporary suspension of overseas activities.

"Principle is similar but the suspension is related to individual company's situation," adds the source.

The three lessors – ICBC Leasing, Bocomm Leasing and CMB Leasing – which have acquired official approvals from the CBIRC, are the top three China-based lessors in terms of their portfolio sizes.

In *Airfinance Journal*'s latest Leasing Top 50 report in 2021, ICBC Leasing, Bocomm Leasing and CMB Leasing ranked at ninth, 13th and 25th as China-based lessors in the category of top 50 managers by number of aircraft, with 393, 258 and 129 units in portfolios, respectively.

Overall policy tightening is also a reason, because the Chinese government is gradually withdrawing its overseas assets because of various geopolitical and economic elements, according to sources.

An anonymous lessor, which has yet to be approved by the CBIRC, says that lessors will transfer overseas assets from SPVs incorporated in Ireland to SPVs incorporated in the Dongjiang Free Trade Zone (DFTP) to meet the regulator's requirements, as well as lowering the percentage of overseas assets in the pool.

Regulation

In 2014, the CBIRC issued a filing called "temporary provisions on the management of qualified subsidiaries of financial leasing companies", which regulated the establishment of both domestic and overseas-qualified subsidiaries of Chinese financial leasing companies, covering aircraft, ships and other leasing businesses approved by the regulator.

To establish an overseas qualified subsidiary, a financial leasing company needs to meet several requirements: to have business development needs and have a clear overseas development strategy; the level of internal management and risk control capabilities are compatible with the development of overseas business; has a professional team which is suitable for the overseas business environment, according to the filing.

Furthermore, a financial leasing company should be in a good operating condition, has been profitable for the past two consecutive fiscal years and the application should comply with the laws and regulations of the relevant country or region.

When a financial leasing company applies for the establishment of an overseas qualified subsidiary, it needs to get approval from the CBIRC first, and then submit applications to the country or region where it is to be registered in accordance with local laws and regulations.

The CBIRC is an agency of the People's Republic of China authorised by the state council to supervise the establishment and ongoing business activities of banking and insurance institutions. It is empowered to take enforcement actions against regulatory violations.

Chinese lessors which are not regulated by the CBIRC are not limited by these regulations on establishing overseas subsidiaries. These include AVIC International Leasing, which is backed by the Aviation Industry Corporation of China, a state-owned aerospace and defence conglomerate.

BOC Aviation, CDB Aviation and China Aircraft Leasing are excluded in the discussion as they were born as overseas lessors, although they all have Chinese banks as shareholders.

Zephyrus looks for value in rejuvenation drive

With a second fund in the making and valuable lessons learned during the pandemic, Zephyrus Aviation Capital is evaluating younger mid-life aircraft, its co-founder and chief executive officer, Damon D'Agostino, tells **Dominic Lalk**.

Dublin-based lessor and asset manager Zephyrus Aviation Capital is looking at adding younger aircraft assets aged between eight to 10 years to back its second fund. Its fundraising target calls for about $300 million, co-founder and chief executive officer (CEO), Damon D'Agostino tells *Airfinance Journal*.

"Adding some younger mid-life aircraft into the portfolio is a good thing to do from a portfolio construction standpoint. When we launched the platform in 2018, it was with a portfolio of 21 aircraft with an average age of just over 13 years. At that time, we felt the best way to extract value from an aircraft was through our late to end-of-life asset management expertise. Fast-forward through the pandemic, and while that thesis still holds for our team, we see opportunities for younger mid-life aircraft where we can also add value. Our team is very experienced in an aircraft transition's technical and commercial aspects, so we like deals where we can utilise that expertise," says D'Agostino.

The investment mandate for Zephyrus' second fund centres on sale and leaseback transactions as well as originating assets through other platforms and investment vehicles that are looking to liquidate their positions.

Current secondary market pricing for newer technology aircraft, however, is still at levels that make D'Agostino think twice about pulling the trigger.

"Frankly speaking, the pricing of new-technology aircraft is not too attractive, at least not yet. Today, there are still too few new-tech used aircraft trading in the secondary market, and the ones that are, are a little out of reach in terms of overall economics.

"However, our second fund will provide capital for acquisitions over several years. As the Neo and Max continue to mature, I see some new tech coming into the portfolio in the not-too-distant future. Logic tells me that our first new-tech aircraft will be an A32xneo [either an A320neo or an A321neo]. Simply because of the vintage of first deliveries and the number of aircraft delivered to date. However, they are both great aircraft types, and I hope to own both in the long term," says D'Agostino.

In the first half of 2022, Zephyrus acquired an Airbus A319 and a Boeing 737-800 with leases attached to American Airlines. These aircraft aligned nicely with the firm's target asset, credit and vintage criteria, he says.

Over that period, Zephyrus also sold three assets – an A319, a 737-700 and an A330-200 – and it signed commitments for the sale or acquisition of seven aircraft.

The purchase aircraft are a nice mix of narrowbody current-technology aircraft on lease to "strong credits" in Europe, North America and Asia. On the sale side, D'Agostino says he is selling some aircraft with leases attached that he would classify as late-life assets and notes that the combination of the two transactions will continue to reduce the portfolio age. As a result of these deals and year-to-date lease placements, the Zephyrus platform added six new customers – American Airlines, Air Canada, Iberia Express, Plus Ultra, Global Airways and Avion Express.

The pandemic has fundamentally changed the way the Zephyrus team is evaluating its customers.

"Over the past two years, there has been a significant shift in how I think about an airline credit. A significant number of airlines have been through a restructuring, either officially via the legal system or unofficially. On the one hand, that has helped a large swath of airlines clean up their balance sheet and optimise their fleet. On the other hand, in many cases, that led to some pain for lenders and lessors.

"In my opinion, it has shone a light on the fact that every deal, no matter the credit, needs careful consideration when it comes to the lease terms and credit mitigants," says D'Agostino.

He adds: "So, I look at placements and deals today in terms of a) the jurisdiction and b) how you can structure the terms within a lease to protect your investment. That is front of my mind when I think about being comfortable with a placement."

Most conversations Zephyrus had with its lessees throughout the crisis were constructive, recalls D'Agostino, allowing parties to work collaboratively to devise a solution acceptable to all. Only one of the firm's customers – Avianca – ended up in bankruptcy in 2020-21.

"I am incredibly proud of how the team reacted and performed during the pandemic. Most of our customers are through the repayment cycle, but a few are still in the payback period."

ACMI operators, he says, have emerged stronger from the downturn.

"I really like the outlook for a well-run ACMI operator. If you think about where we are in the cycle and the rapid swings in traffic recovery, I think they will do well for the next few years."

In addition to newly added Avion and Global, ACMI specialists Smartlynx and Air Explore already featured in the Zephyrus portfolio pre-pandemic.

Naturally, the pandemic saw the lessor and asset manager focus its resources in regions where a recovery was well underway. That, too, meant that certain Asia-Pacific (APAC) customers dropped out of the mix.

"We don't have a bias against the APAC region. We have had more aircraft in the region in the past. However, given that APAC is trailing most of the world in terms of traffic recovery, it is not surprising that our recent placements have all been outside Asia. Lessors follow the demand. However, if you look to the Americas, Europe and India as the roadmap for demand post-Covid, I am very bullish on the APAC region," says D'Agostino.

Experiences with Russia and other sanctioned countries make it difficult to see a return to those markets, he adds, but China is a growing concern for the industry, too.

"The world is watching China closely as we discuss this topic in the middle of August. China is not a market that has historically leased many used aircraft, so I do not think that will impact Zephyrus either way," he says.

D'Agostino is unperturbed by high interest rates, inflation and soaring fuel prices. He remains convinced that there is money to be made, not least because demand for aircraft is quickly on its way to outstripping supply once again.

"The aircraft leasing industry is resilient. Historically, lessors have made money in periods of high and low interest rates and high and low fuel prices. They face headwinds, but a few key differentiators today provide an opposing tailwind.

When you look at the pre-pandemic planned narrowbody production that was never built because of Max/Covid and the well-publicised struggle for the OEMs [original equipment manufacturers] in ramping up production – you lose about 25% of previously planned production over an eight-year period to 2026. That translates into a few thousand aircraft that will never be built, and I am not even getting into the number of passenger aircraft converted to cargo and the significant number of early retirements in 2020 and 2021," says D'Agostino.

"On the demand side, IATA's [International Air Transport Association] latest forecast pulled forward a global recovery to pre-pandemic traffic levels to late 2023. Some regions are already experiencing demand that has exceeded 2019 levels. For these reasons, I am confident the demand versus supply gap will widen over the next few years.

"When it comes specifically to current-tech aircraft, there is no denying that with the price of fuel, it is the dream of every airline CEO to have a fleet comprised exclusively of new-tech aircraft. However, production and airline balance sheet constraints will govern how quickly fleets will be rolled over. Despite the best wishes and desires, current-technology aircraft will still account for about half of the in-service fleet by the end of this decade," says the Zephyrus chief executive.

"All in all, I remain bullish on our industry, but it will require us to stay on our toes and remain nimble," concludes D'Agostino.

Zephyrus entered the second half of 2022 with an owned, managed and committed portfolio of 29 aircraft and engines on lease to 21 airlines in 18 countries.

"The pandemic has shone a light on the fact that every deal, no matter the credit, needs careful consideration when it comes to the lease terms and credit mitigants."

Damon D'Agostino, co-founder and chief executive officer, Zephyrus Aviation Capital

Abelo sees turboprops as core business

The newly formed lessor plans to continue investing in the turboprop market as it defines its model as a unique lessor in this sector. **Olivier Bonnassies** reports.

Newly formed Lessor Abelo and ATR, announced the signature for 10 ATR42-600S and 10 ATR72-600s at this year's Farnborough air show

Abelo was announced as the merger of the Elix Aviation Capital platform with the management of Adare Aviation Capital in June.

Talking exclusively to *Airfinance Journal*, its chief executive officer (CEO), Steve Gorman, says the turboprop market, especially the ATR products, defines the future of the lessor.

"When we set up Adare, we felt that the aircraft industry was becoming a commodity even in the regional sector," he says.

Gorman explains that the Covid-19 pandemic could have provided "opportunities as the aviation sector experienced a lot of stress".

He adds: "With liquidity still in abundance in the sector, that stress did not materialise. But previous cycles have shown that the focus is on new-technology aircraft, which in its broader definition is in the Neo and Max family aircraft, A220, E2 and ATR aircraft. As the landscape evolved, especially with the focus on ESG [environmental, social and governance], we had identified the ATR products as a real opportunity."

Before Adare, Gorman was chief funding officer at Nordic Aviation Capital and was founder and CEO of Aldus Aviation.

"Aldus was very focused on regional jets and that space is now very competitive. We felt that there was room for a full-service leasing company in the turboprop market," he says.

"It is a well-known product and lots of regional lessors are asset owners but we wanted to focus on the commercial turboprop sector. ATR has had the most environmentally friendly turboprop aircraft and from an ESG perspective, it was a natural choice for us. We had discussions with Oaktree Capital on how to take hold of the turboprop space. The management of Adare felt there was quite a good fit with Elix Aviation Capital."

The company rebranded as Abelo with an ESG thinking and turboprop angle.

Gorman says Abelo is derived from the word "bee" representing the ESG focus of the company – bees essentially can only survive in clean environments.

The rebranding defines how the lessor will participate in the transformation towards the ESG perspective in the sector.

"Disruptive technologies are years away, but we all have to do something today, and it is probably about best to use assets that are available now. We are starting to see airlines more thinking about this," he says.

"We are also expecting some airline models to change overtime as thinner routes are needed to connect communities, and potentially more point-to-point versus the traditional hub-and-spoke model to reduce carbon emissions."

The recent ATR announcement at the Farnborough air show for 20 ATR aircraft is a vote of confidence.

"There is an additional 10 aircraft," says Gorman, who adds that the new orders will be equipped with the PW127XT engine.

"The aircraft will deliver over a period of four years starting in the final quarter of 2023," he says.

"We do see demand building up for turboprops and we felt that it was the right time at the Farnborough air show to crystallise our view as Abelo is going to focus on ATR aircraft. The original letter of intent signed in 2019 by Elix Aviation Capital was for 10 ATR42-600S and we added the ATR72-600, with 10 units."

Turboprop focus

Gorman says the majority of Abelo's portfolio will be turboprops.

"I would like to say that Abelo will be a 100% turboprop leasing platform but there will be some cases where we may invest in non-turboprop aircraft for strategic reasons. If we end up acquiring a portfolio that predominantly includes turboprops but feature some jet aircraft, we would still do that transaction."

He adds: "We are not going to be long-term holders of jet aircraft as there are enough participants in that part of the market that are potential trading partners. The ambition is to have a large majority of our portfolio as turboprops. Abelo would not actively campaign on regional jets.

"The turboprop sector at the moment is at the forefront of new developments in the aviation sector. We would potentially engage with parties that are looking at developing new-technology aircraft. We want to think that we can provide assistance as they develop their fleet towards new aircraft."

Gorman says Abelo also has shown interest in cargo applications for the ATR/Q400 freighter products.

"We have been looking to participate in those markets but broadly our focus is how we define our business in three to five years' time."

As part of the strategy, Abelo is actively looking at acquisitions and how it can build up the platform. "We are looking at portfolio opportunities as well as sale and leaseback transactions," he says.

"The main message that came out of the Farnborough air show was around ESG and we expect Abelo to be well positioned as this topic develops. When this develops into a commercial reality is another question."

Double fleet

Gorman says Abelo will follow in the steps of Elix Aviation Capital as a leasing company and asset manager.

"The combined entity has a lot of knowledge, experience and capability in the sector and we should not be constrained by the assets we acquire on balance sheet. We will be offering servicing to investors and will take advantage of the footprint we have in the turboprop sector.

"We do want to increase our asset portfolio to 120 aircraft in five years' time, at the time we complete our ATR orderbook. Today, we have around 60 aircraft and we will continue to trade older aircraft like we have done in the past.

"A 120-aircraft portfolio gives the footprint the leasing company needs, the diversification with airline operators. This is also a reasonable size to be a key stakeholder in the sector.

"That would be our ambition in the three to five years horizon. With the order of 20 aircraft through 2027, we aim to grow our portfolio by an additional 40-plus aircraft."

Gorman does not anticipate Abelo to place orders with other non-turboprop original equipment manufacturers. "We will stay turboprop," he says.

He recalls that Nordic Aviation Capital still has orders with ATR, but Abelo is the only other leasing company with an ATR orderbook.

"Our orderbook represents our relationship with ATR. They recognise our expertise in the turboprop sector and we want to be best in class. That's our focus."

Elix Aviation Capital was formed with a strong exposure to the US market. Since then, the company has diversified to other regions such as Europe and Africa.

Gorman expects demand for Abelo's orderbook to emerge from Asia.

"We are starting those discussions and we do see opportunities and growth in Asia-Pacific. Overtime, about 40% of the Abelo portfolio will be in operations in Asia-Pacific but the roll out will also encompass Europe and the Americas," he says.

Gorman observes the growing interest from private equities in the regional aircraft sector.

"Brookfield has invested in Falko/Chorus, Oaktree Capital in Abelo and Azorra Aviation. Both companies are significant entities but they are independent funds managed by different partners. It is not unusual for large investment houses to have multiple investments in the same sector – for example, in the property sector," he says.

Warehouse facility

Gorman says Abelo is a liability focused company and concentrates on the liability side of the balance sheet.

"I would like to say that Abelo will be a 100% turboprop leasing platform but there will be some cases where we may invest in non-turboprop aircraft for strategic reasons."

Steve Gorman, chief executive officer, Abelo

"We are looking at ways to optimise our cost of funding, but this is dependent on the evolution of the interest rate environment.

"If the interest rates environment were different, we would probably look at refinancing our debt. In the short term, we are more looking at putting debt facilities in place to enable us to acquire aircraft."

Gorman says banks are very comfortable with the turboprop sector.

"It is a known product and lenders have supported this sector. We continue to see positive sentiment as we look to the market. What is the challenge is the cost of funding today. The seven-year rates have gone up around 200 basis points.

"There is a lot of appetite for our sector, particularly for younger-generation ATR aircraft, and we believe we can get a warehouse facility to support our plans."

Gorman says the differentiator factor for Abelo is its unique turboprop investment model.

"The DNA of this company is turboprops."

Strong liquidity for new deals

Li Gang, chief executive officer of Aerdragon Aviation Partners, tells **Elsie Guan** that the lessor is in a healthy liquidity position and a strong shareholder base also gives it a lot of advantages.

In June, Beijing-based Aerdragon Aviation Partners purchased three Boeing 737 Max 9s on lease to Aeromexico from Aercap, one of its shareholders.

"Aerdragon is now in a very healthy liquidity position and we can add on new deals in a very timely manner. Because of that, other financiers can be more confident in the company and that's why you will see some of these new deals are coming in because of the creditors' confidence in the company itself," says Li Gang, chief executive officer (CEO) of Aerdragon Aviation Partners.

Two of the three 737 Max 9s were financed by BNP Paribas Singapore Branch with an aircraft non-payment insurance policy from the Aircraft Finance Insurance Consortium (AFIC), managed by global broker Marsh.

The insurance underwriters included Fidelis Insurance Bermuda, Sompo International and Axis Insurance. This was the first AFIC-supported financing for a Chinese leasing platform and the first financing transaction between Aerdragon and BNP Paribas.

The remaining aircraft was financed by PK Airfinance.

"This deal is an excellent example of how Aercap and Aerdragon will continue to look for new opportunities that make sense to both," says Li. The Beijing-based firm is 50% owned by China Aviation Supplies, and 16.67% each owned by Aercap, CA-CIB Airfinance and East Epoch.

Aerdragon, however, operates entirely independently from Aercap. "But we do work together when it makes sense for both of us and for mutual benefits. Aercap is a much bigger company compared with Aerdragon. Thus, on a relative basis, collaboration between Aercap and Aerdragon is usually more beneficial or meaningful to Aerdragon than to Aercap," says Li.

In 2020, Aerdragon entered into an agreement to issue junior unsecured promissory notes of up to $100 million to an entity controlled by CNIC Corporation. Aerdragon intends using the proceeds for general corporate purposes and to fund new business opportunities.

"A few things to strengthen the liquidity – one is a junior unsecured financing provided by CNIC, a Chinese sovereign fund. That's a very important one for the company. It does give more comforts to other financiers as money attracts money. In the meantime, we did some refinancing and completed the portfolio refinancing that we signed in late 2019 and all these generated a significant amount of cash for the company," says Li.

In the past couple of years, the company has been growing the portfolio moderately by focusing on new-technology narrowbody aircraft. "This target asset class will remain the same," he says.

As to date, Aerdragon has 34 aircraft in its portfolio: 10 Airbus A320s, three A320neos, two A321neos, 16 737-800s and three 737 Max 9s, *Airfinance Journal*'s Fleet Tracker shows.

In November 2021, Aerdragon completed the sale of two on-lease A320s to subsidiaries of Everbright Financial Leasing. "Going forward, we may continue to sell certain aircraft for opportunistic reasons and portfolio management reasons but won't be an active seller," says Li.

Aerdragon was established in October 2006 and has a current customer base covering China and the rest of Asia, Europe and South America.

In the past couple of years, when the Chinese market remained highly competitive, Aerdragon's new businesses or new aircraft acquisition activities were mostly focused on international customers, according to Li.

Aerdragon has faced as many challenges as its peers in airline credit management and customer relationship management during the past two-and-a-half years.

"The most important part is that we have a solid portfolio on lease to strong customers. That offers us an opportunity to work closely with them," says Li.

He still has a lot of confidence in the Chinese market.

"The Chinese market remains one of the most important aviation markets in the world and the recovery will be strong. When there are suitable opportunities, we continue to chase Chinese customers," adds Li.

He thinks that all difficulties from the pandemic, the geopolitical uncertainties and rising interest rates also gave opportunities for investors to review their plans and policies and rethink their portfolio strategy, whether these are the right investments for them.

"The Chinese market remains one of the most important aviation markets in the world and the recovery will be strong."

Li Gang, chief executive officer of Aerdragon Aviation Partners

"As a result of these reviews, there may be a slowdown for new capital to pour into this market. It is a very knowledge-based market that takes a long-term view, so certain investors have chosen or may choose to exit this business but there will be many others who remain dedicated and will continue to do so," says Li.

He says Aerdragon is also open to merger and acquisition opportunities but notes that the most important thing is to do what is right for the business to grow the company's portfolio and capability.

"We won't be chasing acquisition deals just for increasing the size of our company," says Li.

"Aerdragon is nimble, flexible and quick to respond. Because of this culture and the way we are working, we can be more selective and quicker to catch on the market," he adds. "Thanks to the experienced team and the close relationship with our business partners, I think we are coming out in a healthier and stronger position."

Waiting for **E-note return**

The Covid pandemic has made DAE more efficient and more timely in meeting customer needs, its chief executive officer, Firoz Tarapore, tells **Dominic Lalk**.

Citing an increasingly unstable environment, Dubai Aerospace Enterprise (DAE) has shelved plans to return to the asset-backed securitisation (ABS) market with an equity offering and instead will look to the private market for funding.

"In February, I said that we were hopeful that the market would open for one E-note deal. In May, I said that was looking doubtful, and today, I say that the market is not going to be ready for a transaction in 2022," Firoz Tarapore, DAE's chief executive officer, told the market in mid-August.

DAE accesses the ABS market only with transactions in which the E-note is sold.

"Even as all other segments of the market have returned to normalcy, the E-note market has not stabilised and that makes it difficult for repeat issuers like DAE to reliably price transactions.

"Ironically, pre-pandemic, E-note investors made very little to no distinction when it came to pricing transactions for large, established servicers with solid track records like DAE and smaller, niche servicers with no established track record. We expect this to change when the E-note market recovers as investors have seen very clearly the significant value provided by servicers with a solid track record like DAE during the pandemic," Tarapore tells *Airfinance Journal*.

He adds: "We rely on a diverse mix of debt funding sources, from unsecured capital markets debt globally, to secured bank financing. This diversity of debt financing sources generally means we can nimbly navigate across a wide variety of market scenarios."

On current industry headwinds, he highlights that certain markets and regions continue to trail others in terms of recovery, while original equipment manufacturer (OEM) delays do little to alleviate strong rebound concerns.

"It is heartening to see the incredible strength of demand across so many markets. Predictions of a strong recovery – which was a baseline assumption of ours and that of the leasing community – have largely come to pass. We expect markets that continue to lag the recovery due to continued Covid protocols to improve over time and fully catch up," says Tarapore.

"From an overall industry health perspective, we are watching how impactful supply chain disruptions will be over time

"With many airlines taking on significant debt to weather the Covid crisis, [supply chain] disruptions that affect their cost or revenue base over time may affect their ability to repay accumulated debts as forecast."

Firoz Tarapore, chief executive officer, DAE

and the long-term effect of those disruptions on our customer cost base. With many airlines taking on significant debt to weather the Covid crisis, disruptions that affect their cost or revenue base over time may affect their ability to repay accumulated debts as forecast," he adds.

Tarapore notes the pandemic produced opportunities that well-capitalised lessors with strong balance sheets such as DAE have been able to accept.

"For example, we were able to place an OEM order and fully deploy the aircraft in a short period of time. We locked in attractive sale and leaseback opportunities in the marketplace that were available in 2020 and 2021. We see more investors looking at the aviation space with the view that well-run companies like DAE have done incredibly well in managing through an unprecedented crisis no one would have expected could have been managed as well as it was.

"These investors are expressing keen interest in taking some of the exposures DAE acquired during the crisis. We also expect to continue growing our Aircraft Investor Services-managed aircraft business on the back of this investor interest. Overall, our business was incredibly nimble in reacting to the ever-changing landscape of challenges during the Covid crisis, and I think we are even better positioned now to work in new ways toward being more efficient and more timely in meeting customer needs," he says.

DAE continues in expansion mode. Tarapore confirms that the firm's long-term objective for owned and managed assets remains at about 800 aircraft. At this year's half-year point, it had 297 owned aircraft in its fleet, 85 managed and eight committed units.

The Dubai-based firm acquired 34 aircraft in the six months to 30 June. Of those, eight were for its owned and 26 for its managed portfolio. In the same period, DAE sold 20 aircraft from its managed portfolio and seven from its owned portfolio.

DAE signed 85 lease agreements, extensions and amendments during the first half, with 98.7% of its owned portfolio contracted at the time and a cash collection rate of 103%.

During the first half, DAE agreed new capital commitments for aircraft purchases of about $750 million. It signed a new aircraft management mandate to acquire and manage up to $1.75 billion of aircraft assets, too.

Profit for the six months ended 30 June was $140.1 million compared with a profit of $49 million for the six months ended 30 June 2021. Loss after exceptional items was $397.8 million compared with a profit of $49 million a year earlier. During the six months, there was an asset write-off of $576.5 million relating to aircraft in Russia not in the group's control.

"Our [first-half] acquisitions are a mix of aircraft for both the managed portfolio and our own portfolio. We focus on new-generation aircraft for our own portfolio but obviously have a wider remit on the managed side depending on investor requirements," Tarapore tells *Airfinance Journal*.

He adds: "The trading market has remained strong despite rising interest rates. There remains strong interest for good credits and solid assets with longer lived cash flows notwithstanding the impact we are beginning to see on secondary market prices of rising interest rates."

Marsh France targets more Balthazar capacity

Olivier Bonnassies talks to Jonathan Dufeu, global Balthazar finance leader and co-head political risks and structured credit, Marsh France.

Marsh France's global Balthazar finance leader and co-head political risks and structured credit, Jonathan Dufeu, says the platform has a pipeline of another two mandates later this year and is also working on a series of potential mandates through the end of this year and early 2023.

In 2021, seven transactions closed under Balthazar support.

Dufeu says the targeted annual financing amount remains about $500 million to $750 million a year.

"We have a pragmatic approach and this is one of the principles of the product along with flexibility. There is no pre-defined budget, minimum or maximum volume per transaction. Virtually, if $500 million needs to be allocated in one transaction, we can do this. What matters is the partnership between the insurers, the banks, Airbus and ourselves, and to be well positioned on the right transaction and to deliver value for Airbus's customers," he tells *Airfinance Journal* in an exclusive interview.

The firm worked on its first transaction at the end of 2018 and closed its first deal in February 2019. Dufeu recalls: "At the end of 2017, Airbus and Marsh decided to work to design the product with the aim to create an additional source of liquidity for Airbus deliveries. We wanted to create a specific product with the key words being 'flexibility' along with 'simplicity'. We aimed at a bank-centric product."

Marsh and Airbus designed the product, approached a selection of insurance companies and gradually finalised the structure in the first half of 2018.

It started to provide quotes for deals in the summer of that year and received its first mandate in October.

"Since then, we have closed 24 aircraft transactions, including six widebodies, for a total financing amount of $1.6 billion," says Dufeu.

Boris Sakrauski, head of customer finance at Airbus, says: "With a proven track record since 2019, Balthazar has successfully established itself as an attractive financing choice, providing additional flexibility for Airbus customers. Airbus highly values its partnership with the Balthazar insurers."

"There is no pre-defined budget, minimum or maximum volume per transaction. Virtually, if $500 million needs to be allocated in one transaction, we can do this. What matters is the partnership between the insurers, the banks, Airbus and ourselves."

Jonathan Dufeu, global Balthazar finance leader and co-head political risks and structured credit, Marsh France

Thierry Justice, head of insurance risk management at Airbus, adds: "Balthazar is the perfect example of a collaboration among, client, broker and insurers to co-design a solution that supports the business development of a sector. It is a successful initiative based on trust and transparency and I wish this could be duplicated to other lines of insurance."

Specificity

One of the specifics of the Balthazar platform is the partnership with Clifford Chance, which acts as the insurers' adviser, and with IBA, providing technical and market advisory and monitoring of the portfolio.

Dufeu says there is a possibility for Balthazar primary banks (those top aviation banks pre-selected to originate, structure and implement Balthazar transactions) to syndicate a portion of a transaction to eligible secondary banks whereby one of the specifics of the product is to issue one insurance policy for each bank.

"The policies themselves operate independently to protect each bank insured. As of today, we have 37 insurance policies live covering the 23 transactions," he says.

Marsh France started with three insurers and the insurance group was increased rapidly to four. As of today, the four insurers remain committed, active and continue to quote on Balthazar transactions.

"There continues to be a strong commitment from the existing insurers but it does not prevent us from expanding the group and potentially looking at additional companies to join the platform. We are speaking with additional insurers, either for one or two players to join the core insurance group or, should the need arise, as a guest insurer on a case-by-case basis," he comments.

Marsh France selects insurers, insists Dufeu.

"The Balthazar insurers are robust groups that are strongly rated. All of our insurers are highly reputable firms rated between A and AA-. Their profiles are in alignment with banks in terms of constraints. We do partner with insurers that have a certain depth in their balance sheet to absorb certain deal volumes. We also want insurers that have the right spirit – ie, ready to work in a partnership mode and to pragmatically adapt to what banks, Airbus and their airline customers need," he says.

Dufeu also points out the flexibility of the product.

"Balthazar does not impose a standard rigid documentation. The banks have the possibility to add the Balthazar support on their existing financing documentation. Insurers have experience on structured credit and political risk underwriting."

It is possible should Marsh need to add an insurer in a Balthazar transaction.

"Flexibility on the participating insurers as well: we could have, for instance, two of the four insurers participating on a transaction. It has happened that not all four insurers were on the same transaction. If at some point a bank faces a limit issue on any of the Balthazar insurers, we can proactively adjust to the bank's constraint. This follows our philosophy of non-rigidity and the addition of other insurers could add diversification and capacity."

The capacity increase is not only related to Airbus's rise in production.

Dufeu says Balthazar works with political risk and structured credit insurers.

"Twenty years ago, this segment of the private insurance market was almost only looking at emerging market/sub-IG risk. Underwriters are used to looking at different types of credit and country risks. They already went through a number of crises and demonstrated their resilience.

"In this market, the main clients are banks and exporters. Insurers are supporting either the banks on their financing or the exporters in the frame of their commercial contract. The insurers' 'insureds' have contractual rights. The insurers rely on recoveries. If you face a default, you have an asset and a security package," he adds.

The market has gone through several crises over the past two decades and demonstrated resilience, partly resulting from the recoveries generated by the underlying contracts and structures.

Covid-19 crisis

"In March 2020, we initiated conversations with the insurer panel to assess the situation," says Dufeu. "Thanks to an active dialogue within the partnership (Airbus and primary banks notably), the insurers maintained and honoured their commitments. The Balthazar insurers adapted their underwriting strategy, focusing on flagship carriers backed by government support while looking at other opportunities as well. Insurers not only honoured commitments but also continued to underwrite new commitments."

As soon as May 2020, the platform was back issuing quotes for potential deals.

"It was essential for us to continue operating," he adds. "As of today, we have had no default and the fact that the portfolio has demonstrated such resilience during the crisis brought comfort to the insurers."

The total amount of financing was about $470 million in 2020 and about $435 million in 2021.

Banks

Dufeu says: "The specificity of the product is to deliver an innovative 'boosted' non-insurance payment product to the banks so they can release capacity where they have country and obligor constraints and so they can compress their pricing via the 100% cover feature and the subsequent capital relief."

The 100% cover (plus insured financed insurance premium) is granted to the top aviation banks which have solid credit processes in place and benchmarks in terms of financing documentation and law firms.

Another factor is the relationship between banks and insurers.

Marsh and the insurers consequently drew an initial list of primary banks which would originate transactions but did not limit the number of banks. Since then the list has expanded.

"When we launched Balthazar, the list of primary banks included less than 10 aviation lenders, it is now at 14. These banks can benefit from the innovative features of the product," says Dufeu.

Marsh discloses secondary banks to primary lenders for distribution but a primary bank can also introduce a syndicated institution into a transaction, he adds.

Export credit agencies

The aircraft financing landscape has changed over the past five years with the emergence of new alternative platforms and the growing size of the leasing companies as capital providers.

In the meantime, export credit agencies (ECA) have seen their involvement limited.

"We see the export credit agencies as a necessary tool for aircraft financing. In 2020, they supported 10% of Airbus deliveries in that year and 6% in 2021. In that latter year, they also refinanced a few 2020 deliveries. Balthazar is not a competition to the export credit agencies. Rather, we view it as a complementary source of financing and as an important additional tool for Airbus customers," says Dufeu.

"When a transaction is backed by AAA paper, margins are lower. The ECA financing provides support based on the ASU framework, with risk categories associated with pricing, and a standardised documentation.

"On our side, we aim at being more agile in terms of how the insurers analyse a transaction. Our key word is flexibility. Insurers pragmatically focus on the primary bank's proposal based on the credit, the asset and the structure."

Assets

Assets considered include narrowbodies and widebodies; during the Covid-19 period, insurers focused on strong credits.

"Our key word is flexibility. Insurers pragmatically focus on the primary bank's proposal based on the credit, the asset and the structure?"

Jonathan Dufeu, global Balthazar finance leader and co-head political risks and structured credit, Marsh France

"At the end of 2021, we experienced a turn given that the market was back, liquidity continued to be available at improved rates and despite the competitive landscape in financing assets, insurers started to open to more lessors either on a full-recourse or non-recourse basis," says Dufeu.

Last year, Balthazar closed two transactions for lessors on limited- and full-recourse basis.

"We will close more lessor Balthazar financings for lessors in the coming months as our aim is to adapt the product to lessors," he adds.

To date, assets have been exclusively latest-technology Airbus passenger aircraft, but Airbus freighter models could also be considered if the opportunity makes sense.

"We have not closed any transaction for cargo aircraft but if we are pragmatic with the right customer and loan-to-value, the insurers could consider opportunities. Given the cargo market traffic data and the appetite in the sector, there is a market and we want to position ourselves."

Dufeu says the genesis of Balthazar is to create an additional source of liquidity for Airbus customers. When considering environmental, social and governance metrics and the residual value of new-technology aircraft, appetite is for supporting new deliveries.

The structure can also consider relatively new aircraft, because some airlines use cash financing on deliveries with the aim to refinance later.

The DNA of the product is not to finance older assets but Dufeu says: "If the package makes sense for all the parties, this can be considered."

First ATR transaction?

Airbus is a co-shareholder of ATR (along with Leonardo). Defeu explains that the Balthazar platform is therefore open to ATR opportunities. "We are actively discussing with ATR and we feel we can issue relatively competitive terms and we hope to close the first transaction this year," he reveals.

Virgin Atlantic funds business plan through 2025

Virgin Atlantic CFO Oliver Byers tells **Olivier Bonnassies** that the UK carrier has financed deliveries of its first A330-900s and is back on track to return to profit in 2023.

Virgin Atlantic Airways is confident its business plan over the next three years will not need further funding.

The carrier's chief financial officer, Oliver Byers, tells *Airfinance Journal* that the carrier's cash position is above £580 million ($700 million).

"We have continued to build cash through the beginning of this year and this reflects the very strong trading environment we have been in. There is such a pent-up demand for travel still. We saw this in the first and second quarter and this has continued in the third quarter. We are not seeing any reduction or slowdown in demand considering the macro-risks that the UK is facing," says Byers.

Virgin Atlantic narrowed its losses by £378 million versus 2020 to £486 million in 2021.

Total revenue amounted to £928 million in the 12-month period, up £60 million from 2020, but down from £2.9 billion in 2019.

During 2021, the UK carrier raised more than £670 million of new capital, including a £400 million shareholder investment completed in December 2021. It ended the year with a "robust" cash position of £580 million.

Byers adds: "From a funding perspective, our business plan is fully funded all the way out to 2025."

He says Virgin Atlantic has aircraft financings in place through 2024 and the carrier has "no concerns" on payments committed against the assets leased given its cash balance position.

Virgin Atlantic has no debt repayment scheduled this year.

He explains that the restructuring reduced the carrier's debt repayment profile in 2022 and 2023.

"We had to make sure that we had sufficient space to be able to recover operations and go back to profitability, which the target is for 2023. There is no requirement for debt repayment this year or next year," he adds.

In January 2018, Virgin Atlantic closed a three-year, $150 million secured syndicated revolving credit facility (RCF) with options to increase to $350 million and extend the term to five years.

The facility, which is secured against both aircraft and engines asset types, was used to help the airline invest in future growth, including pre-delivery payments on Virgin Atlantic's order of new Airbus A350-1000 aircraft.

The facility was arranged by Lloyds Bank and includes a syndicate of six banks.

"The Lloyds RCF was pushed back to post-2025," he says.

Financier views

Byers says Virgin Atlantic's financing partners have been supportive throughout the pandemic, and the airline is in a better position now as it recovers from the crisis.

"We have had a number of conversations with financiers and the reception to the Virgin Atlantic story is very positive. Considering what we have done through Covid, not only surviving Covid but also the implementation of the £1.2 billion recapitalisation together with how we restructured and transformed the company from a cost base perspective, we believe we are better placed now.

"Our return to profitability is slightly delayed because it takes time to return to scale but this is the target for 2023. We are bang on track for profit."

Byers adds that lessor and banks have seen the commitments Virgin has made and this was seen in the positive reception on the transactions the carrier was considering.

"We have nothing to do immediately given the strong position we are in in terms of financing commitments but we are looking forward to the next couple of years," he comments.

Virgin further opened its sources of financing last year when it closed a sale and leaseback transaction of two used 787-9s with Griffin Global Asset Management in partnership with Bain Capital Credit.

The transaction provided an opportunity to free up cash and pay down additional debt, as provided for in a September recapitalisation.

"Throughout the Covid crisis, we raised capital from different parties and Griffin was one of those. They are incredibly supportive to us and we believe we did a fantastic transaction with them right in the middle of the crisis. As we go forward and look at our asset base over the next few years, I am not ruling out doing more similar transactions but equally there are other parties we can have deals with," says Byers.

A330-900 financing

Virgin Atlantic has opted to deliver its first three new A330-900s in 2022 under operating leases, confirms Byers.

He tells *Airfinance Journal* that three aircraft will join the 36-aircraft fleet between October and December and Virgin Atlantic will operate 39 aircraft by year-end.

Virgin still operates 10 A330-300s under operating leases but no longer has any A330-200s in its fleet.

"We returned the two A330-200s on lease to lessors this year with the final aircraft handed back in the second quarter," says Byers.

In 2019, the carrier announced a firm order for up to 16 A330neos, reaffirming its commitment to "flying the cleanest, greenest fleet in the sky". The remaining deliveries will follow between 2023 and 2026.

In 2023, Virgin Atlantic will take delivery of a single A330-900, he says. In 2024, the UK carrier will add four A330-900s to its fleet.

Initially, the A330-900 fleet was to replace current-generation A330s, but Byers reveals that the UK carrier has extended leases on some of those aircraft.

"A number of our A330-300 aircraft will be extended with lessors. The first A330 will be leaving the fleet in 2023-24," he says.

Virgin plans to have returned all its A330s "sometime between 2025 and 2026", according to him.

"Our plan for 2025 includes a fleet of 46 aircraft, with a combination of A330-900 deliveries and A330 extensions," he adds.

Byers says all of the A330-900s scheduled for delivery before 2025 are either leased or fully financed in the sale and leaseback market, mirroring the carrier's Boeing 787 asset finance strategy over the past few years.

"We have a blend of owned and leased aircraft. The way we look at the 16 A330-900s is in two batches: the first eight aircraft will be under operating leases. The remaining aircraft, which will deliver from 2025 onwards, will be owned or leased via sale and leaseback," he says.

Lord of the wings – the trilogy ends

Domhnal Slattery has called time on a career that has helped change the face of aircraft leasing. Laura Mueller finds out what motivated the man who climbed his “Everest”, his hopes for the industry and how his departure is impacting Avolon.

Irish aircraft leasing entrepreneur Domhnal Slattery has retired after a four-decade career during which he built and sold three aircraft financing and leasing businesses, with the final one resulting in Ireland’s largest cross-border M&A transaction.

Slattery stepped down as chief executive officer (CEO) of Avolon on 26 July, a role he has held since he launched the Dublin-based lessor with a small group of founding executives 12 years ago.

Airfinance Journal first reported in April that Slattery would retire this summer and be succeeded by fellow founding member Andy Cronin.

His departure took many in the leasing industry by surprise, but Slattery says his retirement plans were secured before the pandemic broke out.

“We don’t think for a second that I’m exiting early. To put it in the context of being the CEO for the past 12 years, and the two years prior to working on getting Avolon launched, it has been a 14-year journey,” says Slattery. “The energy, the passion that’s required, it is all-consuming and now is the right time to pass that baton.”

Cronin, who had been the chief financial officer and president since 2021, says: "This is a change, a transition that has been planned for some time. It's a very orderly handover of power. The things that Domhnal is most excited about are the things that I'm most excited about bringing forward. We have a fabulous culture, franchise and business."

Cronin insists Avolon is in "excellent shape to address recent shifts in the industry" as tighter monetary policy to combat surging inflation results in an overall slowing of growth and fears of a global recession.

"We believe that our business is very well positioned, coming through these challenges, including the impact of Russia, the impact of rates, etc. As interest rates have returned to, frankly, what is a more normalised environment, we look forward to supporting our customers all over the world as they continue to build that recovery from Covid."

Paul Geaney, another founding member, becomes president and chief commercial officer.

Avolon's other founders, John Higgins and Tom Ashe, retired in October 2021.

In 2019, the founding group of partners sat down in the fourth quarter as Avolon approached its 10th birthday. Avolon was at the "peak of its strategic relevance" and looking forward to a robust financial performance in 2020, he recalls. At that meeting, the group decided that "now is the moment" for the older part of the group to begin to hand the reins over to the younger generation.

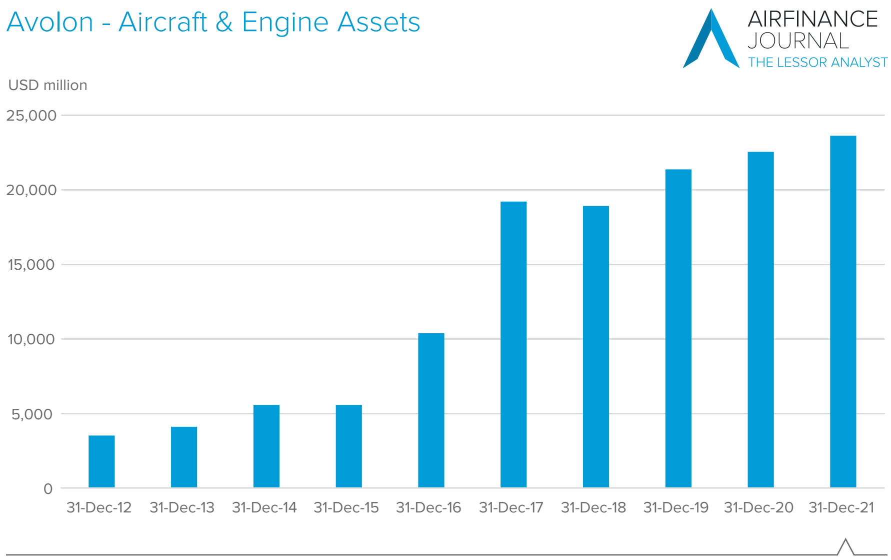
"What drove that process was a belief that leadership in an organisation has finite relevance. One of the lessons we learned along the way was sometimes leaders stay in situ for too long, and they lose the edge, the relevance, the energy that leads to passion. We refer to it as the death rattle," says Slattery.

"And so culturally, it was clear to us, that we needed to pass the baton over once we were still in our 'A' game. The plan originally was that this was all to happen in 2020, but we put that on hold, given the Covid backdrop. John and Tom exited last year, and I'm exiting now."

Despite Avolon's Chinese owner, Slattery denies that his departure or the management shuffle has anything to do with the upcoming Communist Party National Congress in late 2022 – an event tipped to spur changes across the Chinese leasing industry, including the sale of non-domestic exposure.

"Whatever political dynamic exists in China will have its own cadence and its own rhythm. I mean, the reality is, we've been dealing with a very dynamic situation with HNA going all the way back to 2016," he says.

Avolon - Aircraft & Engine Assets



"Avolon is 70% owned by Bohai, which is an independent leasing entity based in China. Its shareholding has changed dramatically as a consequence of the trust structure. Who knows what happens at the end of the year, but we gave up many, many years ago trying to plan any corporate activity around what may or may not happen in China."

Cronin also dismisses the suggestion. "Frankly, we run the business as a standalone, international business, and we do the right thing by the business. Our ownership is stable. And what many people don't know is that the airline group is now completely split away from the HNA Group.

"If you look at Bohai, it is trading multiples – it is actually on par with the US public lessors – so we continue to run our business as an internationally owned, standalone, independently funded business. And, frankly, the shareholder composition may change from time to time. We've been through probably four or five different iterations of that at Avolon in the first 12 years."

When Avolon introduced Orix as a 30% shareholder in a $2.2 billion deal in 2018, the primary reason was to insulate Avolon's balance sheet and its governance from the day-to-day events in China, adds Slattery.

Following months of deliberations, in 2019 Orix declined the opportunity to purchase the remaining 70% from HNA, Bohai's embattled parent, citing concerns that such a significant acquisition could negatively affect its credit ratings.

HNA Group was effectively seized in February 2020 by the provincial government of Hainan, the southern island province where it is based, after a rapid expansion that resulted in $310 billion of debt.

In October 2021, HNA reached an agreement with creditors on a debt-restructuring plan. It handed over control of its core airline operations to Liaoning Fangda Group Industrial, ending an era of ownership by the Chinese conglomerate.

HNA said its restructuring was completed in April.

History books

The making of Slattery as an entrepreneur follows the classic, formulaic plot structure of a hero's journey; the conflict resolution arc of mettle forged through trials and tribulations, with leasing being the constant that enabled personal and business transformations.

As a child, Slattery was intrigued by aviation, joining his father every Saturday to deliver vegetables to Shannon airport. But aged 11, his father died and Slattery was forced to work to help support his family.

He took on various jobs and paid his way through the National University of Ireland in Galway. On graduation, he joined Guinness Peat Aviation (GPA), then the world's largest aircraft lessor, founded by entrepreneur Tony Ryan.

But when GPA collapsed in 1992 after a failed initial public offering (IPO), Slattery left the firm. He set up his own company, the International Aviation Management Group, a boutique air finance consultancy. Ryan took a 20% share and was later bought out by Slattery.

In 2001, Slattery sold the business for a reported $39 million to the Royal Bank of Scotland (RBS), which used it as a launch platform to start RBS Aviation Capital. He led the lessor through 9/11 and reduced risk across other existing aircraft leasing activities across the wider RBS group. By 2004, RBS Aviation was the third-largest aircraft lessor.

With money in the bank, he changed gears in 2005 and set up the private equity firm Claret Capital as a family office to manage his wealth and invest in diverse sectors such as real estate and media. However, by 2008, with the financial crisis in full swing, Claret Capital was in trouble.

"I was well on my way to becoming a billionaire, and suddenly I had lost everything. But I had a wife, four children and a mortgage to pay," Slattery said in a business review in 2018. "I had 27 cards in 27 investments – in the end, it was a di-worse-ification."

Using his past industriousness and credibility in aircraft leasing, he was able to persuade Oak Hill, CVC and Cinven to support his return to leasing with the launch of Avolon.

Oak Hill, Cinven and CVC contributed equally to a $750 million equity cheque that was buttressed by a $650 million revolving credit facility by UBS – the first of its kind for the aircraft leasing industry since the 2008 financial crisis.

Launched in 2010, the name Avolon is based on the island of Arthurian legend, Avalon, but with the "a" replaced with an "o" to incorporate the word "vol" – French for flight.

While King Arthur used the island for his wounds to heal, Avolon was set up to extricate Slattery from a private financial crisis following the success of his past endeavours in aviation.

The first deal included the purchase of six Airbus A320s from Aercap on lease to Alitalia, Frontier Airlines, Spring Airlines and Air Arabia. In addition, Avolon took a 50% interest in three A330s on lease to Aeroflot.

Going public

Under Slattery, Avolon went from a private equity start-up to a lessor with sustained profits that, on 14 December 2014, became the largest Irish company to list on the New York Stock Exchange. The initial public offering (IPO) also marked the "single most resounding memory and proudest memory" for Slattery in his professional career.

"It was the summit of my own personal ambitions at that point in time. It was a wondrous, joyous thing to do and, without a doubt, that's the Everest," he says.

"If you start a company, and you ultimately can get it to a size, scale and relevance, that you can take it public, and people want to buy your shares, I think as a businessperson, as an entrepreneur, that's the ultimate tip of the hat – that others are prepared to buy your stock.

"It's not easy to build a company, scale it and take it public. If you look at it in an Irish context, we are one of very, very few in any sector to have gone public in the last 10 years. And in the aircraft leasing sector, it's been a very small cohort."

The reality on that day was that the stock finished below its IPO strike price.

"So it wasn't a great day, that particular day, but eight to 10 months later, we sold the company for $31 a share, which today still is the biggest single annualised return, monetised ever for an aircraft leasing company in the public markets. So, nobody can take that away from the Avolon history book."

On 8 January 2016, Avolon de-listed from the New York Stock Exchange after being acquired by the conglomerate through its subsidiary business, Bohai Leasing. At the same time, Avolon assumed control of Hong Kong Aviation Capital, a leasing platform owned by Bohai.

The deal marked Ireland's largest cross-border M&A deal. Avolon went on to purchase CIT Holding's aircraft leasing business in 2017. Avolon is now the second-largest aircraft lessor with a balance sheet in excess of $30 billion.

As a serial entrepreneur with four companies under his belt, and three in aviation, Slattery claims the desire to make people's lives better drives him out of bed in the morning.

"I felt the relevance of the industry was changing people's lives. The development of low-cost carriers, globally, was changing people's lives for the positive and that an aircraft leasing company, like Avolon, could enable that economic activity globally, this is sort of the higher purpose," he says.

"That then evolved into what I believe is the right higher purpose for many decades to come, and that's being the thought leader in the decarbonisation of our industry."

In June 2021, he declared ambitions to pave the path to electrification by investing in the electric vertical take-off and landing (eVTOL) market with a $2 billion order for up to 500 eVTOL aircraft from UK-based Vertical Aerospace.

Perhaps predictably, he insists it has not only been the business but the "fun" that has kept him in the industry.

"Some of the characters, the friendships that I've built all over the world, whether it's at the OEMs [original equipment manufacturers], but more particularly the airlines, they are great entrepreneurs, great risk-takers against all the odds. That's just been a thrill and a privilege."

But he insists the aircraft financing and leasing trilogy ends with Avolon. There will be no sequel. However, the aviation franchise he spent nearly a half-century building will continue.

"I'm highly motivated by creativity, building things and scaling businesses. At the end of the day, I'm an entrepreneur – it is kind of what I do."

Cronin describes Slattery's legacy as a multi-headed hydra. "It has inspired a lot of singing, dancing around, good times, fun, joie de vivre and energy. That will live on and on for sure," he says.

He points to an engagement survey earlier this year that took place three months after staff were called back into the office on a full-time basis.

"And there was one statistic which jumped out, which was that 93% of people would say that they were proud to work for Avolon. I think that's a statistic to be incredibly proud of."

Slattery hopes the legacy that endures is twofold. "In the decades from now, it is that the cultural foundation stones are just as strong then as they are now and perhaps better."

This is based on the lessor's culture captured in the acronym Tribe: transparency, respect, insight, bravery and ebullience.

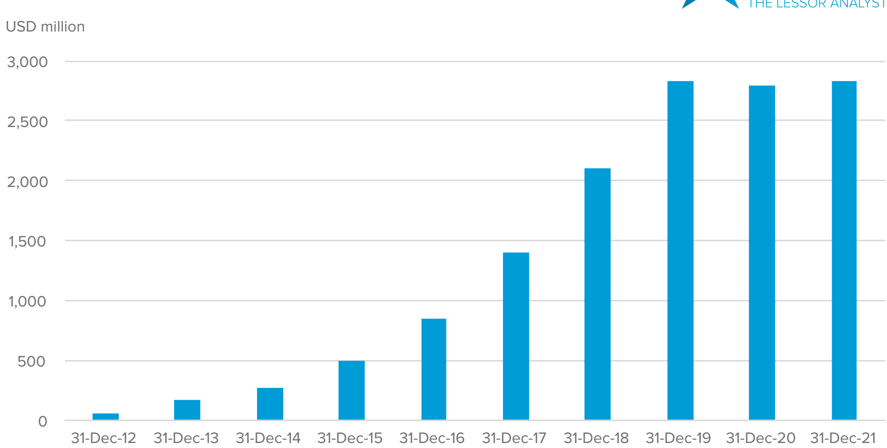
"We thought long and hard about those values when we put them together 12 years ago, about the behaviours that travelled with those values. We've worked hard to help those values flourish," he says.

"Sometimes we succeed, sometimes we don't, but they're the guiding principles of the firm in terms of how we make business decisions, recruitment decisions, exit decisions and deals."

Second comes team development. "That we were able to develop a team of people, a bench, such as the US leadership

Avolon - cumulative net income 2012-21

AIRFINANCE JOURNAL
THE LESSOR ANALYST



parlance, at Avolon with Andy and Paul being the tip of that spear, who were bred effectively to succeed and take on the ambition, the challenge and division of the firm," he says.

"The fact that we were able to have a bench that was ready and better, frankly, than the incumbent.

"Those are my two legacy pieces."

During the same week as the Farnborough air show, Slattery's last at the helm, the UK recorded its highest temperature since records began, the European Central Bank ended an eight-year run of negative interest rates, the Ukraine conflict entered its 21st week, global supply chain problems continued and business confidence slumped as Europe's largest economy teetered on the brink of recession.

Yet leasing is used to global challenges. "The aircraft leasing industry is uniquely positioned, and it's exposed in many ways to a lot of the good things that happen in the world and a lot of the bad things directly or indirectly," says Slattery.

"Over the last 30 years, any quarter, there's been challenges, whether it's interest rates, whether it's oil, whether it's geopolitics. Each cycle, each year, there is always something. At Avolon, we've always felt that the differentiator between management teams, or those with the experience set that we have and the others, is that we're adaptable, nimble and, frankly, forward-thinking enough to be able to make sure that we can navigate what is a never-ending series of challenges."

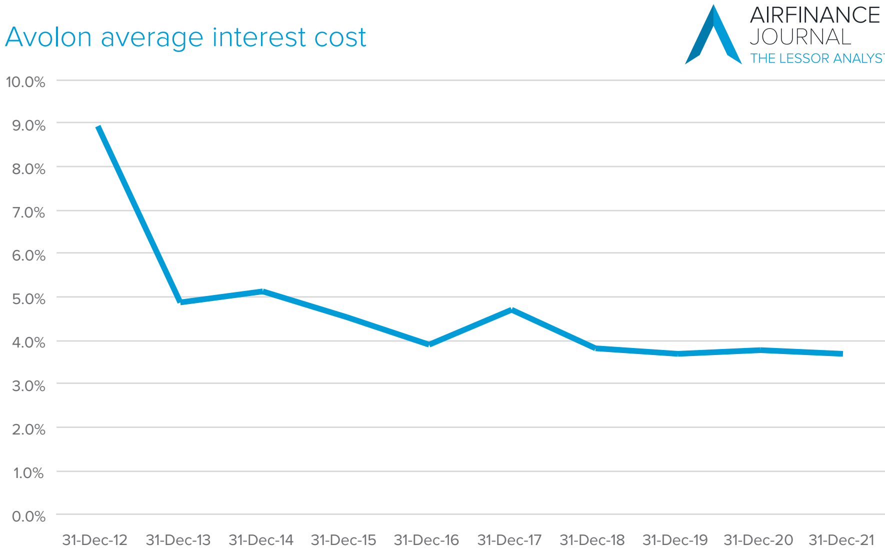
Start-up lessors will face problems, he thinks. "There's very little operational expertise in any one of those entities, and it's going to be a real challenge for them to exist and scale in a market that's quite challenging. And that's why, frankly, I am delighted when I am stepping off now that I'm handing the baton to somebody with the strategic dexterity that Andy Cronin has because he's been at this game for 20 years."

In other words, operating leasing has become a highly commoditised industry, where scale and experience drive cost advantage. So, are outsized returns on capital a relic of the past?

"I think there's a lot of truth in that. What also travels with that, though, is the risk inherent in the industry is also significantly reduced. The amplitude of the volatility is infinitely less than it was 10 or 15 years ago, the quality of the investment-grade lessor is the fact that you have a duopoly, and the risk quotient for the industry has come down. Therefore, the returns have come down because it attracts more capital.

"And also, for the investment-grade lessor issuers, the cost of capital has come down dramatically. Now it has blown out in the last couple of months, as it has with pretty much everything, but this industry is

Avolon average interest cost



in the process of commoditising. There's no question about that. There'll be a smaller number of bigger players – ie, more consolidation."

For him, the days of the "supercharged equity returns" are long gone. Instead, the industry will begin to attract "more infrastructure-type returns", that are relatively safe and stable. Still, predictable cash flows have allowed the capital markets to "really embrace" aircraft leasing in the past decade, he adds.

Slattery previously indicated at *Airfinance Journal*'s Dublin event in May that Boeing must "fundamentally reimagine its strategic relevance in the marketplace" and might need new leadership to fix a company culture that had become "totally warped".

Asked how he viewed the performance of Boeing's management nearly three months later, Slattery says: "Look, these guys are dealing with a very tough set of factors. Whether it's product engineering or geopolitics, it's just not easy, and sometimes, it is easy for me to take a sideswipe at them.

"I have a lot of respect for these guys; their jobs are complex, and it's not easy. But ultimately, they've got to deliver for their shareholders. And I think in the last couple of weeks, we're starting to see some green shoots, with talks of 787s getting delivered, some orders for the 737 Max. Okay, there are 737-10 certification challenges still there; maybe they'll get over that, and maybe they won't."

Has there been a cultural change from his vantage point?

"Well, they're moving their head engineer back to Seattle, and the optics of that are very powerful. Then the key will be the impact that has on the actual operating workflow of the business," he says. "The reality is, while they're trying to reinvent themselves, they've got a lot to focus on, such as what their next new aircraft plan will be and whether it's the NMA [New Midsize Airplane] or something of that ilk, or whether it is hydrogen-powered, so there is a lot."

Going vertical

Slattery told *Airfinance Journal* in an earlier interview that achieving net zero was "the single biggest and most audacious goal" for the industry, unquestionably.

Avolon-e, which is partly owned by Avolon and a small number of its executives, including Slattery and Cronin, launched in June 2021 to make purchases in the eVTOL market as part of the net zero agenda. The lessor is among the launch customers for up to 1,000 eVTOLs being developed by Vertical Aerospace.

With partners including Rolls-Royce, Honeywell and Microsoft, along with GKN, Leonardo and Solvay, Vertical is now in the later-build stages of the VX4, with its full test flight programme to commence later in 2022.

Slattery says Avolon-e will continue as a jointly owned entity and "see where that goes".

At the Farnborough air show, Vertical Aerospace confirmed 50 VX4 delivery slots and the commitment of associated pre-delivery payments with American Airlines.

The commitment to pay pre-delivery payments and confirmation of slot reservations for the first 50 aircraft is believed to be the first of its kind for a major airline in the eVTOL industry.

"As I hand the baton to Andy, the thing that I'm most excited about is my chairmanship at Vertical and what we're trying to do there. I'm excited because it's important work, but it's also very complex work; trying to build and certify a novel aircraft isn't easy," he says. "But if we crack it, we could change the world."

(Additional research from INSEAD Avolon study)

Why transparency and just three KPIs matter in **path to net zero**

An industry white paper hopes to provide a simplified and transparent road map for reducing aviation CO_2 emissions to net zero by 2050, writes **Laura Mueller**.

The discussion about decarbonising the aviation industry is confusing. It ranges from overcomplexity, on the one hand, to leaving too much room for interpretation of metrics on the other, argues Impact, a non-profit platform for aviation investors and financiers in an industry white paper, 'Less is more: Three essential KPIs to guide aviation into a decarbonised future'.

Impact believes that the metrics by which decarbonisation performance is measured, if inadequately defined, may create loopholes and in some cases open the door to greenwashing.

Its white paper proposes three key performance indicators (KPIs) and corresponding benchmarks and trend analyses to provide transparency to internal and external supervisory bodies, investors, parliaments, and regulators in the world's major aviation markets.

The platform aims to deliver a transparent roadmap to reduce carbon dioxide (CO2) emissions from aviation to net zero by 2050. Impact is funded by the pro bono contributions of its members, which comprise global financiers in the aviation sector.

The KPIs include the absolute carbon footprint of an airline or a portfolio of aircraft; the efficiency (intensity) with which an aircraft can produce a given transport service; and finally, the degree to which the evolution of CO2 is decoupled from the evolution of capacity.

"The bottom line is just three KPIs," Philipp Goedeking, the founder and managing partner at Avinomics, and Impact member tells *Airfinance Journal*. "We have talked to some of the major airlines and the feedback is that the three KPIs could be implemented with little to no effort. One airline called it a no brainer. What we will try to do now is to convince the key decision makers, the key bodies in this game, that they should use and request this very simple metric.

"The airlines like the idea because it takes out a lot of red tape and costs. The same applies to any institution that depends on monitoring airlines."

Impact said that footprint describes the ultimate purpose of decarbonisation while intensity summarises what it means. The intensity/efficiency KPI, though, can in some cases, give the appearance of efficiency progress even though more CO2 is emitted.

Therefore, Impacts suggests a third KPI to measure the interdependency of CO2 and RPK is needed to complement the static perspective of the first two KPIs.

"It is often claimed that state-of-the-art aircraft will lead to fewer emissions. Yes, you get more efficient in the way use your fuel, but the related cost savings are frequently used to invest in even more growth. And this is not sustainable," Goedeking says. "We had a close look at data on absolute emission and on the effect of state-of-the-art technology and we thought there is something missing and we came up with decoupling."

Decoupling is a well-established figure in the sustainability literature, but has never been applied to individual companies, particularly to airlines.

According to him, decoupling allows the industry to understand that historically (until 2019) RPKs have gone up per year, but so did the CO2 emission. "But what we need to achieve is that, while we want the airlines to grow, it must be under the condition that they will succeed in decoupling the trend of CO2, so CO2 must go down and this is the licence to grow," he says. "If we do not succeed, it will be very difficult to justify the growth of the airline industry from a sustainability point of view. It is a must for this industry to demonstrate that we make significant progress in decoupling, And if this trend persists, we will reach net zero.

"With each year that passes by it's getting more and more demanding, but with decoupling, we can demonstrate the energy and the effort we put into the system to decarbonise."

Transparency

Only a minority of airlines – at most 15% of all airlines globally – publish their sustainability data, and where the data is published, there still seems to be some selectiveness in the information shared and a general lack of transparency.

"There's a lot of talk about purpose. But there is no decarbonisation strategy that can be effective in an empty space of data. If you don't know where the pollution, the emissions take place, and when by whom and at what level, then there is no way you can think, define, monitor or report or align a strategy," says Goedeking.

"Transparency is a must to have, an essential precondition to any strategy to any sustainability strategy. Therefore, it is one of the pillars of impact to help this industry to provide transparency, to know what we are doing and to know what we have to do".

He says the "clear message" in the database of all airline emissions reports since 2005 is that absolute CO2 emissions are increasing, while the industry only "pretends to improve" by citing efficiency metrics.

"The growth of the industry by far exceeds our ability to reduce CO2. This is the bad news. The good news is that you know, so you can start to improve. We want to see all the airlines report emissions as opposed to the maximum of 15% that do so now."

He argues that one of the strongest levers to improve the transparency of aviation sustainability is to simplify the metrics used to measure aviation sustainability and introduce a uniform reporting requirement.

Impact notes the major airlines that are required or compelled to file issue roughly 25 reports on their emissions annually, each to a different regulatory body, NGO, or rating agency, meeting different standards of scope and definitions, and at different times.

But the choice to allocate sub-contracted ACMI-operated flights (wetleases) as direct emissions (Scope 1) or as emissions from the supply chain (Scope 3) is largely left to the discretion of the airline.

Impact also notes fuel consumption is converted into CO2 emissions using a variety of methodologies. Some airlines report their figures only in relation to their passenger business, others concerning passenger operations, including belly cargo, while others add up the emissions of passenger flights and cargo flights.

Impacts says aircraft financiers are required to report detailed and accurate figures on the sustainability of their investments to internal and external supervisory bodies such as risk committees or central banks, but available figures on aircraft-related emissions can be challenging to compare.

"Without reliable emissions data, regulators and the public are similarly flying in the dark," said Impact. "Given these shortcomings, sustainability strategies in aviation are in danger of becoming void of relevance and perhaps increasing the risk of greenwashing. This would be an unfortunate result for the industry."

Footprint: effectiveness

Impact says its focus remains on assessing direct CO_2 emissions.

Are absolute CO_2 emission reductions sufficient for aviation to comply with the climate targets of the Paris Agreement?

This question is only about the "whether" of CO_2 reductions, not about the "how", says Impact. The corresponding KPIs should, therefore, be based on absolute amounts of CO_2 emissions for each asset, airline, or the airline industry as a whole.

"These effective CO_2 reduction KPIs should not be related to production volumes of any kind, because the issue at hand is not about the efficiency of resource use, but rather about absolute CO_2 reduction independent of production volume."

Intensity: efficiency

How much CO_2 is emitted per available seat kilometres (ASK), RPK, revenue tonne kilometres (RTK), passenger, or other indicators of production volume? CO_2 per passenger kilometres sold (CO_2/RPK) has been one of the most recurring efficiency metrics in sustainable finance transactions in the aviation sector to date.

Impact argues efficient use of CO_2 is a prerequisite for effective decarbonisation if decarbonisation is not to come from a large-scale reduction in flights. Efficiency-based KPIs are "relevant and appropriate" to measure the contribution of technological advances with regard to the potential for effective decarbonisation.

However, efficiency metrics such as CO_2/RPK or others can show a positive trend while underlying CO_2 is increasing. For that reason, Impact stresses that there is a clear risk of misinterpreting efficiency ratios.

However, Impact says it is important to bear in mind that as long as airline capacity increases faster than resulting CO_2 emissions are reduced, there is a considerable risk of misinterpretation.

Transition trend: decoupling

Impact indicates that there will be an extended transitional phase until the new technologies are fully introduced and effective in reducing CO_2.

Until now, CO_2 emissions have grown linearly with capacity. Moving forward, Impact says CO_2 emissions need to decline at a greater rate than capacity increase in order to stand a chance of achieving the net zero goal. This also needs to be delicately balanced against the ability of the aviation industry to prosper, in order to fulfil its social and economic function and afford investments in sustainable technologies.

KPI scopes

Impact insists it is not simply a matter of setting KPIs, but defining their scope within airline businesses is also important. The effectiveness of KPI reporting could be "undermined" if an airline reports the correct KPIs only covering its passenger business, while another covers both passenger and freight flights.

CO_2

The airlines' reporting of Scope 1 (emissions flight and ground operations), Scope 2 (emissions from buildings) and Scope 3 (emissions of the value chain, upstream and downstream) is far from uniform.

"While the greenhouse protocol corporate standard's scope classification has its merits, this differentiation does not help to compare emissions by airline or aircraft type," says Impact. "We thus recommend focusing on direct CO_2 emissions for the context of sustainable aviation financing."

There are no scientifically accepted standards for converting fuel or CO_2 into CO_2 equivalents (ie, the CO_2-equivalent climate impact of various gases). For this, several of the non-CO_2 climate gases depend strongly on factors such as flight altitude.

The group says the idea of measuring CO_2 equivalents is correct in principle, but it cannot be practically implemented in aviation.

The focus should, therefore, be on CO_2 until simple and unambiguous measurement methods are available for the other relevant greenhouse gases.

Payload

Intensity is based on the ratio of CO_2 emissions to capacity produced (eg, RPK). CO_2 and RPK must, therefore, relate to the same capacity, argues Impact.

"For example, CO_2 must not refer to the emissions of the entire fleet of passenger and cargo aircraft, while in the denominator only operations by passenger aircraft are considered."

Intensity is the key figure most frequently reported by airlines. The key figures for CO_2 and RPK used to calculate intensity should therefore also be those used for calculating direct emissions and RPK, it adds.

Capacity

Some airlines transport only passengers, some passengers and cargo, others only cargo. To compare the emissions data of these different airline business models, capacity should be measured in tonnes, not in number of seats offered or sold, says Impact.

"Very few airlines publish their capacity in tonnes (eg, in terms of ATK or RTK). However, by far the most common – and still meaningful – key figure today is the number of revenue passenger kilometres, or RPK."

Therefore, RPK should be the standard for the time being. At the same time, airlines should be encouraged to publish their capacity in RTK (freight tonnes sold) as soon as practicable, it adds.

Periodicity

To ensure comparability of the reporting periods, Impact says emissions data that does not relate to the calendar year should be converted proportionately to the calendar year. Ideally, the reporting cycles of the non-financial reports should also refer to the calendar year instead of the fiscal year from the outset.

Airlines

Airline groups or holding companies often report part of their emissions data only at group level, and other data only for the flying subsidiaries.

"This is inadequate since it impedes comparability. It is often argued that it is the holding company that allocates aircraft to the subsidiary airlines. However, it is these subsidiaries as operating carriers that cause the direct emissions," says Impact.

For aircraft financiers, Impact says it is "essential to know the key figures on emissions and capacity" of their contractual partners, so data must be published both at group level and for each individual operating carrier.

Follow up

Impact says increased transparency in aviation decarbonisation will assist regulators and policymakers in supporting actions that will expedite the pathway to net zero.

It will issue a follow up white paper with details about the practical implementation of its three proposed KPIs, individually or as a basket, as covenants for financing documentations.

It wants to see aircraft financiers consider "tying the financing of aircraft to the performance of the decoupling metrics" of the airlines concerned (sustainability-linked). The group also wants airlines to integrate these three metrics into their sustainability reports, if they are not already doing so.

New 70-seat models in pipeline

The 70-seat market has been dominated by ATR in recent years. **Geoff Hearn** looks at whether the segment is set to become more competitive.

ATR says the Evo will offer 20% fuel reduction over current ATR72s

After a period that has seen a number of 70-seat aircraft types ending production, there are signs that manufacturers may discover opportunities for new and updated models – particularly turboprops.

Embraer has been pushing its new turboprop for some time without eliciting much of a response from ATR, which seemed comfortable to rely on upgrades on current models to maintain market share. However, in mid-May the Franco-Italian manufacturer revealed plans for the next generation of its turboprop – dubbed the ATR Evo. The new model will remain a twin-engined turboprop and there is no mention of stretching the aircraft.

The Toulouse-based manufacturer plans for the new model to enter service by 2030. ATR says it will offer a 20% fuel burn improvement over current models and will be capable of operating on 100% sustainable aviation fuel. The company is also promising a 20% maintenance cost advantage from the new aircraft over current ATR-600 models. The plan foresees a new powerplant with hybrid capability, new propellers and enhanced cabin and systems. ATR has told *Airfinance Journal* it is exploring a change from six- to eight-bladed propellers for further optimisation.

Senior vice-president engineering, Stephane Viala, says ATR has issued a request for information to the main engine manufacturers for the development of a new powerplant "that will combine existing and future-generation engine technology".

New-technology engines are the key to enabling the aircraft manufacturers to launch new models. Embraer has already asked for proposals for a new design. Sources have told *Airfinance Journal* that Rolls-Royce is keen to provide an engine and has relatively advanced plans that would meet the requirements of the airframe manufacturers.

The size of the potential market will be key to the engine manufacturers' decisions about investing in new programmes. At the Farnborough air show in July, ATR presented its latest forecast, which predicts demand for at least 2,450 turboprops over the next 20 years. The majority of

Key data of recent 70-seat models

Model	ATR72-600	Dash 8-400	CRJ700	E170	E175
Maximum seats	78	90	78	80	88
Typical seats	70	74	70	70	78
Typical range (nautical miles)	825	1,010	1,220	2,100	2,000
Entry into service	2011	1999	2001	2004	2005
In-service	482	445	296	138	656
Stored	94	125	46	27	51
2021/22 orders	23/13	0	0	0	36/11
Order backlog	125	0	0	0	162

Source: Air Investor/*Airfinance Journal* and Fleet Tracker, 31 July 2022 the demand is expected to come from replacements, but the forecast also predicts that the global fleet of turboprop passenger aircraft with at least 30 seats will rise from 1,950 units in 2022 to 2,660 in 2041. The biggest rises are anticipated in Asia-Pacific, China and Latin America. ATR's vice-president and head of marketing, Zuzana Hrnkova, confirmed to *Airfinance Journal* that out of the 2,450 turboprops forecast, 1,830 are for the 61- to 80-seat market.

The manufacturer believes that its projections are conservative, because they are based on current regulatory and technological environments. The commentary accompanying the forecast cites increasing fuel prices and carbon taxation, together with greater passenger demand for lower emission travel, as drivers that will favour low-carbon-emitting aircraft, such as turboprops. The report suggests that new, disruptive technologies will bring turboprops to the forefront of the aviation industry.

The 70-seat segment may be a relatively limited market compared with the larger single-aisle sector, but interest from two parties might help convince the engine manufacturers that there is sufficient demand to justify funding the necessary development programmes. The recent announcement by General Electric that the CF34 engine, which powers the bulk of regional jets, has surpassed 200 million flight hours, with more than 8,000 units delivered, might also provide some encouragement.

However, ATR's move comes just as Embraer presses the pause button. The Brazilian manufacturer says it will wait until 2023 to disclose further information about its planned new turboprop. Reports suggest the company remains undecided about whether to first develop a 70- or a 90-seat variant. The 70-seat version is seen as more suited to the important North American market. Embraer has said its new turboprop would share a fuselage with its E-Jet and feature aft-mounted engines. At a recent press briefing, the company emphasised that it would seek a strategic partner for the turboprop programme.

Secondary market

The potential launch of new projects in the 70-seat category is set against a discouraging background. Perhaps the most obvious negative indicator is de Havilland Canada's decision in 2020 to suspend its Dash 8-400 production. Despite expressing the intention to restart when orders justified it, new aircraft are not yet in the pipeline.

De Haviland is, however, offering a set of improvements to the aircraft – notably increased design weights to allow greater passenger payloads and increased range.

Indicative relative cash operating costs in high fuel price environment ($2 per US gallon)

Sector length	ATR72-600	Dash 8-400	CRJ700	E170
200 nautical miles	Base	+24%	+39%	+42%
500 nautical miles	Base	+18%	+23%	+30%

Assumptions: Figures are based on *Airfinance Journal*'s interpretation of manufacturer claims and published data

The manufacturer confirmed to *Airfinance Journal* that the new design weights were retrofittable and would be available on new production aircraft.

The Dash 8 hiatus, the ending of production of the CRJ700, following its transfer from Bombardier to Mitsubishi, and the absence of sales of the Embraer 170 in favour of the E175, leave the ATR72-600 as the only genuine 70-seater in production. There is, however, an active secondary market.

Chris Beer, managing director, Skyworld Aviation, says there is increasing interest in both regional jets and turboprops. Analysis by the UK-headquartered regional aircraft specialist shows a steady stream of aircraft returning to service. For example, the Dash 8-400 active fleet as of August 2022 was 25% above its June 2021 level. The Skyworld analysis suggests the regional market has been more robust than the mainline narrowbody market.

One limiting factor on the appetite for regional jets is that engines on large numbers of the current fleet are running out of cycles/hours (green time). The cost of shop visits can be very high and are disproportionate to the seating capacity of the aircraft. The cost of an engine shop visit together with replacement life-limited parts can easily reach $6 million on both the Embraer and Mitsubishi CRJ models.

Freighter activity increasing

Freighters are becoming increasingly important to the 70-seat market with leasing companies viewing conversions as a means of extending the lives of their asset. The July agreement between Nordic Aviation Capital and Akkodis for freighter conversion kits for the ATR72-600 is a recent example. First deliveries of the kits may start as early as the first quarter of 2023.

In its market forecast, ATR predicts that the current fleet of 380 turboprop freighters will increase to 550 units by 2041. A large proportion of the future fleet will be in the up-to-nine-tonnes category, which equates to aircraft of about 70 seats. Embraer is also upbeat about the prospects for freighter versions of its current models, but the company's main focus is conversions of the larger E190 and E195 models.

Operating costs

The 70-seat sector has traditionally been divided between turboprops and regional jets and much debate has focused on the relative operating costs of the two technologies.

There have been many claims and counter claims from the respective manufacturers but there is no doubt that the turboprops are more suited to shorter sectors with regional jets coming into their own on longer routes.

Where the boundary lies is a matter of debate. The Dash 8-400 has attempted to straddle the gap by offering higher speeds than traditional turboprops, while maintaining lower fuel burn than the equivalent regional jets.

If both Embraer and ATR bring their new turboprops to market, this debate may become academic for new acquisitions – because no new pure jets are currently in the pipeline. However, the comparison will remain an important factor in the secondary market.

On a 200-nautical mile sector in a high fuel price environment ($2 per US gallon), previous analysis by *Airfinance Journal* has indicated that the cash operating costs of the regional jets are about 40% higher than the ATR72-600. The Dash 8-400 is more competitive than the regional jets but struggles to compete with the more conventional turboprop with a 24% higher cash cost. However, the high-speed turboprop can offer more seats. On a 500-nautical mile sector, the jets are significantly more competitive and, given typically lower capital costs, they become attractive.

Whether the acquisition costs of regional jets will be sufficiently low to impact the prospects of any new turboprops is a matter of conjecture. It may well be that environmental considerations rule out the use of older-technology aircraft, although the availability of sustainable aviation fuels (SAF) might delay the demise of potential competitors to the new generation of aircraft.

However, SAF will be expensive to produce for the foreseeable future, which swings the argument back in favour of new-technology aircraft. All of which is no doubt being discussed in the boardrooms of ATR, Embraer and the engine manufacturers.

Larger Max models looking to compete with A321

Geoff Hearn reviews the market for the Boeing 737 Max 9 and Max 10, and gets some views on the prospects for values and lease rates.

The ending of the US Federal Aviation Administration (FAA) grounding in November 2020 and the subsequent easing of restrictions by many authorities around the world have paved the way for the Boeing 737 Max to return to service. The baseline Max 8 variant has been the main beneficiary of the lifting of the ban, but also it has allowed deliveries of the larger Max 9 to restart.

Additionally, there should be a boost to the yet-to-be-certified Max 10 variant, although other factors may jeopardise the prospects for the largest model in the Boeing single-aisle family.

In March, the FAA warned Boeing that it might not gain certification of the 737 Max 10 ahead of a critical safety deadline set by US Congress. Boeing's chief executive officer, Dave Calhoun, has said the company could cancel the Max 10 if regulators do not certify the aircraft before new crew-alerting system standards take effect.

The Boeing 737 Max 10 faces certification hurdles

Signs of improvement

There are indications that an appetite for the largest Boeing model is returning, with the US manufacturer registering 150 orders for the model in 2021. However, there had been no orders in 2022 prior to the Farnborough air show. A number of announcements were made at the show, although many of them had been trailed previously.

Confirmation of an expected sale to Delta Air Lines came with the carrier ordering 100 Max 10s with options for an additional 30 units. Although the deal was no surprise to the market, a large order from a major US carrier gives a significant boost to the largest Max model.

In a further development, Qatar Airways finalised an order for 25 Max 10s, following the memorandum of understanding signed in January.

The Max programme had a breakthrough in May when International Airlines Group (IAG) announced it had reached agreement with Boeing to order 25 737 Max 8s and 25 Max 10s, plus 100 options. The order remains subject to IAG shareholder approval, but is a significant commitment from a company that has previously favoured the A320 family.

Boeing announced that the 737 production rate increased to 31 units a month during the second quarter of 2022. Increasing production capacity for the larger Max models will be key to allowing Boeing to reclaim some market share.

Chinese approval pending

Whilst not directly impacting the Max 10, China's continuing grounding of the smaller Max family members is likely to be hindering its sales in the country, which is a major concern for Boeing as the Chinese market accounts for around 20% of all single-aisle aircraft sales. There are some indications that the Chinese authorities are preparing to lift the ban, but there have been no official announcements and tensions over Taiwan are not helping.

Strong competition

The commercial aircraft world is accustomed to Boeing and Airbus gaining roughly equal market shares – particularly in the single-aisle sector. This has generally been regarded as a positive outcome for airlines and financiers, but there is increasing concern in the industry that the balance is moving too much in Airbus's favour.

Taking the larger models of the new generations in isolation shows an overwhelming advantage for Airbus in terms of sales. The Airbus A321neo and XLR models have amassed more than 4,300 orders – way ahead of the combined total for the Max 9 and Max 10.

The industry consensus is that the 737 Max 10 is not as effective in its overall versatility, performance capacity and passenger appeal as the A321. However, *Airfinance Journal*'s analysis suggests that the competing models are relatively well matched in terms of operating cost. The results imply the cash-cost differential per trip between the Max 9 and the baseline A321neo is in the Boeing aircraft's favour, but this advantage is reversed in the case of cost per seat. If typical layouts are considered, the Max 10 has a small cost per seat advantage over the A321neo but this is negated for the case of maximum capacities. The sales figures suggest that airlines and lessors are basing acquisition decisions on criteria other than pure cost.

Orders and deliveries of larger Boeing single-aisle models

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022 (to 31 July)
Max 9 orders	162	36	23	42	61	71	0	0	0	0	21
Max 10 orders	196	37	23	47	43	160	18	0	0	150	125
Max 9 deliveries							20	8	9	37	34

Source: Airfinance Journal Fleet Tracker. Includes subsequently cancelled orders

737 Max-family background

The Boeing 737 Max models are the fourth generation of the 737, although the latest variants retain similarities with earlier designs, the Max family incorporates major technological advances from the so-called Next Generation (NG) models, which were already substantially enhanced from the original 737 types.

According to the manufacturer, the aircraft's key features include: new engines, updated flight deck and new interior. The aircraft offer substantial fuel burn and range advantages over the aircraft they replace. As with the NG family, Boeing has opted to go with CFM as a single source engine supplier, selecting the LEAP-1B engine as the sole powerplant option. The Max-family aircraft are all equipped with Boeing's Sky Interior, which was introduced as an option on NG models in 2010.

The Max family includes four variants. The Max 8, which replaces the successful 737-800, was the first to enter service in 2017. However, the fleet (together with a few Max 9s) was grounded in March 2019 and was not cleared to enter service in the US until November 2020. The grounding has had an impact on the development of the largest variant, the Max 10, which has had its entry into service delayed until 2023. This delay is hampering Boeing's attempts to compete with the Airbus A321, which is becoming the dominant model in the market.

Key data of 737 Max family models

Model	Max 7	Max 8	Max 9	Max 10
Maximum seats	172	210	220	230
Typical seats	138-153	162-178	178-193	188-204
Typical range (nautical miles)	3,850	3,550	3,550	3,300
(Target) entry into service	(2022)	2017	2018	(2022)

Source: Air Investor 2022

An Appraiser's view

Olga Razzhivina, senior Istat appraiser, Oriel

Originally the largest member of the Boeing 737 Max family, the Max 9 is designed to replace the 737-900ER. It offers 220 seats at maximum capacity – 10 more than the Max 8 model. Maintaining the same range as the smaller Max 8 required the introduction of an auxiliary fuel tank, which reduced belly cargo volume.

Given the growth trend in the single-aisle sector and the strong competition from the Airbus A321neo with its 240-seat interior, the Max 9 offering fell short of airlines' expectations.

Even though deliveries started in 2018, Oriel understands that the total orderbook is marginally lower than that of the smaller Max 7. This is telling, because the smallest members of single-aisle families historically have been the least popular.

In response to market reaction, Boeing introduced the larger Max 10 in 2016. The new variant offers a further 10 additional seats bringing its maximum seating capacity to 230. Its range is lower than that of other Max variants, but it appears to suit Boeing customers looking for the 737NG replacement mainly on US transcontinental and Asian regional networks.

Despite its late launch, the Max 10 has already garnered more than 650 orders. The latest came at the Farnborough air show from Qatar Airways for 25 aircraft and from Delta Air Lines for 100 aircraft. The latter could be far more significant than simply boosting the orderbook.

With the certification deadline of 2022 year-end unlikely to be met, Boeing needs domestic support from US airlines. With the backing of Delta adding to the support of existing customer United, the cancellation of the Max 10 programme mooted by Boeing is now less likely.

Experience of previous single-aisle families suggests that the value retention of both larger Max variants is likely to be relatively strong, second only to the most popular Max 8. The ability to increase capacity in a slot-limited operating environment, while benefitting from fleet commonality, is a strong driver of orders for the larger members of a family. The 1,500 Max orders, which have yet to be allocated to a specific variant, may well bolster figures for the Max 9 and 10, as airlines gauge their longer-term needs.

The early start to sale and leaseback trading points to the value retention potential of the Max 9. With Boeing having to place some of its grey tails (orders not taken up by the original customers because of the Max grounding), attractive pricing may have contributed to the appeal. The Max 10 is likely to benefit long term from its selection by large operators such as United Airlines and Delta.

Both carriers tend to keep their aircraft for many years and often take aircraft from other operators in the secondary market. The Max 9 is likely to be a niche aircraft suited to longer, thinner routes, complementing more popular Max-family members.

Oriel view of 737 Max 9 values and lease rates

Build year	2018	2019	2020	2021	2022 (new)
Current market value ($m)	35.3	36.3	37.8	44.8	52.8
Lease rates ($'000s/month)	300	310	320	335	360

Maintenance status assumes half-life, except for the new aircraft, which assumes full-life, and one-year-old aircraft, which assumes 75% life.
Aircraft specifications: MTOW 181,200lb, LEAP-1B28 engines.

Rating agency unsecured ratings

Airlines

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

Source: Ratings Agencies - 25/08/2022

Lessors

	Fitch	Moody's	S&P	Kroll Bond Ratings
Aercap	BBB-(pos)	(P)Baa3(stable)	BBB(stable)	-
Air Lease Corp	BBB(Stable)	-	BBB(stable)	A-(stable)
Aircastle	BBB(stable)	Baa3(Stable)	BBB-(stable)	-
Avation PLC	WD	-	B-(stable)	-
Aviation Capital Group	-	Baa2(stable)	BBB-(stable)	A-(stable)
Avolon Holdings Limited	BBB-(Stable)	Baa3(stable)	BBB-(stable)	BBB+(stable)
AWAS Aviation Capital Limited	-	Baa3(Stable)	-	-
BOC Aviation	A-(stable)	-	A-(stable)	-
CCB Leasing (International) Corporation	-	-	A (stable)	-
CDB Aviation Lease & Finance	A+(stable)	A2(stable)	A (stable)	-
Dubai Aerospace Enterprise	BBB-(Stable)	Baa3(stable)	-	BBB+(stable)
Fly Leasing	-	B3(neg)	B-(neg)	BB-(neg)
Global Aircraft Leasing	-	B1(neg)	-	-
ICBC Financial Leasing	A(stable)	A1(stable)	A(stable)	-
ILFC (Part of Aercap)	BBB-(pos)	Ba2(hyb)(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)	-	BBB+(stable)
SMBC Aviation Capital	A-(neg)	-	A-(stable)	-
Voyager Aviation	WD	WD	-	WR

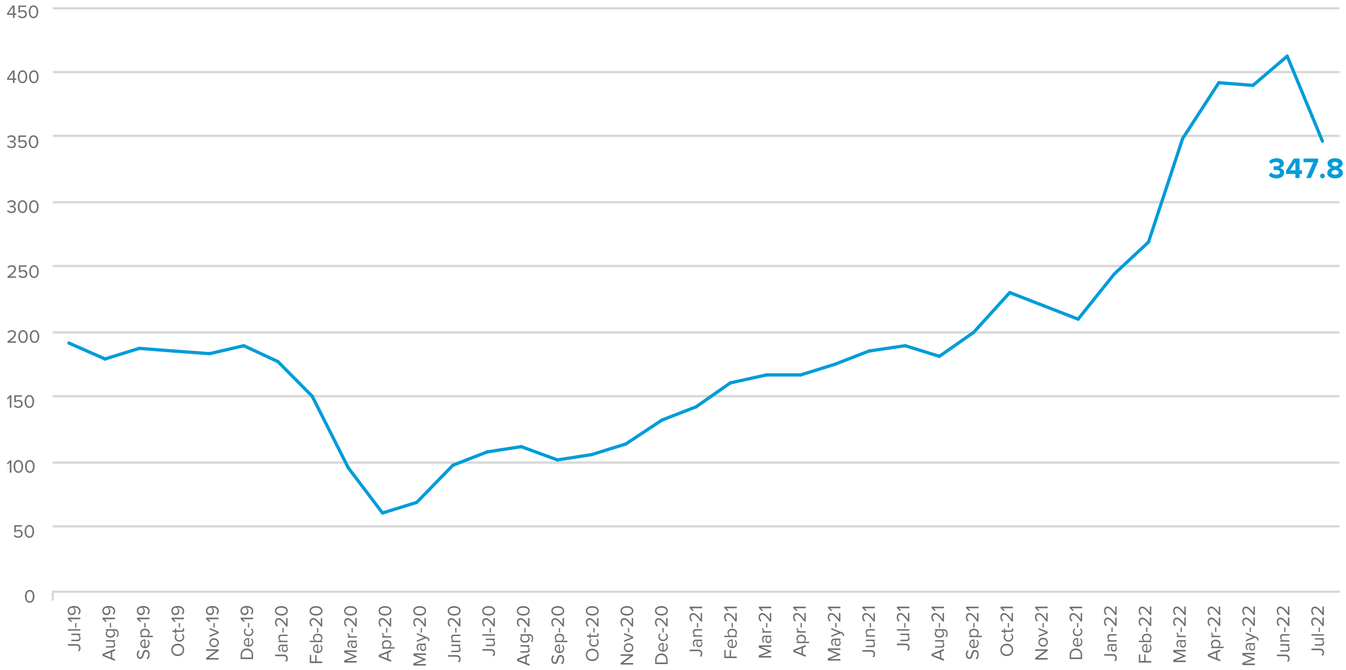
Source: Ratings Agencies - 25/08/2022

Manufacturers

	Fitch	Moody's	S&P
Airbus Group	BBB+(stable)	A2(stable)	A(stable)
Boeing	BBB-(stable)	Baa2(neg)	BBB-(neg)
Bombardier	WD	B3(stable)	B-(stable)
Embraer	BB+(stable)	Ba2(stable)	BB(pos)
Rolls-Royce plc	BB-(stable)	Ba3(stable)	BB-(stable)
Raytheon Technologies Corp	-	Baa1(stable)	A-(neg)

Source: Ratings Agencies - 25/08/2022

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



Source: *US Energy Information Administration*

Commercial aircraft orders by manufacturer

	Gross orders 2022	Cancellations 2022	Net orders 2022	Net orders 2021
Airbus (31 July)	843	187	656	507
Boeing (31 July)	416	54	362	535
Embraer	51	0	51	81
ATR	24	0	24	35

Based on *Airfinance Journal* research and manufacturer announcements until 29/08/2022

Recent commercial aircraft orders (July-August 2022)

Customer	Country	Quantity/Type
Abelo	Ireland	10 ATR42-600S, 10 ATR72-600
Aercap	Ireland	Five 787-9
Afrijet	Gabon	One ATR72-600
Alaska Air Group	USA	Eight E175
ANA Holdings	Japan	20 737 Max 8, 18 777-9, two 777-8F
Aviation Capital Group	USA	12 Max 8
Delta Air Lines	USA	One A330-900
Delta Air Lines	USA	100 Max 10
Delta Air Lines	USA	12 A220-300
Etihad Airways	UAE	Seven A350F
International Airline Group	UK	Five A320neo, one A321neo
Malaysia Aviation Group	Malaysia	10 A330-900
Oriental Air Bridge	Japan	One ATR42-600
Porter Airlines	Canada	20 E195-E2
Qantas	Australia	20 A220-300, 20 A321neo
Pegasus Airlines	Turkey	Eight A321neo
Silk Way West Airlines	Azerbaijan	Two A350F
777 Partners	USA	30 737 Max 8200
UPS	USA	Eight 767 Freighters
Air Canada	USA	Two 777F
FedEx Express	USA	One 777F

Based on *Airfinance Journal* research July-August 2022

New aircraft values ($ million)

Model	Values of new production aircraft*
Airbus	
A220-100	32.6
A220-300	37.4
A319neo	37.4
A320*	40.6
A320neo	50.4
A321*	47.7
A321neo	58.6
A330-800	87.5
A330 900	102.4
A350-900	146.3
A350-1000	159.0
A380	140.7
ATR	
ATR42-600	15.3
ATR72-600	19.0
Boeing	
737-800*	33.8
737 Max 8	47.8
737 Max 9	49.4
767F	80.0
777-300ER	132.4
777F	161.4
787-8	107.5
787-9	138.0
787-10	148.1
De Haviland	
DHC 8-400*	19.6
Embraer	
E175	26.4
E190-E2	31.1
E195-E2	33.9
Sukhoi	
SSJ100	20.0

Based on ISTAT appraiser inputs for Air Investor 2022. *Values for last year of build

New aircraft lease rates ($'000 per month)

Model	Low	High	Average
Airbus			
A220-100	210	245	227.5
A220-300	230	270	250
A319neo	227	290	258.5
A320*	210	310	260
A320neo	285	380	332.5
A321*	269	360	314.5
A321neo	325	430	377.5
A330-800	562	700	631
A330 900	655	750	702.5
A350-900	850	1,100	975
A350-1000	900	1,250	1,075
A380	640	1,234	937
ATR			
ATR42-600	105	135	120
ATR72-600	115	165	140
Boeing			
737-800*	125	325	225
737 Max 8	265	340	302.5
737 Max 9	265	340	302.5
767F	400	700	550
777-300ER	850	1,015	932.5
777F	950	1,260	1,105
787-8	630	875	752.5
787-9	805	1,100	952.5
787-10	835	1,150	992.5
De Haviland			
DHC 8-400*	125	180	152.5
Embraer			
E175	170	241	205.5
E190-E2	190	225	207.5
E195-E2	216	260	238
Sukhoi			
SSJ100	140	198	169

Deglobalisation's risk to efficiency

Aviation will undergo many big changes, says **Adam Pilarski**, senior vice-president at Avitas, although what they are remains unclear. But one thing is for sure – the move to deglobalisation is already underway.

The annual air shows in Paris and Farnborough used to produce a lot of excitement and generate eye-popping announcements regarding new products and new sales. This year's Farnborough air show was quite different from those in previous years. Not many orders were announced. Indeed, the largest order (some Chinese carriers ordering almost 300 aircraft from Airbus) was announced weeks before the show.

No really new aircraft were introduced. Instead, everybody talked about the undefined, for the time being, technological future, a future that will bring about carbon neutral aviation and many new wonderful developments.

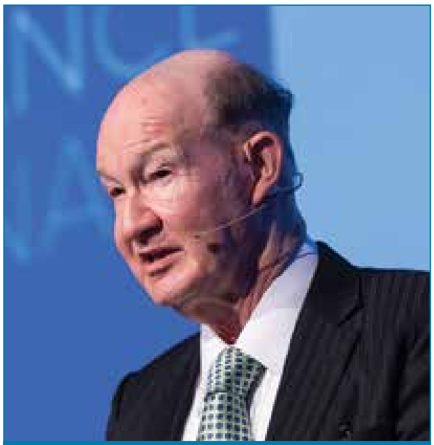
In the meantime, we must address the huge overhang of problems and/or challenges that are facing us right now. All these have a profound impact on our industry. Starting with the most obvious – Covid cannot be officially declared over yet.

Unfortunately, this represents the most serious uncertainty and threat to the industry. What new variants can we expect? When can we declare the pandemic a relic of the past?

The second great uncertainty is related to the European war going on right now. There also is no visible path to a clear resolution of the Ukrainian war. We do know that the impact on aviation is profound and negative, though not as devastating as the virus has been. At least for now, because the fighting could escalate and involve more countries leading to a global war.

Another factor contributing to the uncertainties facing aviation is related to the growing emphasis in the world on preventing global warming. I am quite certain that the efforts to decarbonise aviation will not whither away but gain momentum across the globe. Good for the environment, not as good for aviation right now. Also, supply chain disarray enhances our feeling of uncertainty in the aviation industry's current situation.

Finally, the worldwide rise of interest rates and much higher rates of inflation put a damper on the ability to forecast the future accurately.



Our author at the *Airfinance Journal* Dublin 2022 conference

> *Unfortunately, this represents the most serious uncertainty and threat to the industry.*

All the myriad of uncertainties led the attendees at Farnborough to avoid prognostications about actual developments and concentrate rather on the very long-term future when many of today's problems would have been solved years earlier. With the current state of long-term predictions of demand highly uncertain, we are also faced with an unusual problem: the supply numbers are equally as uncertain. With the supply chain problems facing the industry, manufacturers cannot make realistic promises regarding deliveries. So, the only factor that is certain is that big changes are coming both now and in the longer run.

Let me start with an obvious change that is already happening and this is the move towards deglobalisation, which will affect efficiency and risk.

Efficiency

Globalisation has transformed the world in the past few decades. People got used to low prices, speedy availability of goods demanded and a plethora of new products. It was a heaven for consumers. Trade increased as percent of GDP and outsourcing became fashionable, resulting in low inflation rates across the globe. This led to intensified competition, just-in-time manufacturing, which enabled lower inventories thereby saving money and much more trade, which incidentally was a boon for aviation.

While consumers worldwide benefitted, producers did not always. The life of some workers became more difficult and uncertain. This started developments by which attempts were made to limit competition with cheap imports.

Those who were on the losing end of such a situation could use politics to help themselves. Through the electoral process they could ban more-efficient (cheaper) producers from competing with them. The political environment kept evolving towards more nationalistic and populist policies. That mantra was repeated all over the world and had something to do with Brexit.

Risk

Specialisation and outsourcing relied on the most-efficient suppliers, which reduced costs but increased risk for producers. The Tohoku earthquake in Japan in 2011 proved that relying on one supplier far away carries increased risk to viability of production. Multisourcing is more expensive (less efficient) but safer. So is keeping large inventories of parts.

The example of production problems with the initial Boeing 787 units demonstrated that outsourcing too much might have looked good on paper but led to delays and cost overruns. Companies started outsourcing less and securing more parts from businesses close by. Horizontal was partially replaced with vertical integration to reduce risk to the supply chain. Firms wanted to be in charge of their own supply chains. Covid-19 made these developments even more pronounced.

We are definitely entering a period when cost will be increasing but trade will not increase much. We will be sacrificing efficiency for the sake of risk reduction. For aviation this will mean not as fast growth as previously predicted.

AIRFINANCE JOURNAL

An *Airfinance Journal* special supplement

Airline top 100 2022

Top 100 **airlines**[1]

		Basic information			TAA Financial Rating			TAA Ratings - Last 3 LTM		
Rank	Airline	Country/Region	Most recent 12 month "Latest Twelve Months" (LTM)	LTM Revenues [USDm]	Score for 12 month period prior to LTM-1 period	Score for 12 month period prior to most recent LTM period	Score for most recent 12 month (LTM) period	LTM-2 rating	LTM-1 rating	LTM rating
1	Air Arabia	UAE	31-Mar-22	1,028	7.5	6.8	7.8	AA	A+	AA+
2	Korean Air	South Korea	31-Mar-22	8,705	2.9	5.5	7.1	CCC+	BBB	AA-
3	Harbor Diversified, Inc.	USA	30-Jun-22	290	3.7	4.1	7.1	B+	BB-	AA-
4	Ryanair	Ireland	30-Jun-22	7,978	6.6	2.9	6.4	A	CCC+	A
5	Southwest Airlines	USA	30-Jun-22	21,152	5.2	4.5	6.3	BBB-	BB	A-
6	Copa Holdings	Panama	30-Jun-22	2,285	6.0	3.0	6.2	BBB+	B-	A-
7	EVA Airways	Territory of Taiwan	30-Jun-22	4,389	4.2	4.9	6.0	BB-	BB+	BBB+
8	Turkish Airlines	Turkey	30-Jun-22	14,407	3.9	4.9	6.0	B+	BB+	BBB+
9	Air Wisconsin	USA	31-Mar-22	265	3.0	4.8	5.9	CCC+	BB+	BBB+
10	Air Greenland	Denmark	31-Dec-21	197	5.4	5.4	5.8	BBB	BBB	BBB+
11	Jazeera Airways	Kuwait	30-Jun-22	471	4.9	3.0	5.8	BB+	B-	BBB+
12	Qatar Airways	Qatar	31-Mar-22	14,441	2.2	3.5	5.8	CCC-	B	BBB+
13	Alaska Air Group	USA	30-Jun-22	8,191	4.9	2.9	5.7	BB+	CCC+	BBB+
14	China Airlines	Territory of Taiwan	30-Jun-22	5,536	4.3	4.8	5.7	BB-	BB+	BBB+
15	Grupo VivaAerobus	Mexico	30-Jun-22	1,232	3.8	4.7	5.6	B+	BB+	BBB
16	Volaris	Mexico	31-Dec-21	2,194	4.2	3.6	5.6	BB-	B	BBB
17	Republic Airways	USA	31-Mar-22	1,227	5.5	4.3	5.6	BBB	BB-	BBB
18	SIA Group	Singapore	31-Mar-22	5,646	4.5	3.1	5.4	BB	B-	BBB
19	Cathay Pacific	Hong Kong	30-Jun-22	6,194	2.1	3.2	5.3	CCC-	B-	BBB-
20	Sun Country Airlines Holdings	USA	30-Jun-22	792	N/A	3.9	5.3		B+	BBB-
21	SkyWest Airlines	USA	30-Jun-22	3,056	5.2	3.9	5.2	BBB-	B+	BBB-
22	Allegiant Travel Company	USA	30-Jun-22	2,086	5.8	4.2	5.2	BBB+	BB-	BBB-
23	Air Astana	Kazakhstan	30-Jun-22	850	3.6	4.8	4.9	B	BB+	BB+
24	Atlantic Airways	Denmark	31-Dec-21	72	4.7	3.1	4.7	BB+	B-	BB+
25	Emirates	UAE	31-Mar-22	16,082	4.4	3.5	4.6	BB	B	BB
26	Air France-KLM	France	30-Jun-22	23,322	2.9	2.9	4.5	CCC+	CCC+	BB
27	Jet2 plc	UK	31-Mar-22	1,684	6.3	4.5	4.5	A-	BB	BB
28	Wideroe	Norway	31-Dec-21	491	2.9	1.1	4.5	CCC+	CC	BB
29	Asiana Airlines	South Korea	31-Mar-22	4,081	1.3	2.5	4.3	CC	CCC	BB-
30	Luxair Group	Luxembourg	31-Dec-21	541	5.8	2.1	4.3	BBB+	CCC-	BB-
31	Biman Bangladesh	Bangladesh	30-Jun-21	485	3.7	2.8	4.2	B+	CCC+	BB-
32	PAL Holdings	Philippines	30-Jun-22	1,924	1.5	1.9	4.2	CC	CC	BB-
33	Pegasus Airlines	Turkey	30-Jun-22	1,811	5.2	3.6	4.0	BBB-	B	BB-
34	VietJet Air	Vietnam	30-Jun-22	738	2.2	2.4	4.0	CCC-	CCC	BB-
35	Lufthansa Group	Germany	30-Jun-22	28,786	2.7	2.9	4.0	CCC+	CCC+	B+
36	Nordic Regional Airlines	Finland	31-Dec-21	86	3.2	3.1	4.0	B-	B-	B+
37	Virgin Australia	Australia	30-Jun-21	1,146	3.6	1.2	4.0	B	CC	B+
38	Chorus Aviation	Canada	30-Jun-22	1,073	4.9	4.5	3.8	BB+	BB	B+
39	Delta Air Lines	USA	30-Jun-22	41,796	4.5	2.9	3.8	BB	CCC+	B+
40	ANA Holdings	Japan	30-Jun-22	10,112	3.7	3.0	3.7	B+	B-	B+
41	Grupo Aeromexico	Mexico	30-Jun-22	2,983	1.6	3.0	3.7	CC	B-	B+
42	Skymark Airlines	Japan	31-Mar-22	421	4.6	2.9	3.6	BB	CCC+	B
43	SunExpress	Turkey	31-Dec-21	883	3.5	3.4	3.6	B	B	B
44	Air Serbia	Serbia	31-Dec-21	275	2.7	2.0	3.6	CCC+	CC	B
45	Air Caraibes Atlantique	France	31-Dec-21	206	3.2	3.7	3.5	B-	B+	B
46	Sun Country Airlines	USA	30-Jun-21	463	3.5	1.9	3.5	B	CC	B
47	United Airlines Holdings	USA	30-Jun-22	35,620	2.3	2.8	3.5	CCC-	CCC+	B
48	CityJet	Ireland	31-Dec-21	85	2.2	2.7	3.4	CCC-	CCC+	B
49	Spring Airlines	China	31-Dec-21	1,684	5.6	3.3	3.3	BBB	B-	B-
50	Air Tahiti Nui	France	31-Dec-21	152	3.9	3.2	3.2	B+	B-	B-

Source: *Airfinance Journal's The Airline Analyst*

[1] As rated by *AFJ Financial Ratings* on 22 August 2022 based on data from *The Airline Analyst*

		Basic information			TAA Financial Rating			TAA Ratings - Last 3 LTM		
Rank	Airline	Country/Region	Most recent 12 month "Latest Twelve Months" (LTM)	LTM Revenues [USDm]	Score for 12 month period (prior to LTM-1 period	Score for 12 month period (prior to most recent LTM period	Score for most recent (12 month (LTM) period	LTM-2 rating	LTM-1 rating	LTM rating
51	**Aegean Airlines**	Greece	31-Dec-21	813	5.0	2.9	3.2	BB+	CCC+	B-
52	**Cebu Pacific**	Philippines	30-Jun-22	600	2.9	3.1	3.1	CCC+	B-	B-
53	**China Express Airlines**	China	31-Mar-22	540	4.2	3.1	3.1	BB-	B-	B-
54	**Frontier Airlines**	USA	30-Jun-21	1,332	4.5	4.2	3.1	BB	BB-	B-
55	**IndiGo**	India	31-Mar-22	3,494	3.8	3.1	3.1	B+	B-	B-
56	**PLAY**	Iceland	30-Jun-22	16	N/A	1.5	3.1		CC	B-
57	**Royal Brunei Airlines**	Brunei	31-Mar-21	32	3.2	2.9	3.1	B-	CCC+	B-
58	**Wizz Air**	UK	31-Mar-22	1,936	5.6	3.1	3.1	BBB	B-	B-
59	**Aerolineas Argentinas**	Argentina	31-Dec-21	880	1.4	2.6	3.0	CC	CCC	B-
60	**Air New Zealand**	New Zealand	30-Jun-22	1,866	3.7	2.3	3.0	B+	CCC-	B-
61	**Avianca Holdings**	Panama	30-Sep-21	1,740	2.8	1.9	3.0	CCC+	CC	B-
62	**Flyr AS**	Norway	30-Jun-22	61	N/A	3.0	3.0		B-	B-
63	**Nok Air**	Thailand	30-Jun-21	145	1.7	1.7	3.0	CC	CC	B-
64	**Norwegian Air Shuttle**	Norway	30-Jun-22	1,271	2.1	3.0	3.0	CCC-	B-	B-
65	**Vueling Airlines**	Spain	31-Dec-21	1,233	4.4	3.0	3.0	BB	B-	B-
66	**Icelandair**	Iceland	30-Jun-22	934	2.5	2.8	3.0	CCC	CCC+	CCC+
67	**Aer Lingus**	Ireland	31-Dec-21	433	5.8	2.9	2.9	BBB+	CCC+	CCC+
68	**Air Canada**	Canada	30-Jun-22	9,013	3.5	2.9	2.9	B	CCC+	CCC+
69	**easyJet**	UK	31-Mar-22	3,714	5.5	3.0	2.9	BBB	B-	CCC+
70	**Finnair**	Finland	30-Jun-22	1,893	3.6	2.9	2.9	B	CCC+	CCC+
71	**Fly Gangwon**	South Korea	31-Dec-21	7	3.0	1.3	2.9	B-	CC	CCC+
72	**Hawaiian Airlines**	USA	30-Jun-22	2,173	3.6	2.9	2.9	B	CCC+	CCC+
73	**International Airlines Group**	Spain	30-Jun-22	17,686	4.1	2.9	2.9	BB-	CCC+	CCC+
74	**Japan Airlines**	Japan	30-Jun-22	7,064	5.9	2.9	2.9	BBB+	CCC+	CCC+
75	**Jin Air**	South Korea	31-Dec-21	216	2.7	2.9	2.9	CCC+	CCC+	CCC+
76	**Air Europa**	Spain	31-Dec-21	1,106	2.9	2.6	2.9	CCC+	CCC	CCC+
77	**Air Corsica**	France	31-Mar-21	105	2.9	2.9	2.9	CCC+	CCC+	CCC+
78	**Air France**	France	31-Dec-21	10,340	3.5	2.9	2.9	B	CCC+	CCC+
79	**Jeju Air**	South Korea	31-Mar-22	269	1.6	2.9	2.9	CC	CCC+	CCC+
80	**Tway Airlines**	South Korea	31-Mar-22	206	1.8	2.9	2.9	CC	CCC+	CCC+
81	**Hong Kong Airlines**	Hong Kong	31-Dec-21	870	1.4	1.9	2.8	CC	CC	CCC+
82	**Shandong Airlines**	China	31-Dec-21	1,941	2.8	3.0	2.8	CCC+	B-	CCC+
83	**Spirit Airlines**	USA	30-Jun-22	4,244	3.7	3.0	2.8	B+	B-	CCC+
84	**Air Do**	Japan	31-Mar-22	244	3.9	2.8	2.8	B+	CCC+	CCC+
85	**Croatia Airlines**	Croatia	31-Dec-21	126	2.5	2.8	2.8	CCC	CCC+	CCC+
86	**Enter Air**	Poland	31-Mar-22	317	2.5	2.8	2.8	CCC	CCC+	CCC+
87	**SATA Air Azores**	Portugal	31-Dec-21	40	1.2	2.9	2.8	CC	CCC+	CCC+
88	**airBaltic**	Latvia	30-Jun-22	385	2.5	3.2	2.7	CCC	B-	CCC+
89	**French Bee**	France	31-Dec-21	165	2.5	2.7	2.7	CCC	CCC+	CCC+
90	**Air Seoul**	South Korea	31-Dec-21	57	2.3	1.9	2.7	CCC-	CC	CCC+
91	**American Airlines Group**	USA	30-Jun-22	40,717	2.5	2.9	2.7	CCC	CCC+	CCC+
92	**Kenya Airways**	Kenya	30-Jun-22	810	1.4	1.8	2.7	CC	CC	CCC+
93	**Mesa Air Group**	USA	30-Jun-22	536	3.6	3.4	2.7	B	B	CCC+
94	**Royal Jordanian Airlines**	Jordan	31-Mar-22	588	2.7	2.9	2.7	CCC+	CCC+	CCC+
95	**Frontier Group Holdings, Inc**	USA	30-Jun-22	2,753	N/A	3.1	2.6		B-	CCC
96	**British Airways**	UK	30-Jun-22	9,651	4.3	2.9	2.6	BB-	CCC+	CCC
97	**jetBlue**	USA	30-Jun-22	7,986	3.6	2.9	2.6	B	CCC+	CCC
98	**Qantas Airways**	Australia	30-Jun-22	6,620	5.5	2.6	2.6	BBB	CCC	CCC
99	**Aeroflot**	Russia	31-Dec-21	6,650	2.3	2.7	2.6	CCC-	CCC+	CCC
100	**China Southern Airlines**	China	31-Dec-21	15,762	3.5	2.8	2.6	B	CCC+	CCC
	Revenue weighted average				3.6	3.2	4.0	B	B-	B+

Source: *Airfinance Journal's The Airline Analyst*

[1]As rated by *AFJ Financial Ratings* on 22 August 2022 based on data from *The Airline Analyst*

Commentary on **top 100**

The "Top 100" ranking of airlines is based on LTM figures no older than 31 March 2021 – most are as of 31 March or 30 June 2022. This ensures that our evaluation can be as up to date as possible. Our data sources are The Airline Analyst and *Airfinance Journal*'s Airline Financial Ratings.

Shown in the table are the airlines' scores for the five parameters evaluated by The Airline Analyst for the last twelve months (LTM) periods displayed. The rating is determined based on a weighted score of the five values If you wish to see the underlying data for each airline, please contact **accountmanager@airfinancejournal.com**.

As a consequence of Covid, liquidity has been by far the greatest weighting in the ratings calculation as EBITDAR margin and leverage are not in a normal range. However, even the liquidity ratio should be interpreted carefully as it may be overstated due to a precipitate decline in LTM revenue.

It is also challenging to compare leverage based on EBITDAR as we normally do. We therefore show equity ratios rather than our more normal debt/EBITDAR calculations in the leverage section below.

"One observation is that many of the airlines show significantly higher liquidity than normal due to high levels of fundraising but also troubling increases in the amount of debt and leverage they carry."

In addition to the current rating, we show the change over the previous 24 months.

One observation is that many of the airlines show significantly higher liquidity than normal due to high levels of fundraising but also troubling increases in the amount of debt and leverage they carry.

At the top of the ranking for the third consecutive year is Air Arabia, followed by Korean Air, Harbor Diversified (Air Wisconsin), Ryanair and Southwest Airlines. The primary driver of high ratings however is airlines with substantial cargo business including Korean Airlines, EVA Airways, Turkish Airlines, Qatar Airways, China Airlines, SIA Group and Cathay Pacific all in the top 20.

Some other LCCs also delivered strong performance, including Mexico's Grupo Viva Aerobus and Volaris. Of the Asia-Pacific LCCs, Vietjet, Cebu-Pacific and Indigo showed the best performance in 2021/22.

The major full-service carriers fare less well, though Air France-KLM comes in at 26th, up from 50th last year, followed by Lufthansa Group at 35th, Delta at 39th and IAG at 73rd. The other two US majors, United and American, are at 47th and 91st, respectively. The major Chinese airlines did not fare well in the ranking, driven by the very low levels of liquidity they show on their balance sheets. Of the three major Chinese airlines, only China Southern makes the Top 100. These airlines all report that they have substantial access to Chinese banks for their funding needs.

Among the other Chinese airlines, Spring Airlines was top ranked at number 49, with China Express Airlines following at number 53.

Air Arabia topped the ranking for the third consecutive year

Top airlines by **value of current fleet**

		Fleet size			%	Fleet value ($m)		
Rank	Airline	Leased	Owned	Total	Leased	Leased	Owned	Total
1	American Airlines	561	595	**1156**	49%	10,119	14,744	**24,863**
2	China Southern Airlines	206	447	**653**	32%	6,736	14,775	**21,510**
3	Delta Air Lines	254	682	**936**	27%	6,286	12,411	**18,697**
4	China Eastern Airlines	121	501	**622**	19%	3,514	14,388	**17,902**
5	United Airlines	154	700	**854**	18%	3,534	14,008	**17,542**
6	Air China	141	352	**493**	29%	4,647	11,551	**16,199**
7	Qatar Airways	131	108	**239**	55%	6,606	9,253	**15,859**
8	Turkish Airlines	69	282	**351**	20%	2,594	11,989	**14,583**
9	Southwest Airlines	129	650	**779**	17%	2,432	11,364	**13,796**
10	Emirates	135	133	**268**	50%	6,470	6,513	**12,983**
11	Singapore Airlines	27	130	**157**	17%	1,779	9,333	**11,111**
12	Ryanair	29	417	**446**	7%	353	10,551	**10,904**
13	All Nippon Airways	43	177	**220**	20%	2,273	8,136	**10,409**
14	Indigo	247	30	**277**	89%	9,436	964	**10,400**
15	Cathay Pacific Airways	34	153	**187**	18%	1,542	8,208	**9,750**
16	Hainan Airlines	133	105	**238**	56%	5,849	2,886	**8,735**
17	British Airways	132	126	**258**	51%	5,340	3,217	**8,557**
18	Lufthansa	34	268	**302**	11%	1,458	6,823	**8,281**
19	Japan Airlines	16	139	**155**	10%	406	6,997	**7,403**
20	Air Canada	63	131	**194**	32%	1,502	5,695	**7,197**
21	Saudia	60	113	**173**	35%	1,943	5,213	**7,156**
22	Korean Air	15	142	**157**	10%	1,255	5,889	**7,143**
23	Air France	119	107	**226**	53%	3,919	3,177	**7,096**
24	Aeroflot	181	16	**197**	92%	6,085	708	**6,793**
25	Ethiopian Airlines	67	65	**132**	51%	3,573	3,003	**6,576**
26	Easyjet	124	173	**297**	42%	2,181	4,151	**6,332**
27	Sichuan Airlines	103	90	**193**	53%	3,594	2,310	**5,904**
28	Alaska Airlines	83	174	**257**	32%	1,892	3,912	**5,804**
29	Skywest Airlines	94	511	**605**	16%	951	4,411	**5,362**
30	Jetblue	68	219	**287**	24%	744	4,573	**5,317**
31	Wizz Air	136	7	**143**	95%	4,781	362	**5,142**
32	Spirit Airlines	79	102	**181**	44%	2,613	2,501	**5,114**
33	Shenzhen Airlines	38	167	**205**	19%	729	4,235	**4,964**
34	Xiamen Airlines	66	97	**163**	40%	1,694	2,851	**4,545**
35	Frontier Airlines	113	11	**124**	91%	3,913	425	**4,339**
36	Latam Chile	59	82	**141**	42%	2,566	1,543	**4,110**
37	Azul S.A.	139	23	**162**	86%	3,361	337	**3,698**
38	Air India	75	45	**120**	63%	2,541	1,127	**3,667**
39	Volaris	101	8	**109**	93%	3,260	405	**3,664**
40	Spring Airlines	50	69	**119**	42%	1,332	2,192	**3,523**
41	Gol	142	5	**147**	97%	3,263	160	**3,422**
42	Qantas Airways	27	105	**132**	20%	695	2,617	**3,311**
43	SAS	82	28	**110**	75%	2,896	391	**3,287**
44	Shandong Airlines	80	54	**134**	60%	1,988	1,287	**3,275**
45	Vueling Airlines	111	16	**127**	87%	2,519	520	**3,039**
46	Latam Brasil	82	65	**147**	56%	2,079	914	**2,993**
47	Garuda Indonesia	104	18	**122**	85%	2,800	156	**2,956**
48	Lion Air	101	10	**111**	91%	2,737	165	**2,903**
49	Westjet	49	62	**111**	44%	1,366	1,408	**2,775**
50	Republic Airways	64	162	**226**	28%	555	1,536	**2,092**

Source: *Airfinance Journal's* Fleet Tracker
Source: AVITAS BlueBook values as of 30 March 2022

Top airlines by **size of current fleet and engine manufacturer**

		Engine manufacturer								
Rank	**Airline**	**Allison**	**BMW Rolls-Royce**	**CFM International**	**Engine Alliance**	**GE**	**IAE**	**P&W**	**Rolls-Royce**	**Total**
1	**American Airlines**			565		72	238	28	72	**975**
2	**Delta Air Lines**		82	486		71		250	47	**936**
3	**United Airlines**			392		127	183	90	62	**854**
4	**Southwest Airlines**			779						**779**
5	**China Southern Airlines**			367		66	138	50	32	**653**
6	**China Eastern Airlines**	1		430		23	105		63	**622**
7	**Skywest Airlines**	1				596		8		**605**
8	**Air China**			255		44	52	52	90	**493**
9	**Turkish Airlines**			108		82	83	41	37	**351**
10	**Lufthansa**			100		27	63	44	68	**302**
11	**Jetblue**			1		60	193	33		**287**
12	**Indigo**			73			31	173		**277**
13	**Ryanair**			269						**269**
14	**Emirates**				88	146			34	**268**
15	**British Airways**			27		40	115		76	**258**
16	**Alaska Airlines**			250		7				**257**
17	**Qatar Airways**			7	10	142	27		53	**239**
18	**Hainan Airlines**			155		35		7	41	**238**
19	**Republic Airways**					226				**226**
19=	**Air France**			97	8	91		12	18	**226**
21	**All Nippon Airways**			45		46		50	79	**220**
22	**Shenzhen Airlines**			131			41	27	6	**205**
23	**Endeavor Air**					197				**197**
23=	**Aeroflot**			136		22			19	**197**
25	**Air Canada**			78		69		31	16	**194**
26	**Sichuan Airlines**			37			85	51	20	**193**
27	**Cathay Pacific Airways**			7		56	8	6	110	**187**
28	**Envoy Air**	70				111				**181**
28=	**Spirit Airlines**						125	56		**181**
30	**Saudia**			60		75	1		37	**173**
31	**Easyjet**			164						**164**
32	**Xiamen Airlines**			151		12				**163**
33	**Azul S.A.**			51		52		46	13	**162**
34	**Singapore Airlines**			24		26		7	100	**157**
34=	**Korean Air**			25	10	64		58		**157**
36	**Japan Airlines**			45		94			16	**155**
37	**Mesa Airlines**			3		147				**150**
38	**Malta Air**			148						**148**
39	**Latam Brasil**			74		17	48	7	1	**147**
39=	**Gol**			147						**147**
41	**Wizz Air**						86	56	1	**143**
42	**Latam Chile**			53		12	41	7	28	**141**
43	**Commutair**	140								**140**
44	**Shandong Airlines**			133		1				**134**
45	**Easyjet Europe**			133						**133**
46	**Ethiopian Airlines**			34		36		34	28	**132**
46=	**Qantas Airways**		4	75		42			11	**132**
48	**Vueling Airlines**			51		1	51	24		**127**
48=	**Psa Airlines**					127				**127**
50	**Tianjin Airlines**	8		10		55	20	26	6	**125**

Source: *Airfinance Journal's* Fleet Tracker

Top airlines by **firm order backlog**

		Aircraft manufacturer					
Rank	Airline	*Airbus	ATR	*Boeing	De Havilland of Canada	Embraer	Total
1	Indigo	518	15				533
2	United Airlines	165		363			528
3	Lion Air	177		234			411
4	Southwest Airlines			367			367
5	Air Asia	362					362
6	Delta Air Lines	233		100			333
7	Vietjet Air	120		200			320
8	Wizz Air	309					309
9	Frontier Airlines	227					227
10	Emirates	50		145			195
11	American Airlines	64		105		3	172
12	Easyjet	168					168
13	Qantas Airways	160		4			164
13=	Lufthansa	103		61			164
15	Spicejet			141	15		156
16	Jetblue	151					151
17	Flydubai			150			150
18	China Southern Airlines	110		34			144
19	Qatar Airways	19		123			142
20	Ryanair			137			137
21	Jet Airways	1		135			136
22	Volaris	122					122
23	Air Arabia	120					120
24	Spirit Airlines	117					117
25	China Eastern Airlines	107					107
26	Iran Air	97	7				104
27	Etihad Airways	42		57			99
28	Republic Airways					95	95
29	Jetsmart Airlines	94					94
30	Latam Chile	86		6			92
31	Go First	92					92
32	Gol			80			80
33	Turkish Airlines	69		10			79
34	All Nippon Airways	18		60			78
35	Korean Air	30		46			76
36	Air China	75					75
37	Breeze Airways	73					73
37=	Singapore Airlines	11		62			73
39	Air France	72					72
40	Flynas	71					71
41	Avianca S.A.	70					70
42	Akasa Air			67			67
43	Garuda Indonesia	13	3	49			65
43=	Azul S.A.	18				47	65
45	Jet2.Com	60					60
46	Alaska Airlines			58			58
47	Pegasus Airlines	53					53
48	Cathay Pacific Airways	30		21			51
48=	Saudia	51					51
50	Allegiant Air			50			50

Source: *Airfinance Journal's* Fleet Tracker
* Based on official data from Airbus and Boeing as of 31 July 2022

Industry overview

Normally in this publication we "celebrate the best" of the world's top 100 airlines in respect of financial and operational performance. Last year, we focused on the full brunt of Covid on global airlines. This year we are looking at the "pre", "Covid" and "(almost) post" Covid situation.

We have used the most recent LTM data for all airlines, drawn from The Airline Analyst to select the Top 100. Our data set of 186 airlines includes airlines whose most recent LTM financials range from 31 March 2021 to 30 June 2022.

We present the data for the entire top 100 by overall financial rating for each of the three most recent "LTM" periods. This enables the reader to see where so many "fallen angels" lie in the ranking.

The rankings are based on the criteria we use in *Airfinance Journal*'s "Airline Financial Ratings". These evaluate four financial criteria and one operational in coming up with a ranking for each airline or airline group. The scores are scored out of eight; eight being the number of major grades in the ratings scale from AAA to CC. The operational criterion is average fleet age and the four financial criteria are EBITDAR margin, Fixed Charge Cover, Liquidity and Leverage. The distribution of the rankings in the most recent LTM period and the equivalent data from the two previous years is shown in the chart.

In 2020/21, there was a significant migration to the lower ratings with a bulge in the CCC and CC categories. 97 of the 186 airlines were rated CCC+ or below, up from 82 the prior year. The number of airlines rated "CC" increased from 27 in 2019/20 to 41. A total of three airlines were rated BBB- or better, down from 17.

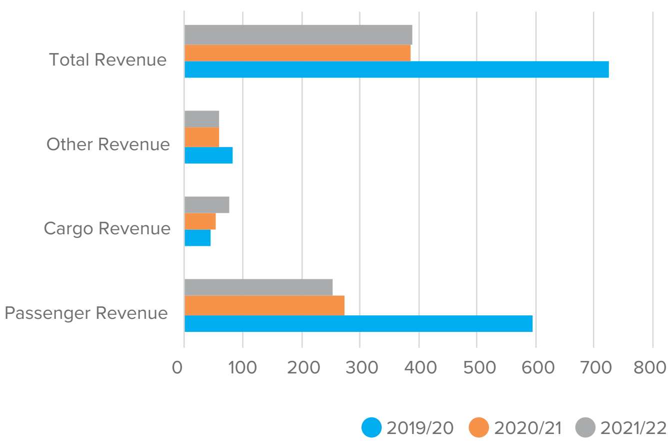
Liquidity became the dominant driver of the ratings, with total industry liquidity reaching, more than 50% of Total Revenues as shown in the chart.

Despite this safety cushion, there was a parallel increase in Total Balance Sheet Debt (including operating leases per IFRS 16 and ASC 842) from $478 billion in 2019/20 to $665 billion in the most recent year.

The 2021/22 data shows some significant improvement in industry profile. Revenue

Revenue

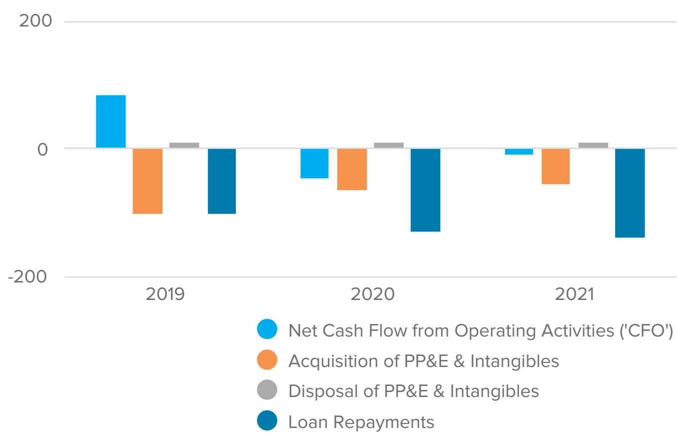
US$ billion



Source: *Airfinance Journal's The Airline Analyst* – Industry totals

Cash Flows and Outgoings

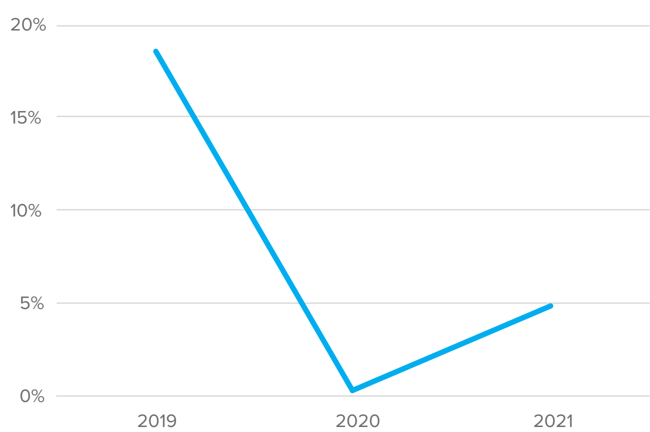
US$ billion



Source: *Airfinance Journal's The Airline Analyst* – Industry totals

EBITDAR Margin

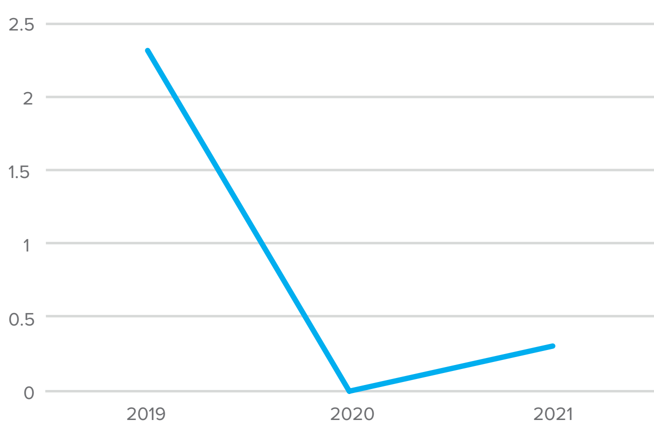
(EBITDAR/Total Revenue)



Source: *Airfinance Journal's The Airline Analyst* – Industry totals

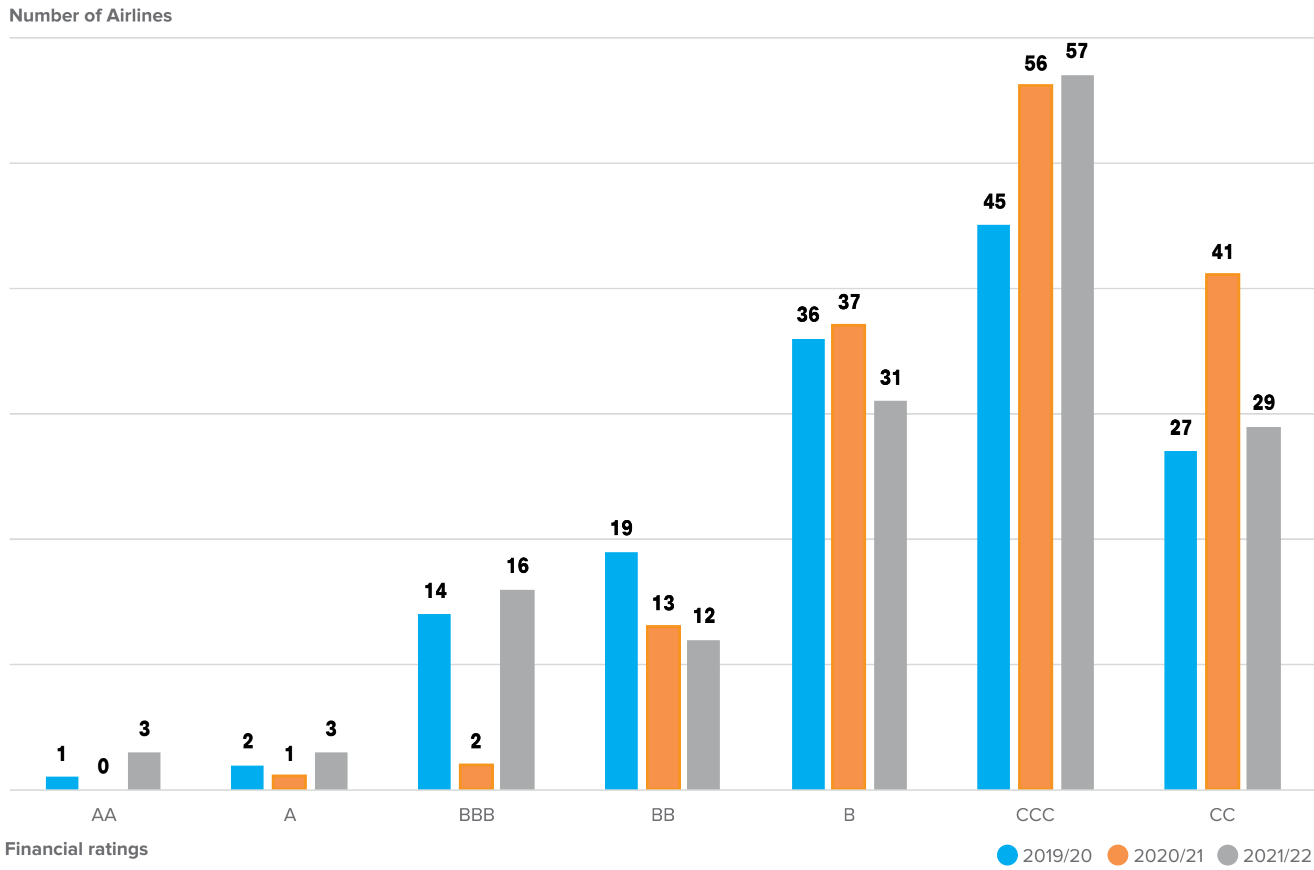
EBITDAR/(Net) Fixed Charges (x)

Times



Source: *Airfinance Journal's The Airline Analyst* – Industry totals

AFJ Airline Financial Ratings Distribution as of 21 August 2022



Source: *Airfinance Journal's The Airline Analyst*

recovered strongly and fourteen airlines regained their "BBB" status, driven by their improved EBITDAR margin. Also, the number of "CC" rated airlines recovered to almost the pre-Covid level.

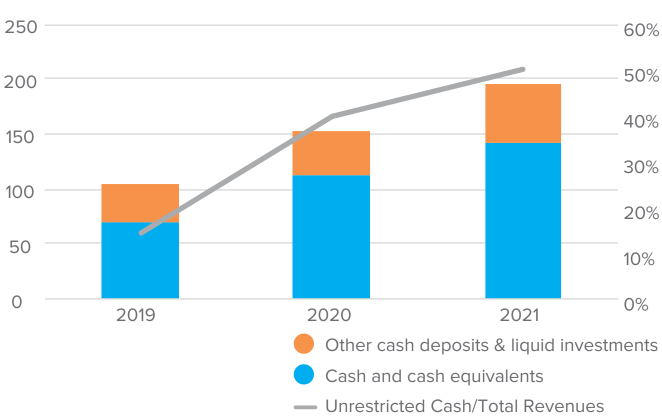
Note that these ratings are not credit ratings but are simply based on intrinsic financial strength only and do not take into consideration such factors as standby facilities, unencumbered assets and government support.

In aggregate, our sample of airlines experienced negative cash flow from operations of $10 billion and incurred $53 billion of investments in 2021/22. Loan repayments were an additional $135 billion outflow. This was funded by loan drawdowns of $197 billion, equity raised of $36 billion and proceeds of sales and leasebacks of $4 billion.

The balance sheets remain under stress. Balance sheet debt (including operating lease liabilities under ASC 842/IFRS 16) increased from $642 billion to $665 billion and the debt/equity ratio was 5.0x, compared with the pre-Covid level of 2.0x. Fixed charge cover, which best illustrates the affordability of the increased debt service, was only 0.3x compared with the pre-Covid figure of 2.3x.

Liquidity

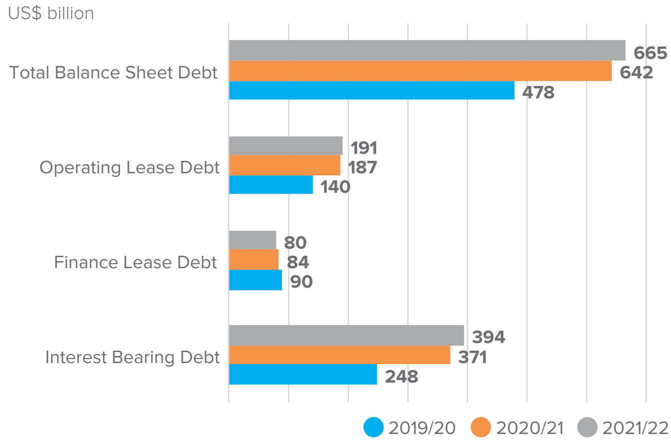
US$ billion



Source: *Airfinance Journal's The Airline Analyst – Industry totals*

Balance Sheet Debt

US$ billion



Source: *Airfinance Journal's The Airline Analyst – Industry totals*

The data set

The 186 airlines included in the study

Airline	Country/Region	Most recent financial year end
ABX Air	USA	31-Dec-2021
Aegean Airlines	Greece	31-Dec-2021
Aer Lingus	Ireland	31-Dec-2021
Aero K Airlines	South Korea	31-Dec-2021
Aeroflot	Russia	31-Dec-2021
Aerolineas Argentinas	Argentina	31-Dec-2021
Air Arabia	UAE	31-Dec-2021
Air Astana	Kazakhstan	31-Dec-2021
Air Atlanta Icelandic	Iceland	31-Dec-2021
Air Austral	France	31-Mar-2021
Air Belgium	Belgium	31-Dec-2021
Air Busan	South Korea	31-Dec-2021
Air Canada	Canada	31-Dec-2021
Air Caraibes Atlantique	France	31-Dec-2021
Air China	China	31-Dec-2021
Air Corsica	France	31-Mar-2021
Air Do	Japan	31-Mar-2022
Air Europa	Spain	31-Dec-2021
Air France	France	31-Dec-2021
Air France-KLM	France	31-Dec-2021
Air Greenland	Greenland	31-Dec-2021
Air Incheon	South Korea	31-Dec-2021
Air India	India	31-Mar-2021
Air New Zealand	New Zealand	30-Jun-2022
Air Premia	South Korea	31-Dec-2021
Air Seoul	South Korea	31-Dec-2021
Air Serbia	Serbia	31-Dec-2021
Air Tahiti Nui	France	31-Dec-2021
Air Transport Services Group	USA	31-Dec-2021
airBaltic	Latvia	31-Dec-2021
Alaska Air Group	USA	31-Dec-2021
Allegiant Travel Company	USA	31-Dec-2021
Alliance Airlines	Australia	30-Jun-2022
American Airlines	USA	31-Dec-2021
American Airlines Group	USA	31-Dec-2021
Amerijet International	USA	31-Dec-2021
ANA Holdings	Japan	31-Mar-2022
Asiana Airlines	South Korea	31-Dec-2021
Atlantic Airways	Denmark	31-Dec-2021
Atlas Air Worldwide Group	USA	31-Dec-2021
Avianca Holdings	Colombia	31-Dec-2020
Azores Airlines	Portugal	31-Dec-2021
Azul S.A.	Brazil	31-Dec-2021
Bangkok Airways	Thailand	31-Dec-2021
Biman Bangladesh	Bangladesh	30-Jun-2021
Bluebird Nordic	Iceland	31-Dec-2021
British Airways	UK	31-Dec-2021
Brussels Airlines	Belgium	31-Dec-2021
Bulgaria Air	Bulgaria	31-Dec-2021
Capital A	Malaysia	31-Dec-2021
Cargojet Airways	Canada	31-Dec-2021
Cargolux	Luxembourg	31-Dec-2021
Cathay Pacific	China	31-Dec-2021
Cebu Pacific	Philippines	31-Dec-2021
China Airlines	Territory of Taiwan	31-Dec-2021
China Eastern Airlines	China	31-Dec-2021
China Express Airlines	China	31-Dec-2021
China Southern Airlines	China	31-Dec-2021
Chorus Aviation	Canada	31-Dec-2021
CityJet	Ireland	31-Dec-2021
Copa Holdings	Panama	31-Dec-2021
Corsair	France	30-Sep-2021

Airline	Country/Region	Most recent financial year end
Croatia Airlines	Croatia	31-Dec-2021
DAT A/S	Denmark	31-Dec-2021
Delta Air Lines	USA	31-Dec-2021
Eastern Air Lines	USA	31-Dec-2021
Eastern Airways	UK	31-Mar-2021
easyJet	UK	30-Sep-2021
EGO Airways	Italy	31-Dec-2021
EL AL Israel Airlines	Israel	31-Dec-2021
Emirates	UAE	31-Mar-2022
Enter Air	Poland	31-Dec-2021
Envoy Air	USA	31-Dec-2021
Eurowings Europe	Austria	31-Dec-2021
EVA Airways	Territory of Taiwan	31-Dec-2021
fastjet	Zimbabwe	31-Dec-2021
Finnair	Finland	31-Dec-2021
Fly Gangwon	South Korea	31-Dec-2021
Flyr AS	Norway	31-Dec-2021
French Bee	France	31-Dec-2021
Frontier Group Holdings	USA	31-Dec-2021
Garuda Indonesia	Indonesia	31-Dec-2021
Global Crossing Airlines	USA	31-Dec-2021
GoJet Airlines	USA	31-Dec-2021
GOL	Brazil	31-Dec-2021
Grupo Aeromexico	Mexico	31-Dec-2021
Grupo VivaAerobus	Mexico	31-Dec-2021
Hainan Airlines	China	31-Dec-2021
Harbor Diversified, Inc.	USA	31-Dec-2021
Hawaiian Airlines	USA	31-Dec-2021
Hi Air	South Korea	31-Dec-2021
Hong Kong Airlines	China	31-Dec-2021
HOP!	France	31-Dec-2021
Horizon Air	USA	31-Dec-2021
Iberia	Spain	31-Dec-2021
Icelandair	Iceland	31-Dec-2021
IndiGo	India	31-Mar-2022
International Airlines Group	Spain	31-Dec-2021
ITA Airways	Italy	31-Dec-2021
Japan Airlines	Japan	31-Mar-2022
Jazeera Airways	Kuwait	31-Dec-2021
Jeju Air	Soouth Korea	31-Dec-2021
Jet2 plc	UK	31-Mar-2022
jetBlue	USA	31-Dec-2021
Jetstar Asia Airways	Singapore	30-Jun-2021
Jin Air	South Korea	31-Dec-2021
Juneyao Airlines	China	31-Dec-2021
Kalitta Air	USA	31-Dec-2021
Kenya Airways	Kenya	31-Dec-2021
KLM Royal Dutch Airlines	Netherlands	31-Dec-2021
Korean Air	South Korea	31-Dec-2021
LATAM Airlines Group	Chile	31-Dec-2021
LATAM Cargo Brasil	Brazil	31-Dec-2021
Loganair	UK	31-Mar-2021
Lufthansa Group	Germany	31-Dec-2021
Lufthansa Parent	Germany	31-Dec-2021
Luxair Group	Luxembourg	31-Dec-2021
Mesa Air Group	USA	30-Sep-2021
National Air Cargo Group	USA	31-Dec-2021
Neos S.p.A.	Italy	31-Oct-2021
Nippon Cargo Airlines	Japan	31-Mar-2022
Nok Air	Thailand	31-Dec-2020
Nordic Aviation Group	Estonia	31-Dec-2021
Nordic Regional Airlines	Finland	31-Dec-2021

Airline	Country/Region	Most recent financial year end
Norse Atlantic Airways	Norway	31-Dec-2021
Northern Air Cargo	USA	31-Dec-2021
Norwegian Air Shuttle	Norway	31-Dec-2021
Omni Air International	USA	31-Dec-2021
Pakistan International Airlines	Pakistan	31-Dec-2021
PAL Holdings	Phlippines	31-Dec-2021
Peach Aviation	Japan	31-Mar-2022
Pegasus Airlines	Turkey	31-Dec-2021
PLAY	Iceland	31-Dec-2021
Polar Air Cargo	USA	31-Dec-2021
PT Air Asia Indonesia	Indonesia	31-Dec-2021
Qantas Airways	Australia	30-Jun-2022
Qatar Airways	Qatar	31-Mar-2022
Regional Express Holdings	Australia	30-Jun-2022
Republic Airways	USA	31-Dec-2021
Royal Brunei Airlines	Brunei	31-Mar-2021
Royal Jordanian Airlines	Jordan	31-Dec-2021
Ryanair	Irelalnd	31-Mar-2022
SAS	Sweden	31-Oct-2021
SATA Air Azores	Portugal	31-Dec-2021
SATENA	Colombia	31-Dec-2021
Scoot Pte. Ltd.	Singapore	31-Mar-2022
Shandong Airlines	China	31-Dec-2021
Shenzhen Airlines	China	31-Dec-2021
SIA Group	Singapore	31-Mar-2022
Sideral Air Cargo	Brazil	31-Dec-2021
Silver Airways	USA	31-Dec-2021
Skymark Airlines	Japan	31-Mar-2022
SkyWest Airlines	USA	31-Dec-2021
Solaseed Air	Japan	31-Mar-2022
Southern Air	USA	31-Dec-2021
Southwest Airlines	USA	31-Dec-2021
SpiceJet	India	31-Mar-2021
Spirit Airlines	USA	31-Dec-2021
Spring Airlines	China	31-Dec-2021
Spring Airlines Japan	Japan	31-Mar-2022
SriLankan Airlines	Sri Lanka	31-Mar-2021
StarFlyer	Japan	31-Mar-2022
STARLUX Airlines	Territory of Taiwan	31-Dec-2021
Sun Country Airlines Holdings	USA	31-Dec-2021
Sunclass Airlines	Denmark	30-Sep-2021
SunExpress	Turkey	31-Dec-2021
TAM	Brazil	31-Dec-2021
TAP S.A.	Portugal	31-Dec-2021
Thai Air Asia	Thailand	31-Dec-2021
Thai Airways	Thailand	31-Dec-2021
Tigerair Taiwan	Territory of Taiwan	31-Dec-2021
Transat A.T.	Canada	31-Oct-2021
TUI Airways	UK	30-Sep-2021
Turkish Airlines	Turkey	31-Dec-2021
Tway Airlines	South Korea	31-Dec-2021
United Airlines Holdings	USA	31-Dec-2021
US-Bangla Airlines	Bangladesh	30-Jun-2021
VietJet Air	Vietnam	31-Dec-2021
Vietnam Airlines	Vietnam	31-Dec-2021
Virgin Australia	Australia	30-Jun-2021
Volaris	Mexico	31-Dec-2021
Vueling Airlines	Spain	31-Dec-2021
Western Global Airlines	USA	31-Dec-2021
Wideroe	Norway	31-Dec-2021
Wizz Air	Hungary	31-Mar-2022
Xiamen Airlines	China	31-Dec-2021

Source: *Airfinance Journal's The Airline Analyst*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Top 100 by **revenues**

The industry is dominated by three majors in each of the USA, Europe and China plus Emirates from the UAE and Southwest Airlines from the USA. That said, International Airlines Group (IAG) is falling well behind Lufthansa Group and Air France-KLM in scale. Other airlines knocking at the door of the "Top 10" include Qatar Airways and Turkish Airlines.

Delta Air Lines leads the industry by revenues, totalling $29.9 billion, up 75% from prior year, closely followed by American Airlines Group at $18.3 billion. The third US major, United Airlines, comes in at third spot. The three European majors, Lufthansa Group, Air France-KLM and IAG come in at numbers five, six and 15 respectively. These are then followed by the three Chinese majors, China Southern Airlines, Air China and China Eastern Airlines. Emirates has recovered from 10th position to seventh. Southwest Airlines also makes the top 10.

We also show the percent change in revenue from the previous period. While most show significant gains, a few suffered declines, notably Cathay Pacific, British Airways, Easyjet as shown in the table.

Rank	Airline	Revenues [USDm]	% Change from prior period
1	**Delta Air Lines**	29,899	74.9%
2	**American Airlines Group**	29,882	72.4%
3	**American Airlines**	29,880	72.4%
4	**United Airlines Holdings**	24,634	60.4%
5	**Lufthansa Group**	20,480	27.2%
6	**Air France-KLM**	16,928	33.3%
7	**Emirates**	16,082	91.1%
8	**Southwest Airlines**	15,790	74.5%
9	**China Southern Airlines**	15,762	17.4%
10	**Qatar Airways**	14,441	77.6%
11	**Air China**	11,587	14.5%
12	**Turkish Airlines**	10,796	55.4%
13	**China Eastern Airlines**	10,409	22.2%
14	**Air France**	10,340	40.7%
15	**International Airlines Group**	9,992	10.9%
16	**ANA Holdings**	9,110	32.9%
17	**Korean Air**	7,894	21.9%
18	**KLM Royal Dutch Airlines**	7,172	22.3%
19	**Aeroflot**	6,650	58.7%
20	**Qantas Airways**	6,620	50.1%
21	**Alaska Air Group**	6,176	73.2%
22	**Lufthansa Parent**	6,107	18.6%
23	**Japan Airlines**	6,095	34.6%
24	**jetBlue**	6,037	104.2%
25	**Cathay Pacific**	5,865	-3.0%
26	**SIA Group**	5,646	87.3%
27	**Ryanair**	5,588	195.5%
28	**Hainan Airlines**	5,273	23.6%
29	**Air Canada**	5,098	16.8%
30	**British Airways**	5,075	-2.0%
31	**LATAM Airlines Group**	4,993	20.9%
32	**China Airlines**	4,980	27.0%
33	**Cargolux**	4,429	39.8%
34	**Atlas Air Worldwide Group**	4,031	25.5%
35	**Asiana Airlines**	3,799	14.6%
36	**EVA Airways**	3,726	23.0%
37	**IndiGo**	3,494	82.7%
38	**Iberia**	3,492	27.8%
39	**Xiamen Airlines**	3,262	8.7%
40	**Spirit Airlines**	3,231	78.5%
41	**Shenzhen Airlines**	2,869	13.7%
42	**SkyWest Airlines**	2,713	27.6%
43	**Grupo Aeromexico**	2,232	66.4%
44	**Volaris**	2,170	95.3%
45	**Frontier Group Holdings**	2,060	64.8%
46	**Kalitta Air**	2,005	21.3%
47	**TAM**	1,999	14.8%
48	**easyJet**	1,996	-48.6%
49	**Shandong Airlines**	1,941	27.0%
50	**Wizz Air**	1,936	126.7%
51	**Air New Zealand**	1,866	7.1%
52	**Azul S.A.**	1,852	64.0%
53	**Juneyao Airlines**	1,825	24.5%
54	**Polar Air Cargo**	1,808	23.2%
55	**Air Transport Services Group**	1,734	10.4%
56	**Avianca Holdings**	1,712	-62.9%
57	**Allegiant Travel Company**	1,708	72.5%
58	**Nippon Cargo Airlines**	1,686	46.2%
59	**Jet2 plc**	1,684	229.3%
60	**Spring Airlines**	1,684	23.8%
61	**SAS**	1,635	-25.7%
62	**TAP S.A.**	1,625	34.0%
63	**Hawaiian Airlines**	1,597	89.0%
64	**Copa Holdings**	1,510	88.5%
65	**GOL**	1,397	10.3%
66	**Air India**	1,392	-64.4%
67	**Garuda Indonesia**	1,337	-10.4%
68	**Vueling Airlines**	1,233	75.7%
69	**Pegasus Airlines**	1,220	76.3%
70	**Vietnam Airlines**	1,217	-30.3%
71	**PAL Holdings**	1,187	8.3%
72	**Virgin Australia**	1,146	-62.4%
73	**Envoy Air**	1,137	15.2%
74	**Republic Airways**	1,127	14.3%
75	**Air Europa**	1,106	23.2%
76	**Finnair**	1,065	5.9%
77	**Grupo VivaAerobus**	995	156.8%
78	**SunExpress**	883	56.4%
79	**Aerolineas Argentinas**	880	-7.6%
80	**Air Arabia**	878	72.3%
81	**Hong Kong Airlines**	870	48.1%
82	**EL AL Israel Airlines**	857	37.6%
83	**Chorus Aviation**	815	14.8%
84	**Aegean Airlines**	813	63.4%
85	**Thai Airways**	793	-48.8%
86	**Brussels Airlines**	782	38.1%
87	**Air Astana**	755	92.3%
88	**SpiceJet**	695	-60.2%
89	**Kenya Airways**	640	28.6%
90	**Sun Country Airlines Holdings**	623	55.2%
91	**China Express Airlines**	615	-10.3%
92	**Cargojet Airways**	604	20.7%
93	**Norwegian Air Shuttle**	588	-40.1%
94	**Icelandair**	577	35.5%
95	**Luxair Group**	541	67.4%
96	**Omni Air International**	541	-6.7%
97	**Pakistan International Airlines**	529	-10.1%
98	**Royal Jordanian Airlines**	504	67.9%
99	**Mesa Air Group**	504	-7.6%
100	**Wideroe**	491	26.0%

Source: *Airfinance Journal's The Airline Analyst*

Top airlines ranked by **RPKs**

Emirates, previously number 1, has recovered from 24th last year, to 11th. As expected, the top 10 are dominated by the Chinese and US majors. Among the LCCs, Southwest Airlines, Indigo, Spirit Airlines, Wizz Air and Volaris make the top 30. LATAM is the largest Latin American carrier in 21st spot followed by Grupo Aeromexico at 35th and GOL at 39th. Copa Holdings, the most consistently profitable Latin American carrier, is at number 42.

The percent change from the previous period highlights the growth achieved by many airlines.

Rank	Airline	RPKs (m)	% Change from prior period
1	**American Airlines Group**	259,970	75.9%
2	**American Airlines**	219,698	77.1%
3	**Delta Air Lines**	216,766	83.5%
4	**United Airlines Holdings**	207,572	74.6%
5	**Southwest Airlines**	166,667	91.0%
6	**China Southern Airlines**	152,426	-0.7%
7	**Air France-KLM**	116,104	27.5%
8	**China Eastern Airlines**	108,804	1.4%
9	**Air China**	104,626	-4.7%
10	**Aeroflot**	100,112	47.2%
11	**Emirates**	93,799	230.8%
12	**Lufthansa Group**	89,397	28.7%
13	**Turkish Airlines**	86,701	62.9%
14	**International Airlines Group**	78,689	8.9%
15	**Air France**	75,192	31.5%
16	**jetBlue**	66,228	121.3%
17	**Hainan Airlines**	62,616	9.6%
18	**Alaska Air Group**	62,117	88.3%
19	**IndiGo**	51,800	64.3%
20	**Spirit Airlines**	51,699	66.3%
21	**LATAM Airlines Group**	50,317	18.0%
22	**Lufthansa Parent**	49,766	26.7%
23	**Wizz Air**	43,679	161.7%
24	**KLM Royal Dutch Airlines**	40,912	20.8%
25	**Volaris**	38,306	63.1%
26	**Shenzhen Airlines**	35,859	-3.6%
27	**Spring Airlines**	34,376	14.0%
28	**Qantas Airways**	34,363	85.2%
29	**Air Canada**	33,869	-9.4%
30	**Frontier Group Holdings**	32,798	78.1%
31	**British Airways**	30,700	-21.5%
32	**Iberia**	28,646	53.1%
33	**Juneyao Airlines**	27,173	16.0%
34	**Shandong Airlines**	26,856	4.8%
35	**Grupo Aeromexico**	26,219	59.4%
36	**Pegasus Airlines**	25,549	43.9%
37	**Azul S.A.**	24,851	52.4%
38	**easyJet**	23,594	-60.0%
39	**GOL**	22,237	10.5%
40	**ANA Holdings**	21,933	52.2%
41	**SIA Group**	20,665	614.9%
42	**Copa Holdings**	18,884	101.9%
43	**Japan Airlines**	18,117	57.8%
44	**Grupo VivaAerobus**	17,831	89.8%
45	**Air India**	16,237	-67.8%
46	**Republic Airways**	16,206	98.1%
47	**Hawaiian Airlines**	16,180	119.7%
48	**Vueling Airlines**	15,554	69.5%
49	**TAP S.A.**	14,917	25.6%
50	**Envoy Air**	11,876	67.7%
51	**Air Europa**	11,821	34.9%
52	**Garuda Indonesia**	10,976	-12.1%
53	**Avianca Holdings**	10,656	-76.0%
54	**Mesa Air Group**	9,484	14.9%
55	**SpiceJet**	9,157	-67.4%
56	**Korean Air**	8,634	-54.7%
57	**SAS**	8,256	-41.6%
58	**PAL Holdings**	7,680	-35.3%
59	**Asiana Airlines**	7,389	-44.9%
60	**Air New Zealand**	7,146	21.0%
61	**Aegean Airlines**	7,082	46.9%
62	**Norwegian Air Shuttle**	6,869	-49.8%
63	**EL AL Israel Airlines**	6,346	54.9%
64	**Sun Country Airlines Holdings**	5,823	60.7%
65	**Finnair**	5,178	-36.5%
66	**Pakistan International Airlines**	5,138	-22.5%
67	**Peach Aviation**	4,847	101.7%
68	**Horizon Air**	4,524	48.9%
69	**Capital A**	4,149	-70.9%
70	**Cathay Pacific**	4,120	-79.5%
71	**Icelandair**	3,895	81.7%
72	**Kenya Airways**	3,589	3.8%
73	**Aer Lingus**	3,452	-14.9%
74	**TUI Airways**	3,195	-77.6%
75	**Jeju Air**	3,089	-36.3%
76	**Nok Air**	2,598	-53.7%
77	**Cebu Pacific**	2,479	-53.0%
78	**airBaltic**	2,158	48.3%
79	**Thai Airways**	2,147	-86.1%
80	**Thai Air Asia**	2,083	-73.1%
81	**Omni Air International**	1,699	-17.1%
82	**Harbor Diversified, Inc.**	1,677	107.7%
83	**EVA Airways**	1,642	-84.7%
84	**GoJet Airlines**	1,617	104.2%
85	**Luxair Group**	1,609	86.4%
86	**Scoot Pte. Ltd.**	1,487	570.9%
87	**Solaseed Air**	1,274	84.3%
88	**Azores Airlines**	1,197	101.5%
89	**Air Do**	1,091	99.2%
90	**SriLankan Airlines**	748	-94.9%
91	**Eastern Air Lines**	650	47.2%
92	**StarFlyer**	645	51.1%
93	**China Airlines**	639	-92.1%
94	**China Express Airlines**	621	-16.5%
95	**Croatia Airlines**	562	30.1%
96	**Air Greenland**	319	23.2%
97	**Bangkok Airways**	314	-75.3%
98	**PLAY**	260	0.0%
99	**Silver Airways**	197	88.8%
100	**fastjet**	127	154.1%

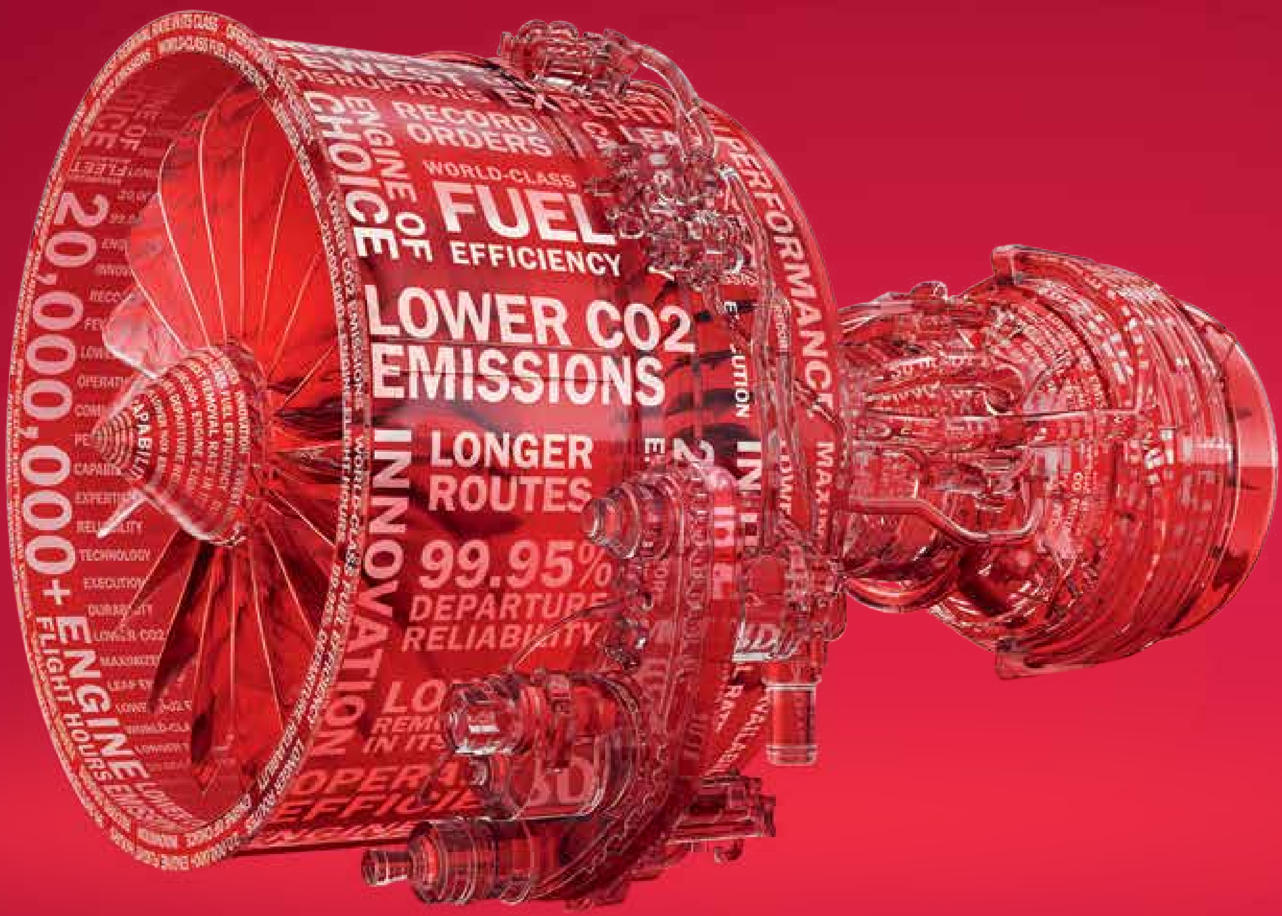
Source: *Airfinance Journal's The Airline Analyst*

Top airlines ranked by **passenger load factor**

Passenger load factor has recovered considerably in the most recent period. Two years ago, the top 50 all achieved load factors in excess of 80%. This year, only the top seven did so and 21 had load factors below 50%. LCCs take up most of the top ten places on the list. The tour operators' captive airlines used to top this ranking, but Monarch and Thomas Cook are no longer with us. At the bottom of the scale the degree of the challenge faced by network carriers without any or significant domestic passenger operations is well illustrated by the load factors in the teens for Srilankan Airlines and Thai Airways.

Rank	Airline	Load factor
1	**Jeju Air**	86.1%
2	**Volaris**	84.7%
3	**Grupo VivaAerobus**	83.6%
4	**Spring Airlines**	82.9%
5	**GOL**	82.0%
6	**GoJet Airlines**	80.9%
7	**Aeroflot**	80.3%
8	**Harbor Diversified, Inc.**	79.5%
9	**Azul S.A.**	79.2%
10	**Spirit Airlines**	78.8%
11	**Copa Holdings**	78.6%
12	**Southwest Airlines**	78.5%
13	**Wizz Air**	78.3%
14	**Envoy Air**	77.9%
15	**Pegasus Airlines**	77.3%
16	**SpiceJet**	77.0%
17	**Shandong Airlines**	76.5%
18	**Vueling Airlines**	76.4%
19	**jetBlue**	76.0%
20	**Frontier Group Holdings**	75.9%
21	**Juneyao Airlines**	75.6%
22	**Grupo Aeromexico**	75.4%
23	**American Airlines Group**	75.3%
24	**Mesa Air Group**	75.1%
25	**American Airlines**	74.9%
26	**Hainan Airlines**	74.7%
27	**LATAM Airlines Group**	74.4%
28	**Air Europa**	74.1%
29	**Avianca Holdings**	74.1%
30	**Alaska Air Group**	73.6%
31	**IndiGo**	73.6%
32	**Republic Airways**	73.4%
33	**Norwegian Air Shuttle**	72.8%
34	**Capital A**	72.5%
35	**China Express Airlines**	72.4%
36	**United Airlines Holdings**	72.2%
37	**Horizon Air**	71.9%
38	**China Southern Airlines**	71.3%
39	**easyJet**	70.8%
40	**Nok Air**	70.0%
41	**Thai Air Asia**	69.4%
42	**Delta Air Lines**	69.3%
43	**Shenzhen Airlines**	69.2%
44	**Hawaiian Airlines**	69.2%
45	**SATA Air Azores**	69.0%
46	**Iberia**	68.9%
47	**Air China**	68.6%
48	**Luxair Group**	68.6%
49	**EL AL Israel Airlines**	68.5%
50	**TUI Airways**	68.4%
51	**Qantas Airways**	67.9%
52	**Turkish Airlines**	67.9%
53	**China Eastern Airlines**	67.7%
54	**Air New Zealand**	67.1%
55	**Pakistan International Airlines**	66.9%
56	**Air France**	66.2%
57	**Air India**	66.0%
58	**Azores Airlines**	66.0%
59	**Air Greenland**	65.7%
60	**Aegean Airlines**	65.4%
61	**Icelandair**	65.3%
62	**International Airlines Group**	64.5%
63	**fastjet**	64.0%
64	**Silver Airways**	63.1%
65	**TAP S.A.**	63.0%
66	**Air Canada**	63.0%
67	**Sun Country Airlines Holdings**	62.1%
68	**Peach Aviation**	61.6%
69	**Lufthansa Group**	61.6%
70	**Kenya Airways**	60.8%
71	**Lufthansa Parent**	60.4%
72	**Air France-KLM**	59.2%
73	**Emirates**	58.6%
74	**Bangkok Airways**	58.6%
75	**British Airways**	58.3%
76	**airBaltic**	53.6%
77	**PLAY**	53.2%
78	**StarFlyer**	52.6%
79	**Cebu Pacific**	50.8%
80	**Croatia Airlines**	49.8%
81	**KLM Royal Dutch Airlines**	49.6%
82	**Aer Lingus**	48.0%
83	**SAS**	47.9%
84	**Air Do**	47.5%
85	**Asiana Airlines**	44.2%
86	**Garuda Indonesia**	43.4%
87	**Eastern Air Lines**	43.3%
88	**Finnair**	42.8%
89	**Omni Air International**	42.3%
90	**ANA Holdings**	40.0%
91	**Solaseed Air**	40.0%
92	**Japan Airlines**	38.3%
93	**Korean Air**	36.7%
94	**Cathay Pacific**	31.1%
95	**National Air Cargo Group**	30.7%
96	**SIA Group**	30.1%
97	**Loganair**	29.8%
98	**EVA Airways**	20.0%
99	**SriLankan Airlines**	19.6%
100	**Thai Airways**	19.1%

Source: *Airfinance Journal's The Airline Analyst*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Top airlines ranked by **revenue per passenger**

Average revenue per passenger increased significantly for a number of airlines last year. Topping the list this year at $1,257 was China Airlines, followed by China Express at $1,130, and then EVA Airways, Cathay Pacific and SIA Group. These figures are driven by significantly longer average trip lengths, related to the cargo operations of these carriers.

At the other extreme we see several LCCs headed by Capital A, Thai Air Asia, Jin Air, Jeju Air and Grupo Viva Aerobus in the 33-36 range. These figures are for ticket prices only and do not include ancillary revenues.

Rank	Airline	Revenue per passenger ($)
1	**China Airlines**	1,257
2	**China Express Airlines**	1,130
3	**EVA Airways**	952
4	**Cathay Pacific**	782
5	**SIA Group**	572
6	**SriLankan Airlines**	520
7	**Sunclass Airlines**	479
8	**Eastern Air Lines**	466
9	**Emirates**	458
10	**Air Greenland**	416
11	**Transat A.T.**	387
12	**EL AL Israel Airlines**	385
13	**Qatar Airways**	382
14	**TUI Airways**	356
15	**Nordic Aviation Group**	355
16	**British Airways**	308
17	**KLM Royal Dutch Airlines**	303
18	**StarFlyer**	277
19	**Air Canada**	272
20	**PAL Holdings**	255
21	**Icelandair**	251
22	**Copa Holdings**	230
23	**Lufthansa Parent**	230
24	**Air France-KLM**	229
25	**Royal Jordanian Airlines**	228
26	**Jazeera Airways**	223
27	**TAP S.A.**	217
28	**Hawaiian Airlines**	210
29	**Qantas Airways**	203
30	Lufthansa Group	202
31	**United Airlines Holdings**	194
32	**Kenya Airways**	193
33	**Sun Country Airlines Holdings**	192
34	**Air Europa**	188
35	**jetBlue**	186
36	**Azores Airlines**	185
37	**Air India**	183
38	**International Airlines Group**	177
39	**Finnair**	174
40	**Pakistan International Airlines**	174
41	**Alaska Air Group**	170
42	**Aer Lingus**	169
43	**ANA Holdings**	166
44	**American Airlines**	162
45	**Japan Airlines**	160
46	**fastjet**	158
47	**American Airlines Group**	157
48	**Aerolineas Argentinas**	153
49	**Air Arabia**	149
50	**Turkish Airlines**	143

Rank	Airline	Revenue per passenger ($)
51	**Southwest Airlines**	142
52	**SAS**	136
53	**Wideroe**	135
54	**Air China**	131
55	**Air New Zealand**	130
56	**Avianca Holdings**	127
57	**Bulgaria Air**	125
58	**Aeroflot**	125
59	**airBaltic**	123
60	**Croatia Airlines**	120
61	**China Southern Airlines**	119
62	**Grupo Aeromexico**	118
63	**Silver Airways**	118
64	**PLAY**	116
65	**Allegiant Travel Company**	116
66	**Shenzhen Airlines**	110
67	**China Eastern Airlines**	106
68	**Thai Airways**	106
69	**ITA Airways**	104
70	**Spirit Airlines**	103
71	**Hainan Airlines**	102
72	**Shandong Airlines**	98
73	**Aegean Airlines**	98
74	**Frontier Group Holdings**	97
75	**Juneyao Airlines**	93
76	**GoJet Airlines**	86
77	**Envoy Air**	85
78	**LATAM Airlines Group**	83
79	**Spring Airlines**	77
80	**Norwegian Air Shuttle**	73
81	**Garuda Indonesia**	72
82	**Azul S.A.**	70
83	**Bangkok Airways**	70
84	**Horizon Air**	68
85	**GOL**	67
86	**easyJet**	67
87	**Republic Airways**	62
88	**SpiceJet**	59
89	**SATA Air Azores**	54
90	**Volaris**	51
91	**Fly Gangwon**	45
92	**Nok Air**	44
93	**SkyWest Airlines**	43
94	**Pegasus Airlines**	41
95	**Cebu Pacific**	37
96	**Grupo VivaAerobus**	36
97	**Jeju Air**	35
98	**Jin Air**	34
99	**Thai Air Asia**	34
100	**Capital A**	33

Source: *Airfinance Journal's The Airline Analyst*

Top airlines ranked by **passenger yield**

As can be seen from the table, there is a huge disparity between airlines at the top and bottom of the list, reflecting different business models and route structures, as long-haul flights which have lower yields were disproportionately suspended during lockdown.

Excluding the two cargo operators, Air Greenland once more comes out top on this ranking at 40.3 US cents followed by China Airlines in second. There are no surprises with numbers seven, 12 and 13 being Starflyer, Japan Airlines and ANA Holdings as fares remain high in Japan. SAS also continues to rank highly on this measure. The three US majors are between 9.7 cents and 10.4 cents with Southwest lagging at 8.4 cents. Air China is the leading mainland Chinese carrier at 8.6 cents. Lufthansa Group significantly outperformed Air France-KLM and IAG.

The numbers at the bottom of the list will attract attention, with five LCCs having yields lower than 4 cents and several more just above them. Perhaps a surprise is to see a "legacy" full-service carrier like LATAM so far down the list at 6.6 cents and Aeroflot just below them at 5.7 cents.

Rank	Airline	Passenger yield (US cents per RPK)
1	**China Express Airlines**	91.4
2	**National Air Cargo Group**	65.3
3	**Air Greenland**	40.3
4	**China Airlines**	34.0
5	**Omni Air International**	31.8
6	**SATA Air Azores**	29.6
7	**StarFlyer**	29.1
8	**Silver Airways**	27.9
9	**fastjet**	21.2
10	**EVA Airways**	16.9
11	**Croatia Airlines**	16.8
12	**Japan Airlines**	15.1
13	**ANA Holdings**	14.2
14	**Air New Zealand**	14.1
15	**Cathay Pacific**	13.6
16	**TUI Airways**	13.4
17	**GoJet Airlines**	12.7
18	**Qantas Airways**	12.6
19	**SAS**	12.5
20	**Bangkok Airways**	11.9
21	**Kenya Airways**	11.8
22	**SriLankan Airlines**	11.6
23	**Korean Air**	11.0
24	**SIA Group**	10.8
25	**Lufthansa Parent**	10.6
26	**Lufthansa Group**	10.6
27	**Air Canada**	10.6
28	**Delta Air Lines**	10.4
29	**KLM Royal Dutch Airlines**	10.4
30	**British Airways**	10.4
31	**Aer Lingus**	10.2
32	**Azores Airlines**	10.0
33	**American Airlines Group**	10.0
34	**Eastern Air Lines**	10.0
35	**Aegean Airlines**	10.0
36	**PAL Holdings**	9.8
37	**United Airlines Holdings**	9.7
38	**Finnair**	9.6
39	**Envoy Air**	9.6
40	**Emirates**	9.6
41	**Avianca Holdings**	9.4
42	**Icelandair**	9.4
43	**airBaltic**	9.3
44	**Pakistan International Airlines**	9.0
45	**Sun Country Airlines Holdings**	9.0
46	**Horizon Air**	9.0
47	**Alaska Air Group**	8.9
48	**Air France-KLM**	8.8
49	**International Airlines Group**	8.8
50	**Air China**	8.6
51	**American Airlines**	8.6
52	**Hawaiian Airlines**	8.5
53	**jetBlue**	8.5
54	**TAP S.A.**	8.5
55	**Southwest Airlines**	8.4
56	**EL AL Israel Airlines**	8.4
57	**Thai Airways**	8.1
58	**Air Europa**	8.0
59	**China Eastern Airlines**	7.7
60	**China Southern Airlines**	7.7
61	**Copa Holdings**	7.5
62	**Grupo Aeromexico**	7.5
63	**Shenzhen Airlines**	7.5
64	**Turkish Airlines**	7.4
65	**Jeju Air**	7.3
66	**Garuda Indonesia**	7.2
67	**Nok Air**	7.1
68	**Air India**	7.1
69	**Shandong Airlines**	6.8
70	**Republic Airways**	6.8
71	**Hainan Airlines**	6.7
72	**Iberia**	6.7
73	**LATAM Airlines Group**	6.6
74	**Norwegian Air Shuttle**	6.6
75	**Azul S.A.**	6.6
76	**Juneyao Airlines**	6.3
77	**Spirit Airlines**	6.1
78	**Frontier Group Holdings**	6.1
79	**easyJet**	5.8
80	**GOL**	5.7
81	**Aeroflot**	5.7
82	**SpiceJet**	5.2
83	**Cebu Pacific**	5.1
84	**Thai Air Asia**	4.8
85	**Spring Airlines**	4.7
86	**PLAY**	4.5
87	**Capital A**	3.8
88	**Volaris**	3.3
89	**Pegasus Airlines**	3.3
90	**Grupo VivaAerobus**	3.1
91	**Wizz Air**	2.0

Source: *Airfinance Journal's The Airline Analyst*

Top airlines ranked by **cargo revenues**

The air cargo business has proved a critical offset to reduced passenger revenues for a large number of airlines during Covid. Among the passenger carriers, Qatar have overtaken perennial number 1 Emirates at the top of the ranking, with $6.3 billion of cargo revenues. Third was Korean Air at $5.9 billion, a heady 74% of total revenues. Next were, Cathay Pacific, Lufthansa Group, China Airlines and Cargolux. Turkish Airlines, not often talked about in the same terms as the others as a cargo carrier, generated $4 billion of cargo revenues.

Another dedicated cargo operator, Kalitta Air, reported $1.9 billion of cargo revenues.

Rank	Airline	Cargo revenues ($m)	Cargo revenues as % of total revenues)
1	Qatar Airways	6,330	44%
2	Emirates	5,895	37%
3	Korean Air	5,861	74%
4	Cathay Pacific	4,607	79%
5	Lufthansa Group	4,542	22%
6	China Airlines	4,467	90%
7	Cargolux	4,402	99%
8	Air France-KLM	4,243	25%
9	Turkish Airlines	4,015	37%
10	ANA Holdings	3,230	35%
11	SIA Group	3,217	57%
12	China Southern Airlines	3,084	20%
13	EVA Airways	3,055	82%
14	United Airlines Holdings	2,349	10%
15	KLM Royal Dutch Airlines	2,341	33%
16	International Airlines Group	1,978	20%
17	Japan Airlines	1,950	32%
18	Kalitta Air	1,917	96%
19	Air China	1,723	15%
20	LATAM Airlines Group	1,542	31%
21	British Airways	1,508	30%
22	Qantas Airways	1,427	22%
23	American Airlines Group	1,314	4%
24	American Airlines	1,314	4%
25	China Eastern Airlines	1,288	12%
26	Air Canada	1,191	23%
27	Delta Air Lines	1,032	3%
28	Polar Air Cargo	980	54%
29	Hong Kong Airlines	720	83%
30	Air New Zealand	693	37%
31	Cargojet Airways	590	98%
32	Avianca Holdings	573	33%
33	Iberia	473	14%
34	Aeroflot	465	7%
35	Amerijet International	429	93%
36	Finnair	396	37%
37	Western Global Airlines	386	99%
38	National Air Cargo Group	383	88%
39	Hainan Airlines	361	7%
40	Thai Airways	342	43%
41	Garuda Indonesia	338	25%
42	PAL Holdings	305	26%
43	Southern Air	298	98%
44	TAP S.A.	279	17%
45	ABX Air	258	98%
46	Grupo Aeromexico	242	11%
47	Alaska Air Group	216	3%
48	LATAM Cargo Brasil	209	99%
49	SpiceJet	191	27%
50	Southwest Airlines	187	1%

Rank	Airline	Cargo revenues ($m)	Cargo revenues as % of total revenues
51	Xiamen Airlines	184	6%
52	SriLankan Airlines	146	54%
53	SAS	137	8%
54	Capital A	133	30%
55	Cebu Pacific	131	41%
56	EL AL Israel Airlines	128	15%
57	TAM	128	6%
58	Air India	127	9%
59	Kenya Airways	122	19%
60	Air Europa	100	9%
61	Sideral Air Cargo	93	90%
62	Sun Country Airlines Holdings	91	15%
63	Icelandair	87	15%
64	Aerolineas Argentinas	86	10%
65	Northern Air Cargo	84	81%
66	Shenzhen Airlines	83	3%
67	Juneyao Airlines	79	4%
68	Aer Lingus	77	18%
69	Copa Holdings	72	5%
70	Royal Jordanian Airlines	68	13%
71	Air Incheon	50	100%
72	Air Arabia	40	5%
73	Air Astana	34	4%
74	Pakistan International Airlines	30	6%
75	Biman Bangladesh	24	5%
76	Spring Airlines	19	1%
77	Air Greenland	16	8%
78	STARLUX Airlines	14	50%
79	Virgin Australia	12	1%
80	Volaris	12	1%
81	Jazeera Airways	8	3%
82	Hi Air	7	87%
83	airBaltic	6	3%
84	PT Air Asia Indonesia	5	12%
85	Eastern Air Lines	5	7%
86	Shandong Airlines	5	0%
87	Jeju Air	5	2%
88	ITA Airways	4	4%
89	Thai Air Asia	3	3%
90	Jin Air	2	1%
91	China Express Airlines	2	0%
92	Norwegian Air Shuttle	2	0%
93	SATENA	2	3%
94	Air Corsica	2	1%
95	Croatia Airlines	1	1%
96	Regional Express Holdings	1	1%
97	US-Bangla Airlines	1	1%
98	Air Busan	1	0%
99	Bangkok Airways	0	0%
100	Skymark Airlines	0	0%

Source: *Airfinance Journal's The Airline Analyst*

Top airlines ranked by **lowest employee costs**

There is a huge range on this measure, from 1.5% of revenues to 36.4%. The top 10 is dominated by cargo carriers. The next ten includes major LCCs Volaris, Grupo Viva Aerobus and Wizz Air. Enter Air's position in the top three may reflect accounting methods rather than actual lower costs.

Of the three US majors, only Delta Air Lines made the top 100 on this measure. It is notable that Southwest Airlines did not.

IAG made the list but Air France-KLM and Lufthansa Group failed to make the register. Turkish Airlines and Pegasus Airlines scored very highly at numbers 15 and 20, respectively.

Rank	Airline	Employee costs as % of revenue
1	Polar Air Cargo	1.5%
2	Enter Air	3.7%
3	Cargojet Airways	4.9%
4	China Express Airlines	5.1%
5	LATAM Cargo Brasil	6.6%
6	Bulgaria Air	7.0%
7	National Air Cargo Group	8.3%
8	Sideral Air Cargo	8.3%
9	Aegean Airlines	10.2%
10	Air Incheon	10.7%
11	Volaris	10.9%
12	Grupo VivaAerobus	11.2%
13	Biman Bangladesh	11.5%
14	Royal Jordanian Airlines	11.8%
15	Turkish Airlines	12.0%
16	SATENA	12.1%
17	Cargolux	12.9%
18	US-Bangla Airlines	13.2%
19	Wizz Air	13.3%
20	Pegasus Airlines	13.5%
21	Air Astana	13.9%
22	Aeroflot	13.9%
23	SpiceJet	14.0%
24	Emirates	14.3%
25	Air Arabia	14.3%
26	Ryanair	14.4%
27	Jazeera Airways	15.3%
28	PAL Holdings	15.6%
29	Qatar Airways	15.7%
30	Hong Kong Airlines	15.8%
31	Eastern Air Lines	16.7%
32	Copa Holdings	17.1%
33	Kenya Airways	18.2%
34	Western Global Airlines	18.3%
35	fastjet	18.3%
36	TAM	19.0%
37	SIA Group	19.4%
38	Nok Air	19.5%
39	Amerijet International	19.6%
40	VietJet Air	19.7%
41	Air Europa	19.8%
42	Azul S.A.	19.8%
43	EVA Airways	19.9%
44	China Airlines	20.5%
45	LATAM Airlines Group	20.9%
46	Korean Air	21.7%
47	Air India	21.8%
48	StarFlyer	21.9%
49	Hainan Airlines	21.9%
50	Grupo Aeromexico	22.2%
51	Avianca Holdings	22.7%
52	Atlas Air Worldwide Group	22.9%
53	Pakistan International Airlines	23.4%
54	Kalitta Air	24.5%
55	Juneyao Airlines	24.6%
56	Cathay Pacific	24.8%
57	Wideroe	24.8%
58	Shandong Airlines	25.3%
59	Thai Airways	25.3%
60	Spring Airlines	25.4%
61	Jet2 plc	25.4%
62	Finnair	25.5%
63	Fly Gangwon	25.5%
64	Xiamen Airlines	25.6%
65	China Southern Airlines	25.9%
66	airBaltic	26.1%
67	Aerolineas Argentinas	26.5%
68	Iberia	26.8%
69	TAP S.A.	27.2%
70	Croatia Airlines	27.8%
71	Allegiant Travel Company	28.4%
72	Sun Country Airlines Holdings	28.6%
73	Garuda Indonesia	29.2%
74	Air Austral	29.3%
75	GOL	29.6%
76	Frontier Group Holdings	29.9%
77	Air Busan	30.8%
78	China Eastern Airlines	31.4%
79	International Airlines Group	32.1%
80	Air China	32.4%
81	Delta Air Lines	32.9%
82	Spirit Airlines	33.0%
83	Air Greenland	33.1%
84	Qantas Airways	33.2%
85	Nordic Aviation Group	33.7%
86	Omni Air International	33.9%
87	easyJet	34.0%
88	Air Transport Services Group	34.1%
89	Shenzhen Airlines	34.2%
90	Virgin Australia	34.4%
91	Alliance Airlines	34.4%
92	CityJet	35.2%
93	EL AL Israel Airlines	35.6%
94	Air Canada	35.7%
95	Air New Zealand	35.7%
96	Azores Airlines	35.9%
97	Japan Airlines	36.0%
98	Air Atlanta Icelandic	36.1%
99	SkyWest Airlines	36.4%
100	ABX Air	36.4%

Source: *Airfinance Journal's The Airline Analyst*

Top 100 by **EBITDAR margin**

EBITDAR margin continues to be a very appealing measure of management's success in running an airline and the viability of the airline's core business, independent of the financing strategies chosen. As not every airline has adopted IFRS 16, it remains the only metric that permits comparison of all airlines globally.

There is a vast range in EBITDAR margin from best to worst in the most recent periods. Last year, only 52 airlines achieved positive EBITDAR margins. This year all of them did, but with the bottom three scraping in at 1%.

At the top are a number of major cargo carriers, reflecting the buoyant market for freight in both volume and yields. The leaders also include some regional carriers and LCCs.

Air Arabia achieved a stellar EBITDAR margin of 40%, followed by more airlines with substantial cargo operations. LCCs Volaris and Grupo Viva Aerobus also performed strongly as did three Turkish carriers – Turkish Airlines, Pegasus and Sun Express.

Helped by the recovery of their domestic market, the Chinese airlines reported positive results on this measure. China Southern led the big three at 13%, followed by China Eastern at 5% and Air China at 1%. The US, Japanese and European majors remained in negative territory.

Rank	Airline	EBITDAR Margin
1	**Polar Air Cargo**	72%
2	**Air Caraibes Atlantique**	65%
3	**Nippon Cargo Airlines**	60%
4	**VietJet Air**	47%
5	**Cargolux**	46%
6	**Nordic Regional Airlines**	45%
7	**Air Arabia**	40%
8	**Western Global Airlines**	39%
9	**Southern Air**	39%
10	**Grupo VivaAerobus**	38%
11	**EVA Airways**	37%
12	**Biman Bangladesh**	37%
13	**Cargojet Airways**	37%
14	**Volaris**	36%
15	**French Bee**	35%
16	**Jazeera Airways**	34%
17	**Korean Air**	34%
18	**Qatar Airways**	33%
19	**Skymark Airlines**	33%
20	**National Air Cargo Group**	32%
21	**China Airlines**	32%
22	**Asiana Airlines**	32%
23	**Air Transport Services Group**	31%
24	**ABX Air**	30%
25	**Emirates**	30%
26	**Sideral Air Cargo**	29%
27	**Turkish Airlines**	29%
28	**Air Incheon**	29%
29	**Air Astana**	28%
30	**Chorus Aviation**	27%
31	**Cathay Pacific**	27%
32	**Harbor Diversified, Inc.**	26%
33	**Horizon Air**	26%
34	**Atlas Air Worldwide Group**	26%
35	**Bluebird Nordic**	26%
36	**Copa Holdings**	26%
37	**Hong Kong Airlines**	26%
38	**GoJet Airlines**	25%
39	**Nordic Aviation Group**	25%
40	**Omni Air International**	23%
41	**US-Bangla Airlines**	23%
42	**PAL Holdings**	22%
43	**Amerijet International**	21%
44	**Enter Air**	21%
45	**Air Greenland**	21%
46	**Air Serbia**	21%
47	**Pegasus Airlines**	21%
48	**Aeroflot**	20%
49	**SkyWest Airlines**	20%
50	**Virgin Australia**	19%

Rank	Airline	EBITDAR Margin
51	**SIA Group**	19%
52	**Sun Country Airlines Holdings**	18%
53	**Kenya Airways**	18%
54	**CityJet**	18%
55	**Republic Airways**	18%
56	**Kalitta Air**	18%
57	**Air Atlanta Icelandic**	17%
58	**SpiceJet**	17%
59	**Atlantic Airways**	17%
60	**Alliance Airlines**	17%
61	**Neos S.p.A.**	17%
62	**SunExpress**	16%
63	**Allegiant Travel Company**	16%
64	**Grupo Aeromexico**	15%
65	**China Express Airlines**	15%
66	**Aegean Airlines**	14%
67	**Mesa Air Group**	14%
68	**China Southern Airlines**	13%
69	**Juneyao Airlines**	13%
70	**Bulgaria Air**	12%
71	**Xiamen Airlines**	12%
72	**Spring Airlines**	11%
73	**ANA Holdings**	10%
74	**Eurowings Europe**	10%
75	**Shandong Airlines**	9%
76	**LATAM Cargo Brasil**	9%
77	**Royal Jordanian Airlines**	9%
78	**Wideroe**	8%
79	**Vietnam Airlines**	8%
80	**Air Tahiti Nui**	8%
81	**IndiGo**	7%
82	**Air Austral**	7%
83	**SATENA**	6%
84	**Alaska Air Group**	6%
85	**Air France-KLM**	5%
86	**Ryanair**	5%
87	**Azul S.A.**	5%
88	**China Eastern Airlines**	5%
89	**Frontier Group Holdings**	5%
90	**TAP S.A.**	4%
91	**Spirit Airlines**	3%
92	**Qantas Airways**	3%
93	**Pakistan International Airlines**	3%
94	**Avianca Holdings**	3%
95	**Solaseed Air**	3%
96	**Hainan Airlines**	2%
97	**Iberia**	2%
98	**Southwest Airlines**	1%
99	**LATAM Airlines Group**	1%
100	**Air China**	1%

Source: *Airfinance Journal's The Airline Analyst*

Top 100 by **liquidity**

Our normal measure of liquidity is unrestricted cash as a percentage of revenues. Note that this does not include standby facilities as disclosure is very inconsistent and availability is difficult to track on a quarterly basis. A traditional rule of thumb is that this metric should exceed 25%, the equivalent of three months' worth of revenues. However, Covid has meant a new look at this measure due to the declines in revenues. Most airlines generated liquidity in the last three years in one form or another – debt and equity raisings, sale and leaseback of aircraft, moving to power-by-the-hour leases, government furlough programmes, redundancies, deferral of lease payments and outright asset sales. Liquidity reached an all-time-high for the industry a year ago.

On this measure, the entire list of top 100 airlines had in excess of 25% of revenues as unrestricted cash, with twenty airlines exceeding 100%. The top three probably represent a dearth of revenue rather than an exceptional surplus of liquidity. If you would like to see the list of airlines with less than 25% of revenues as unrestricted cash, please contact **accountmanager@airfinancejournal.com**.

Rank	Airline	Liquidity as % of revenues
1	**Tigerair Taiwan**	1365%
2	**Air Premia**	839%
3	**ITA Airways**	496%
4	**Transat A.T.**	347%
5	**PLAY**	315%
6	**easyJet**	243%
7	**Royal Brunei Airlines**	196%
8	**STARLUX Airlines**	196%
9	**SIA Group**	186%
10	**Jet2 plc**	181%
11	**Finnair**	141%
12	**Air Canada**	138%
13	**Norwegian Air Shuttle**	134%
14	**Flyr AS**	129%
15	**Lufthansa Parent**	127%
16	**Air Arabia**	120%
17	**Cebu Pacific**	115%
18	**Hawaiian Airlines**	109%
19	**Jeju Air**	108%
20	**Air Tahiti Nui**	100%
21	**Southwest Airlines**	98%
22	**International Airlines Group**	94%
23	**ANA Holdings**	93%
24	**Qatar Airways**	77%
25	**Ryanair**	75%
26	**United Airlines Holdings**	75%
27	**Wizz Air**	73%
28	**Japan Airlines**	72%
29	**Jin Air**	72%
30	**Harbor Diversified, Inc.**	71%
31	**Allegiant Travel Company**	69%
32	**Air Corsica**	69%
33	**Pegasus Airlines**	68%
34	**SunExpress**	67%
35	**Copa Holdings**	67%
36	**Spring Airlines**	67%
37	**Fly Gangwon**	66%
38	**Air New Zealand**	66%
39	**Aegean Airlines**	64%
40	**Capital A**	64%
41	**Jazeera Airways**	64%
42	**Air Do**	62%
43	**Cargolux**	60%
44	**TAP S.A.**	59%
45	**Avianca Holdings**	56%
46	**Sideral Air Cargo**	53%
47	**Sun Country Airlines Holdings**	51%
48	**Alaska Air Group**	50%
49	**Aer Lingus**	50%
50	**Bangkok Airways**	49%
51	**Air France**	47%
52	**Air France-KLM**	47%
53	**jetBlue**	47%
54	**EVA Airways**	47%
55	**SATA Air Azores**	46%
56	**British Airways**	46%
57	**Icelandair**	46%
58	**Korean Air**	46%
59	**Spirit Airlines**	45%
60	**Frontier Group Holdings**	45%
61	**Lufthansa Group**	44%
62	**Grupo VivaAerobus**	44%
63	**Grupo Aeromexico**	43%
64	**Virgin Australia**	43%
65	**Cathay Pacific**	42%
66	**China Airlines**	42%
67	**American Airlines Group**	42%
68	**American Airlines**	42%
69	**PAL Holdings**	41%
70	**Atlantic Airways**	40%
71	**airBaltic**	40%
72	**Croatia Airlines**	39%
73	**Vueling Airlines**	39%
74	**Aerolineas Argentinas**	38%
75	**Tway Airlines**	38%
76	**Delta Air Lines**	38%
77	**Global Crossing Airlines**	37%
78	**Emirates**	35%
79	**IndiGo**	35%
80	**China Express Airlines**	35%
81	**Air Europa**	35%
82	**Qantas Airways**	34%
83	**Volaris**	34%
84	**Royal Jordanian Airlines**	34%
85	**Republic Airways**	33%
86	**Air Seoul**	33%
87	**SkyWest Airlines**	32%
88	**Azul S.A.**	31%
89	**CityJet**	31%
90	**Luxair Group**	31%
91	**StarFlyer**	30%
92	**Shandong Airlines**	30%
93	**Air Astana**	30%
94	**SAS**	30%
95	**Solaseed Air**	30%
96	**VietJet Air**	29%
97	**Nok Air**	29%
98	**Air Greenland**	28%
99	**Air Busan**	27%
100	**Iberia**	26%

Source: *Airfinance Journal's The Airline Analyst*

Top 100 by **leverage**

A leverage measure has more value in our opinion if it is related to ability to service debt from continuing operations rather than some balance sheet equity figures that may not reflect current values of assets. However, due to the disruption to cash flow from operations due to Covid, adjusted net debt/EBITDAR is not currently a very helpful leverage measure.

We are therefore using a simple equity ratio for this year to at least get some idea of the magnitude of each carrier's leverage. That said, this ratio is impacted by the effect of recent losses, especially at the majors.

The best capitalised airlines on this measure are five cargo airlines: National Air Cargo, Southern Air, ABX Air, Kalitta Air and Sideral Air Cargo followed by Luxair Group. Among the major passenger carriers, SIA Group and Cathay Pacific rank highly thanks to their government-supported recapitalisations.

Rank	Airline	Book Equity/Total Assets
1	National Air Cargo Group	96%
2	Southern Air	93%
3	ABX Air	90%
4	Sideral Air Cargo	88%
5	Kalitta Air	78%
6	Luxair Group	75%
7	Omni Air International	73%
8	Royal Brunei Airlines	58%
9	Cargolux	57%
10	Norse Atlantic Airways	56%
11	Amerijet International	56%
12	Harbor Diversified, Inc.	51%
13	Nordic Aviation Group	51%
14	fastjet	50%
15	Alliance Airlines	47%
16	SIA Group	47%
17	Air Arabia	46%
18	Cargojet Airways	45%
19	Atlas Air Worldwide Group	44%
20	Air Atlanta Icelandic	41%
21	Air Transport Services Group	40%
22	Air Greenland	38%
23	Eurowings Europe	38%
24	Republic Airways	37%
25	Cathay Pacific	37%
26	ITA Airways	37%
27	Ryanair	37%
28	Air Caraibes Atlantique	37%
29	Spring Airlines	36%
30	Eastern Airways	36%
31	Xiamen Airlines	36%
32	Japan Airlines	36%
33	Horizon Air	36%
34	Sun Country Airlines Holdings	35%
35	Atlantic Airways	34%
36	Mesa Air Group	34%
37	PLAY	33%
38	VietJet Air	33%
39	SkyWest Airlines	32%
40	Regional Express Holdings	31%
41	Allegiant Travel Company	31%
42	Copa Holdings	31%
43	Envoy Air	29%
44	Jin Air	29%
45	Southwest Airlines	29%
46	EVA Airways	28%
47	jetBlue	28%
48	Tigerair Taiwan	28%
49	Alaska Air Group	27%
50	easyJet	27%
51	Bangkok Airways	27%
52	China Airlines	26%
53	China Southern Airlines	26%
54	Turkish Airlines	26%
55	Korean Air	26%
56	Eastern Air Lines	25%
57	ANA Holdings	25%
58	Spirit Airlines	25%
59	Air Corsica	23%
60	Juneyao Airlines	23%
61	French Bee	23%
62	Qatar Airways	23%
63	Jet2 plc	22%
64	China Express Airlines	22%
65	Bulgaria Air	22%
66	Air China	22%
67	Chorus Aviation	22%
68	Lufthansa Parent	22%
69	Air New Zealand	20%
70	China Eastern Airlines	20%
71	Flyr AS	19%
72	Icelandair	19%
73	STARLUX Airlines	18%
74	Norwegian Air Shuttle	17%
75	Air Do	17%
76	Wideroe	16%
77	Solaseed Air	15%
78	Air Tahiti Nui	15%
79	Jeju Air	15%
80	Aegean Airlines	14%
81	Emirates	14%
82	Jazeera Airways	13%
83	Air Busan	13%
84	Nordic Regional Airlines	13%
85	Pegasus Airlines	13%
86	Frontier Group Holdings	13%
87	Fly Gangwon	12%
88	Hawaiian Airlines	12%
89	SAS	12%
90	Finnair	12%
91	Biman Bangladesh	11%
92	Global Crossing Airlines	11%
93	Lufthansa Group	11%
94	British Airways	10%
95	Skymark Airlines	10%
96	Air Premia	10%
97	Frontier Airlines	10%
98	SunExpress	9%
99	Volaris	8%
100	Cebu Pacific	8%

Source: *Airfinance Journal's The Airline Analyst*

Note: For IFRS 16 reporters, "Rent" is derived from depreciation on right of use assets plus interest on lease liabilities. If these are not available, rent is estimated.
Leverage is calculated by adding 8x rent to balance sheet interest bearing debt and dividing by EBITDAR

Top 100 by **fixed charge cover**

This indicator normally confirms that airlines can service quite high levels of debt from cash flow. This is demonstrated by the large number of airlines that pre-Covid had fixed charge cover ratios in excess of 2x which might be a pre-requisite for an investment grade rating.

However, as the table shows, only 29 airlines had fixed charge cover above 2x in the most recent period and only 51 had levels in excess of 1x. Below 1x indicates insufficient cash flow to pay interest and rents other than by selling assets, raising equity or hybrid capital – or requesting rent deferral from lessors.

It will be critical for the airlines to manage for cash generation and to revisit their capital structures in order to achieve fixed charge cover ratios above 1x as soon as possible.

Rank	Airline	Fixed Charge Cover: EBITDAR/ Net Interest plus Rent (x)
1	Sideral Air Cargo	130.9
2	Cargolux	32.4
3	Air Greenland	18.2
4	ABX Air	17.0
5	Air Incheon	15.2
6	Southern Air	14.5
7	Air Arabia	14.0
8	Kalitta Air	12.2
9	Nippon Cargo Airlines	7.9
10	Air Transport Services Group	6.6
11	Atlas Air Worldwide Group	6.4
12	Cargojet Airways	6.3
13	Alliance Airlines	5.7
14	Korean Air	4.9
15	Wideroe	4.8
16	Horizon Air	4.2
17	Turkish Airlines	4.1
18	National Air Cargo Group	3.6
19	Allegiant Travel Company	3.2
20	China Airlines	3.0
21	Western Global Airlines	2.9
22	Chorus Aviation	2.8
23	Republic Airways	2.8
24	Copa Holdings	2.7
25	Sun Country Airlines Holdings	2.6
26	Grupo VivaAerobus	2.4
27	Biman Bangladesh	2.3
28	Qatar Airways	2.2
29	Atlantic Airways	2.0
30	SkyWest Airlines	1.9
31	Amerijet International	1.9
32	Omni Air International	1.8
33	EVA Airways	1.8
34	Ryanair	1.7
35	Air Atlanta Icelandic	1.7
36	Cathay Pacific	1.6
37	Air Serbia	1.6
38	SIA Group	1.6
39	China Express Airlines	1.5
40	Air Astana	1.4
41	Xiamen Airlines	1.4
42	Emirates	1.4
43	Volaris	1.3
44	Asiana Airlines	1.3
45	Pegasus Airlines	1.3
46	SunExpress	1.2
47	Jazeera Airways	1.2
48	Nordic Aviation Group	1.2
49	Skymark Airlines	1.1
50	Nordic Regional Airlines	1.1

Rank	Airline	Fixed Charge Cover: EBITDAR/ Net Interest plus Rent (x)
51	Bluebird Nordic	1.1
52	Alaska Air Group	1.0
53	Air Caraibes Atlantique	1.0
54	Eurowings Europe	1.0
55	Polar Air Cargo	1.0
56	Mesa Air Group	1.0
57	Virgin Australia	0.9
58	Enter Air	0.8
59	China Southern Airlines	0.8
60	US-Bangla Airlines	0.8
61	French Bee	0.7
62	Spring Airlines	0.7
63	CityJet	0.7
64	ANA Holdings	0.7
65	GoJet Airlines	0.7
66	Grupo Aeromexico	0.7
67	Juneyao Airlines	0.7
68	Kenya Airways	0.6
69	Neos S.p.A.	0.6
70	Qantas Airways	0.6
71	VietJet Air	0.6
72	Hong Kong Airlines	0.5
73	Aeroflot	0.5
74	Aegean Airlines	0.5
75	PAL Holdings	0.5
76	Air France-KLM	0.5
77	LATAM Cargo Brasil	0.5
78	SpiceJet	0.4
79	Southwest Airlines	0.3
80	Shandong Airlines	0.3
81	Royal Jordanian Airlines	0.3
82	Spirit Airlines	0.3
83	SATENA	0.3
84	China Eastern Airlines	0.3
85	Bulgaria Air	0.3
86	IndiGo	0.2
87	Air Tahiti Nui	0.2
88	Frontier Group Holdings	0.2
89	Vietnam Airlines	0.2
90	Air Austral	0.2
91	Iberia	0.1
92	Solaseed Air	0.1
93	Avianca Holdings	0.1
94	Azul S.A.	0.1
95	TAP S.A.	0.1
96	Pakistan International Airlines	0.1
97	HOP!	0.1
98	Hainan Airlines	0.1
99	Air China	0.0
100	Northern Air Cargo	0.0

Source: *Airfinance Journal's The Airline Analyst*
Note: For IFRS 16 reporters, "Rent" is derived from depreciation on right of use assets plus interest on lease liabilities.
If these are not available, rent is estimated based on previous years or estimated rent on leased fleet

Top listed airlines by **market capitalisation**

The table adjacent shows the 92 listed airlines by market capitalisation as of 27 August 2022. The aggregate value is $292 billion, down from $336 billion last year. Factors influencing this direction include the impact of Russia's war with Ukraine, the outlook for global economic growth, interest rates and the current level of fuel costs.

Southwest Airlines has retained the number one position, and Delta holds second spot. The weakest performer from the US is American Airlines which fell from $13.5 billion to $8.9 billion.

Among Europeans, IAG is down 41%, Air France-KLM is up 12% and Lufthansa Group is up 23%. Ryanair is down 37% and Wizz Air 61%. The Chinese airlines are relatively flat to last year's valuations.

That said, there are some airlines with continuing equity value that seems to defy their financial condition and ability to generate future shareholder value. These include Nok Air at $107 million, Air Asia X at $46 million and Hainan Airlines at $4.1 billion! The jury is out on Norwegian Air Shuttle's ability to justify its current market capitalisation of $899 million. The survivability of the slew of Korean LCCs that still have positive equity market capitalisation is also in question. The future of Air Mauritius is also in doubt as they are in administration and restructuring.

The sector definitely offers some attractive trading opportunities from the inherent volatility.

Rank	Airline	Market Cap ($m)
1	**Southwest Airlines**	23,008
2	**Delta Air Lines**	19,053
3	**Air China**	17,149
4	**Ryanair**	13,839
5	**China Southern Airlines**	13,307
6	**United Airlines Holdings**	12,671
7	**SIA Group**	10,955
8	**IndiGo**	10,086
9	**China Eastern Airlines**	9,497
10	**American Airlines Group**	8,885
11	**ANA Holdings**	8,400
12	**Lufthansa Group**	8,069
13	**Japan Airlines**	7,302
14	**Spring Airlines**	7,075
15	**Korean Air**	7,041
16	**Cathay Pacific**	6,825
17	**International Airlines Group**	6,723
18	**Qantas Airways**	6,107
19	**Alaska Air Group**	5,590
20	**EVA Airways**	5,533
21	**Air Canada**	4,763
22	**Turkish Airlines**	4,734
23	**China Airlines**	4,537
24	**easyJet**	4,484
25	**Hainan Airlines**	4,145
26	**Juneyao Airlines**	3,815
27	**Air France-KLM**	3,455
28	**Copa Holdings**	3,077
29	**Atlas Air Worldwide Group**	2,826
30	**jetBlue**	2,784
31	**Spirit Airlines**	2,661
32	**Air Arabia**	2,528
33	**Frontier Group Holdings, Inc**	2,419
34	**Air Transport Services Group**	2,328
35	**Wizz Air**	2,311
36	**Allegiant Travel Company**	2,004
37	**Cargojet Airways**	1,821
38	**Volaris**	1,805
39	**China Express Airlines**	1,568
40	**Sun Country Airlines**	1,539
41	**Air New Zealand**	1,429
42	**Jazeera Airways**	1,372
43	**Grupo Aeromexico**	1,361
44	**PAL Holdings**	1,241
45	**SkyWest Airlines**	1,232
46	**Azul S.A.**	1,179
47	**Sun Country Airlines Holdings**	1,144
48	**Aeroflot**	1,102
49	**Asiana Airlines**	1,056
50	**Pegasus Airlines**	1,006
51	**Norwegian Air Shuttle**	899
52	**Vietnam Airlines**	858
53	**Jeju Air**	828
54	**Hawaiian Airlines**	776
55	**Jin Air**	717
56	**Finnair**	631
57	**Bangkok Airways**	595
58	**Capital A**	581
59	**Icelandair**	510
60	**Cebu Pacific**	500
61	**Chorus Aviation**	472
62	**Aegean Airlines**	468
63	**SAS**	457
64	**GOL**	455
65	**Utair**	427
66	**Garuda Indonesia**	387
67	**Alliance Airlines**	386
68	**Tway Airlines**	330
69	**SpiceJet**	289
70	**Air Busan**	272
71	**Shandong Airlines**	200
72	**Thai Airways**	199
73	**Kenya Airways**	186
74	**LATAM Airlines Group**	182
75	**Jet Airways**	132
76	**Nok Air**	107
77	**Regional Express Holdings**	107
78	**Norse Atlantic Airways**	104
79	**Pakistan International Airlines**	104
80	**Enter Air**	93
81	**Mesa Air Group**	91
82	**Transat A.T.**	91
83	**Royal Jordanian Airlines**	77
84	**Flyr AS**	68
85	**Thomas Cook Group**	62
86	**StarFlyer**	58
87	**Croatia Airlines**	52
88	**Air Asia X**	46
89	**Comair Limited**	28
90	**EL AL Israel Airlines**	26
91	**Air Mauritius**	14
92	**Avianca Holdings**	10

Source: Bloomberg and *Airfinance Journal's The Airline Analyst*
Values as of close on 26 August 2022

We hope you find the analysis helpful and insightful. If you have any queries and comments please do not hesitate to contact Michael Duff at **mduff@theairlineanalyst.com** or **accountmanager@airfinancejournal.com**