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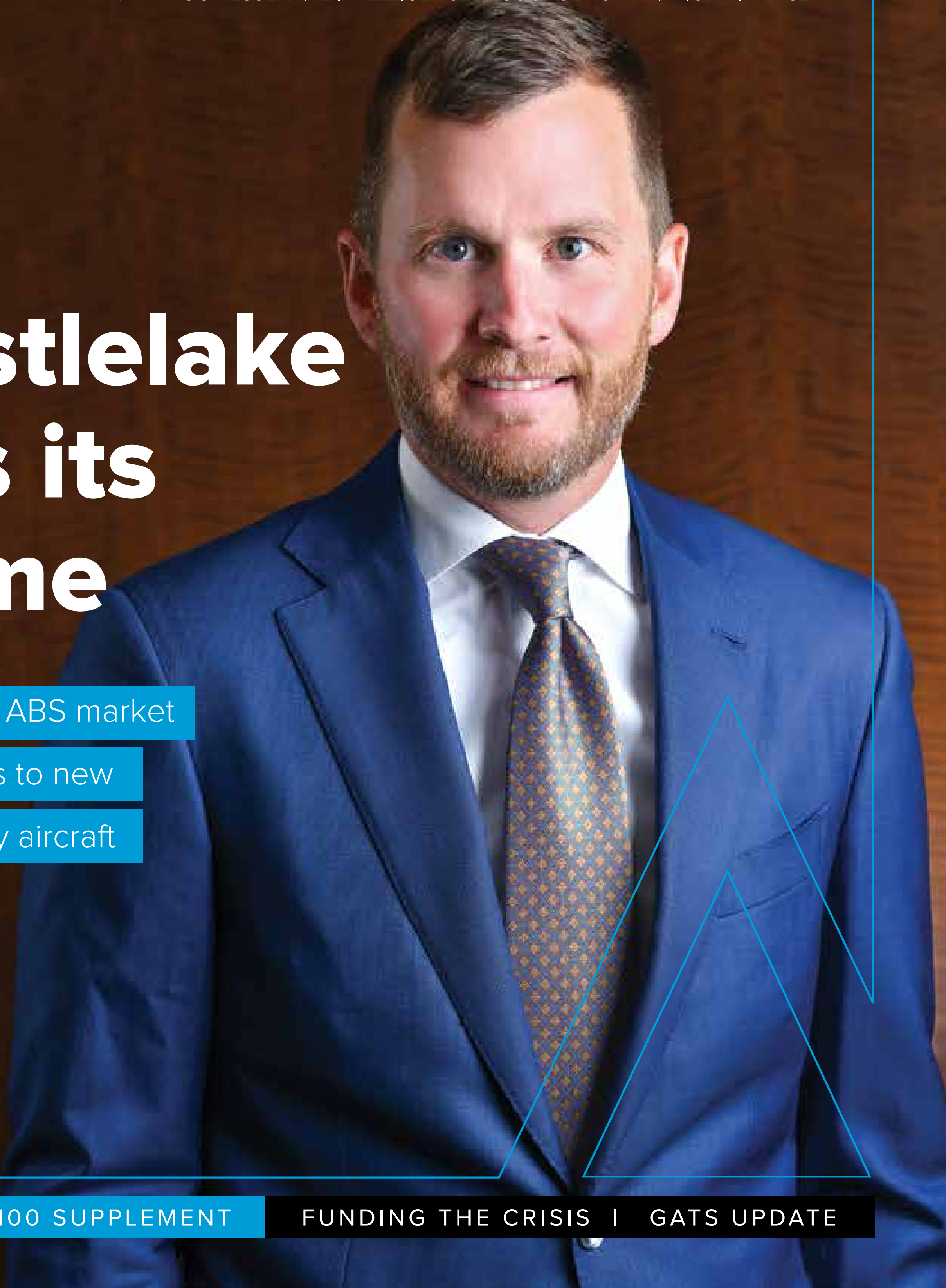

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Timing for investing remains key

Seeking $500 million to invest in the aircraft leasing market is not impossible, despite the impact of Covid-19 on the sector over the past 18 months. The jury, though, is still out regarding the timing as well as the returns.

The market has seen a flurry of investment over the past three years with equity commitment to asset managers.

Airfinance Journal recently talked to one platform seeking equity sponsorship which admitted that, while equity abounds, it is not fully committed to the sector because of the returns.

"We have engaged into quite a number of equity conversations but overall we are hanging back because the terms are not there," the source at the platform tells *Airfinance Journal*. "If you look at the market, it is highly competitive and we are treading water. Even though the US market is back and some players are starting to see visibility, I think there are still some uncertainties at equity levels on what it actually means."

Some equity providers are hesitant to invest in the sector right now. "They are just saying: we are just going to see how this plays out because we are not so sure," he adds.

Credit

The source argues that the new-technology narrowbody sector is still a very competitive market for investment and, since Covid-19, the focus has shifted to the credit.

"What you see now is certain airlines want to take advantage of the pandemic and entrench themselves further. They got the capital to do so and want to take new-technology aircraft. But there is a limited deal flow, because there is not a lot of those airlines that can be on the front foot. Those are going to be competitive deals but there is a situation where airline models are going to change and I believe it is going to end up with low-cost domestic type of travel and point to point.

"There are some airlines that if they probably go through this, could do very well. Everyone is referring to the second tier, the survivors – that is probably where we see the poll going and given their focus on the balance sheet. We see a lot of places to play, even for a new platform, because quite a lot of equity is needed to fill that gap and also to fill the trading requirements from existing lessors. Fund and asset managers target the survivors that are going to be in this new environment, when analysing airline models," adds the source.

He says a transaction with a high-rated low-cost carrier or ultra-low-cost carrier provides low returns for a platform. "I still cannot get my head around some of those returns but if you have a $20 billion balance sheet [and] those sort of relationships, I can't understand why you do a 7% return deal."

Also key is the timing of a transaction. He is more confident doing business now than 12 months ago but admits there is still a lot to play out.

"But some may question about the benefits of investing early: you can invest equity now and get 6-10% return or you can invest in 12 months' time and get 8-10% return. What is the benefit if you get going early?"

He says most equity money coming into the space are referring to mid-teens returns but "you can see some equity providers now thinking about 10% to 12% returns.

"If we get through for the next 12-18 months there might be a re-rating in the sector, which might bring the equity demand down. I think equity investors are still looking at the same. We are just going through a cycle where you have very good aircraft but airlines are asking you a favour on lease payments, or are going to tear up the leasing contract."

He believes the return dynamic has come down. "I don't think you are going to get mid-teens returns, which is what the equity investors have been looking at when coming into the space. As they get to know the sector more, they will probably say: 'We are not going to get that' and 'do 10-12% returns make sense'."

Another source is less optimistic on returns. "A 15% levered return for sale and leaseback of narrowbody new-technology assets is hard or quasi impossible to achieve if one pretends dealing with tier 1 or tier 2 'carefully selected' airlines. The likes of Cebu Pacific Air, Wizz Air, Flydubai, Indigo have very competitive RFPs [request for proposals]," says the source.

"Of course, one can always twist the model and add a 2% or 3% inflation on 10 years' residual value while picking up the most aggressive appraisers. But investors committing on that basis are 'playing fool'," he adds.

According to the source, the reality of the market is that you can probably reach a 12% to 13% levered return on a mixed portfolio, including mid-life narrowbody aircraft and some widebodies. "But to achieve this," he adds, "you need an excellent expert team that has been continuously active over the past 10 to 15 years."

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Natixis names new European head

Alain Rousseau

French bank Natixis has appointed Alain Rousseau as its new head of aviation finance Europe, the Middle East and Africa (EMEA), replacing Benedicte Bedaine-Renault. He reports to Jean Chedeville, global head of aviation finance, and will lead the team in charge of originating aircraft finance deals with all EMEA airlines and lessors.

Rousseau worked as a director aviation finance, Asia-Pacific, when he joined Natixis in 2018, before moving to Paris in 2019 as director aviation finance, EMEA, corporate and investment banking.

He previously spent 11 years at BNP Paribas in different roles in Singapore.

Rousseau started his career at Crédit du Nord in 2005.

In April, Natixis appointed Chedeville as global head of aviation finance, corporate and investment banking. He succeeded Gareth John, who took up his new role as head of investment banking, coverage and sectors, UK, in March.

Chedeville remains based in Singapore and reports to Benedicte de Giafferri, global head of real assets finance.

He also retains his role as head of aviation finance, Asia-Pacific, in which he reports to Emmanuel Gillet-Lagarde, head of real assets and global trade, Asia-Pacific.

Chedeville started his career in 2003 at HSBC in Paris before moving to BNP Paribas in 2004, first in corporate banking based in New York, then, from 2006, in Singapore in aviation finance. He joined Natixis's aviation finance team in Singapore in 2014, and was named head of aviation finance, Asia-Pacific, in 2018.

Barta moves to **JP Morgan**

JP Morgan has expanded its debt capital markets team with the appointment of Dana Barta, who will focus on enhanced equipment trust certificate (EETC) origination and will work with the bank's other capital markets experts on both aviation and transportation deals.

While JP Morgan is a global leader in capital markets origination for airlines and lessors in senior unsecured bonds and loans, secured bonds and term loans backed by routes, slots, gates collateral, and export credit, the bank has not been nearly as active in EETC originations.

Barta's addition will round up the product offerings JP Morgan has to offer to its clients.

Dana Barta

She joins from Morgan Stanley, where she was the executive director in the aviation finance team. At Morgan Stanley, Barta was responsible for originating and executing deals in the transportation space and is a dominant leader and innovator in the EETC space. She was involved in all of Morgan Stanley's EETC transactions since 2010, raising more than $50 billion in more than 60-plus transactions for domestic and international airlines.

Before joining Morgan Stanley, Barta worked at JP Morgan as an analyst in structured credit products. She also worked at Wachovia as an associate in structured equity products.

Barta is the co-founder of Advancing Women in Aviation Roundtable.

PK Airfinance hires banker

New York-based banker Subramanian Alagappan has agreed to join Apollo Global Management's lending arm PK Airfinance from MUFG, according to sources.

MUFG head of global origination for aviation finance, Olivier Trauchessec, confirms to *Airfinance Journal* that Alagappan left the bank in the third quarter. "MUFG is conducting an active search for his replacement," he says.

At MUFG, Alagappan was managing director head of originations, Americas, since 2019. Before that, he spent more than 13 years in various roles at DVB Bank in New York. He joined the bank in 2005 as an assistant vice-president after three years with Singapore Airlines. Alagappan was responsible for originating, structuring and arranging structured asset finance solutions for aviation clients in the Americas, which include airlines, leasing companies, private equity firms and hedge funds.

Last autumn, PK Airfinance named former DVB Bank executive Eelco van de Stadt as its president. He replaced Per Waldelof, who retired at the end of last year.

Van de Stadt is based in London. He joined PK Airfinance from MUFG, where he served as global head of origination aviation finance for nearly a year after MUFG's acquisition of DVB Bank's aviation finance client lending portfolio.

Sky Leasing confirms Tay for Asia role

Sky Leasing has hired Valerie Tay as managing director Asia.

Tay previously held banking positions with Citibank and HSH Nordbank before joining Transportation Partners in 2012, where, as chief financial officer, she built the lessor's finance capabilities and negotiated Covid-19 lease defaults.

She will report to John Duffy, chief commercial officer, who says: "It's great to have Valerie on board. She will bring a unique insight to our Asian growth plans, having looked at many deals through the lens of a banker, lessor and airline over a 20-year period."

Sky Leasing also appointed Catherine Kearns as general counsel, based in the Dublin office. Kearns has more than 25 years' aircraft leasing legal experience having previously held senior legal roles at BOC Aviation, Sky Aviation Leasing International and Orix Aviation.

Funding the **crisis**

Financial support during the Covid-19 pandemic has come from various sources and instruments, but governments, lessors and banks have led the way. **Dominic Lalk** and **Olivier Bonnassies** report.

Since the start of the Covid-19 pandemic in early 2020 more than 100 airlines across the world have completed a restructuring or are in the midst of one. Others have not even begun rehabilitation proceedings, while others have already been liquidated.

This means that funding the ongoing crisis remains a challenge. Many airlines simply do not have access to additional financing or have not been able to raise enough. At the same time, leasing firms, especially the smaller entities, are facing cash-flow issues as their customers restructure and aircraft remain grounded.

At the *Airfinance Journal* North America conference in August, Robert Morin, managing director of AFIC, said the aviation industry would have found itself in much worse financial distress without Covid-19-related support from governments, lessors and banks.

"Once Covid-19 is behind us," he said, "someone will start writing the history of the impact of Covid-19 on the industry, and three groups will stand out: the governments and leasing companies and financial institutions."

"There are no functioning capital markets in this region. This is what differentiates particularly the Asean region from domestic China."

Robert Martin, managing director and chief executive officer, BOC Aviation

Airline funding

Airfinance Journal data shows that from 1 January 2021 through 31 July 2021 airlines raised $110 billion in fresh funding. There exists, however, a very large regional divide.

North American carriers and, to a lesser degree, airlines in Europe, continued to enjoy easy access to funding their operations, while airlines in Asia accounted for only $4.8 billion of extra Covid-19 warchest financings raised in the first seven months of 2021.

Of that $110 billion global total, more than $29 billion came from unsecured bond issuances, especially from airlines in Europe, $22 billion from secured loans, $34 billion from payroll support programme (PSP) facilities in the USA, $10 billion from secured bonds and more than $6 billion from sale and leaseback activity.

More complex financing structures, including airline enhanced equipment trust certificates, export credits and Japanese operating lease financings contributed less than $3 billion to airline financings in the first seven months of this year.

Airline fundings (Jan-Jul 2021, *Airfinance Journal* Deal Tracker, $ million)

Region	EETC	Export credit	Jolco	PSP Facility	Sale leaseback	Secured Bonds	Secured Loan	Unsecured Bonds	Unsecured loan	Grand Total
Africa							338		49	386
Asia					1,748		280	2,291	525	4,844
China		156			123		1,343	4,106		5,728
CIS					395			343	320	1,058
Europe	553	355	1,138		1,085		4,777	16,667	958	25,532
Latin America					637			600	190	1,427
Middle East					255		2,986		127	3,368
North America	600			34,287	1,757	10,400	12,118	5,155	2,691	67,007
Oceania		65			190				230	485
Grand Total	**1,153**	**576**	**1,138**	**34,287**	**6,190**	**10,400**	**21,842**	**29,162**	**5,088**	**109,836**

North America

North America-based carriers netted more than $67 billion of the $110 billion of new funds that became available this year to 31 July, *Airfinance Journal*'s Deal Tracker shows.

North American carriers benefitted from generous and readily available government support packages, including large PSP facilities. These facilities alone provided airline treasuries with more than $34 billion in the seven months to 31 July, more than half the $67 billion total raised by airlines across North America. Unlike in Europe, unsecured airline bonds played a smaller role, contributing just over $5 billion to the seven-month North American total.

"I think we are seeing that the US airline industry remains relatively strong. Even here at the event, we had a full spectrum of airlines from Allegiant to American, Spirit and Southwest, and overall I thought it was a pretty upbeat discussion, and it would not have been had the government not stepped up," said Morin at the North America conference.

Europe

European carriers received more than $25 million in funding during the first seven months of this year, the data shows.

The largest European carriers returned to the bond markets to issue new debt, typically to refinance old debt.

Lufthansa Group issued unsecured bonds with a total volume of €1 billion ($1.2 billion) in a transaction that was two times oversubscribed with 2% and 3.5% rates.

Air France-KLM and the French government agreed to a €4 billion recapitalisation plan in the second quarter, which included a €1 billion capital raise and the issuance of subordinated notes in three tranches of €1 billion. Additionally, Air France-KLM issued €800 million in dual-tranche notes at 3% and 3.875% rates.

International Airlines Group (IAG) increased its initial offering by 20% in the second quarter to €1.2 billion. The bonds priced at 2.75% and 3.75%. IAG subsidiary British Airways fully drew down its five-year Export Development Guarantee term loan of £2 billion in February.

Similarly, low-cost carriers Easyjet, Wizz Air and Ryanair issued heavily oversubscribed new debt at very low coupons in the first seven months, including an Easyjet €1.2 billion seven-year unsecured issuance at 1.875% and a Ryanair €1.2 billion Eurobond five-year issuance with a fixed coupon of 0.875%. Wizz priced its three-year €500 million debut bond offering at 1.35% under the parachute of a €3 billion EMTN programme.

Asia-Pacific

In Asia, excluding China, airlines gained access to $4.8 billion in new funds since the beginning of the year. This was largely driven by unsecured bonds and sale and leaseback deals, which together accounted for about $4 billion. There was almost no airline loan activity.

"There are no functioning capital markets in this region. This is what differentiates particularly the Asean region from domestic China where the capital markets have been very strong for airlines all throughout Covid, and obviously the US market, as well as European markets," BOC Aviation's chief executive officer, Robert Martin, tells *Airfinance Journal*.

Notable transactions in the Asia-Pacific during the first seven months of 2021 came from the expected players.

Singapore Airlines (SIA) raised an additional S$6.2 billion ($4.6 billion) in June, with the government taking up more than S$2.4 billion through Tembusu, a subsidiary of state investment firm Temasek.

Since April 2020, SIA has raised S$21.6 billion in fresh liquidity to navigate the challenges posed by the Covid-19 pandemic. The group also retains access to S$2.1 billion of undrawn committed lines of credit, making it one of the best capitalised airlines in the world.

In Hong Kong, Cathay Pacific Airways went to market with its first US dollar issuance in 25 years, for $650 million of five-year notes at 4.875% and arranged by HSBC. The Swire carrier also continued to tap export credit agency schemes to finance its A350 deliveries through the first seven months, including with Bpifrance and Credit Agricole-CIB.

In the Philippines, Cebu Pacific Air sold $250 million worth of convertible bonds to the International Finance Corporation (IFC), the IFC Emerging Asia Fund, and Indigo Philippines, an affiliate of Indigo Partners. The low-cost carrier has not just emerged as the country's largest carrier but also its financially soundest as flag carrier Philippine Airlines returns aircraft amid a wider restructuring.

In China, unsecured airline bonds and secured bank loans dominated the fundraising activity through 31 July, adding more than $4.1 billion and $1.3 billion in the seven-month period to airline funds and reserves.

The Middle East and Africa region totalled more than $3.3 billion in funding mainly via secured loans. In Latin America, airlines raised $1.4 billion, mostly through secured and unsecured facilities.

The lack of government support in those regions, just like in most of Asia-Pacific, remains apparent.

"There is a correlation between the lack of government support in Latin America and the three major carriers that have filed for bankruptcy," says Morin, adding: "Perhaps that is sort of a window to the rest of the world and their airlines, suggesting that had governments not stepped up, you would have seen many more bankruptcies."

Lessor funding

Aircraft leasing and financial institutions continue to support and grow the industry. Lessors have responded positively to airline asset sales, whether new or used.

Lessors, however, also have required new lines of credit and other forms of funding as they continued to receive deferral requests from airline customers.

"They have stepped up in a big way to support their customers. Ten years ago, the industry wasn't as mature and well developed to do so," says Morin.

In the first seven months, the capital markets remained largely open to aircraft lessors with companies from all jurisdictions retaining access to unsecured loans, which accounted for almost $30 billion of the $54 billion lessors raised in fresh funding from 1 January 2021 through 31 July 2021.

Unsecured bond issuances contributed $17 billion to lessor financings in the first seven months, with issuers benefiting from market conditions.

Secured loans and asset-backed securitisations added $4.1 billion and $3.6 billion, respectively, with some ABS issuances especially in the second quarter achieving record pricing levels on the senior tranche.

Lessor fundings (Jan-Jul 2021, *Airfinance Journal* Deal Tracker, $ million)

Month	ABS	EETC	Secured Loan	Unsecured Bonds	Unsecured loan	Grand Total
January	595	180	130	5,535	80	6,520
February			1,169	1,086		2,255
March			486	2,086	28,350	30,922
April	622		1,906	3,081	1,000	6,609
May	663		411	2,658		3,732
June	540		9	2,326		2,875
July	1,195			231	163	1,589
Grand Total	**3,615**	**180**	**4,111**	**17,003**	**29,593**	**54,502**

Miami review: capital markets rebound

Panellists at *Airfinance Journal*'s Americas conference in Miami explain that as banks and private equity activity withdraw at various stages during the Covid-19 crisis, the capital markets have held up strong. **Hugh Davies** reports.

The capital markets have bounced back this year with ample liquidity available for the sector to tap into, depending on credit types and asset classes.

Zephyrus Aviation Capital's chief executive officer says the capital markets are currently a "very attractive financing vehicle for lessors", driven by the alternative financing options they offer for debt investors.

"Despite everything going on in the world, aviation has proved very resilient," Damon D'Agostino told delegates during *Airfinance Journal*'s North America 2021 conference in Miami in early August.

He notes that the ability to transition aircraft globally and across different jurisdictions is a unique investment feature that has given debt investors a "fair amount of comfort" when placing their money with aircraft asset managers.

"As people are looking at alternatives and what they can achieve with their money, aviation is still relatively attractive," says D'Agostino.

"There's a lot of banks that have pulled out of the market, some are coming back a little bit, but that's really been offset by what you're seeing on the capital markets with lessor EETCs [enhanced equipment trust certificates] and ABS [asset-backed securities] transactions… I don't see that changing. Those funding vehicles remain very vibrant just because of lack of alternatives for money and capital to be deployed," he adds.

Early on during the Covid-19 pandemic, lessors played a key role in terms of sale and leaseback deals on new and used assets but timing was important for other sources throughout the crisis.

Private equity funds were more active in the aviation sector during the peak of the crisis during summer last year but have slowed moving through 2021.

Michael Cox, senior managing director at Seabury Securities, argues that private equity firms have been "very active" in bankruptcy cases, citing examples such as LATAM, Aeromexico and Avianca.

"There appears to be a lot of interest. They see that there's light at the end of the Chapter 11 process, and there's been a lot of strong interest at reasonable deals from the airline's perspective," he comments.

Citibank director Michael Leonard believes that export credit agency (ECA) transactions are expected to return to fill certain gaps in aircraft financing, at least in the short to medium term.

He recalls two US Ex-Im-guaranteed bond transactions for Panama flag carrier Copa Airlines financed by Citibank earlier this year for the purchase of Boeing 737 Max 9 deliveries.

"It wasn't a large issuance, but they got over six times oversubscribed for that product. The first priced with a coupon of inside 1% and the second one priced at just over 1%," he reveals.

"It's probably been at least a decade or so since the ECA product was attractive in terms of pricing for Copa," says Leonard.

He notes the Ex-Im-guaranteed structure is beneficial for banks to lend into as a way to avoid regulatory constraints.

"You can look through the airline. You're not really taking airline or metal risk; you're taking US government AAA credit risk.

"This year at least, we'll certainly see at least one more US Ex-Im bond for an airline. Until the bank market comes back, and people feel comfortable with the regulatory guidance, I think the Ex-Im market will remain," Leonard tells delegates.

Hudson Structured Capital Management's founder and managing partner, David Andrews, says private equity historically has looked at higher return levels than what aviation can offer but has more recently been raising funds for investments with lower returns, which has played into aviation.

"They've also been somewhat preoccupied with very high returns in other sectors, particularly in the digital technology space where they're making a ton of money," adds Andrews.

He notes that the sector is "already relatively crowded" from an investor perspective, adding: "For those investors already here, the more isn't the merrier."

Andrews says there is a tremendous amount of access for stronger names, particularly with new technology – the only areas under pressure are weaker names and older technology.

He notes Japanese operating lease with call option (Jolco) transactions particularly are focusing on newer technology.

"It tends to be a market that likes name recognition," says Andrews. He adds: "If you're a Lufthansa, for example, you have very good access to the Jol market."

He says that these tax lease structures are "highly reliant" on demand from middle-market Japanese companies which are looking for tax benefits, adding: "For tax benefits, you have to have profits. If that dissipates, then you'll see demand dissipate."

Andrews warns there could be an interruption in Jol/Jolco demand as the Japanese economy goes into lockdown given the growth in Covid-19 cases but notes that a rise in cases last year did not always lead to a dent in demand.

Consolidation

Zephyrus Aviation Capital's D'Agostino says that while there "might be one or two" lessor bankruptcies as the Covid-19 pandemic continues, that number will undoubtedly be outpaced by airline bankruptcies.

"There might be a couple, but I think the fact we've gotten this far into the pandemic, and there's been very few, shows you the resiliency of the model. It also speaks to the quality of asset managers by and large that are out there that manage platforms," he adds.

He notes the pandemic has accentuated the "symbiotic relationship" between lessors and airlines, with airlines on the one hand requiring asset management specialisation and lessors on the other that need an outlet for their product.

Quizzed on the Aercap-GECAS merger and whether this will spur more M&A activity in the sector, he notes that Aercap has gotten to the size it is predominately through acquisitions.

"I wouldn't say this is the impetus for more consolidation; I would say it's symbolic of what the industry is," he adds, pointing out that acquisitions in crises can lead to growth opportunities.

Asia-Pacific challenge for **737 Max**

The region has arguably become the biggest headache for Boeing's 737 Max marketeers. The problem is two-fold and it started a long time before the twin crashes prompted the type's global grounding, writes **Dominic Lalk**.

Among the many low-cost carriers that proliferated the vast and culturally and politically diverse Asia-Pacific for the past 20 years, Boeing often lost out on significant deals, not just with the Max but also with its predecessor, the 737NG.

Airfinance Journal data shows that current budget carrier fleets in the region show a greater than 70% market share for Airbus's A320 and A320neo-family of aircraft. Looking at outstanding orders, an almost identical picture emerges: Airbus almost has a three-quarter share of future deliveries to Asia-Pacific low-cost carriers.

On the full-service front, the numbers look more positive for Boeing, although still far from rosy. In terms of current aircraft operated by full-service carriers, the 737NG and A320 family are almost at par in the Asia-Pacific, but once the focus shifts to future deliveries, the order backlog reveals that Airbus has secured a more than 60% market share again.

Analysts say Boeing has bet on the wrong horses in the Asia-Pacific, including more than 200 Max orders lost when Jet Airways shut down and another 130 Max orders, placed by Spicejet, in doubt. Meanwhile, Indian carriers Indigo and Go First alone have ordered more than 830 and 160 Airbus aircraft, respectively, and at least Indigo says it has not missed a single lease rental payment during the pandemic.

Following lengthy delays, in late August the Indian authorities cleared the Max's return to the skies. This was after several lessors told *Airfinance Journal* they believed the Indian regulator was purposely holding up recertification to help Spicejet improve its financial statement and avoid possible liquidation, because once cleared Spicejet needs to recommit to its payment obligations for its large Max order, rather than receiving compensation monies from Boeing.

China, Indonesia and Vietnam and the approaches these large economies are taking to the Max should give Boeing pause, too.

Despite opening its first 737 Max shop outside the USA in Zhoushan, China, in 2018, Boeing's Max sales efforts in China have gained little traction amid worsening political and economic relations between the world's superpowers. China has yet to recertify the Max.

Political pressures are also contributing to the continued Max uncertainty in Indonesia. Doubts exist about Lion Air's remaining orders for 237 Max aircraft. Before Covid-19, the group said it was re-evaluating the order after it lost a Max 8 in a crash off Jakarta. The pandemic has focused Lion Air to become a smaller operation and sources say it is negotiating for a Max order exit.

The same applies to Garuda Indonesia, wiping an additional 49 orders potentially off the backlog as recertification remains pending without a timeline provided by the authorities.

Vietnam budget carrier Vietjet Air's order for 200 Max aircraft is in serious doubt, too, *Airfinance Journal* understands. The airline has stopped referring to the Max in its official communications.

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

The situation could not be more different in North America, where airlines and lessors continue to mop up already-built 737 Max inventory. Carriers in the US particularly have been taking advantage of all-time-low price tags for the already-built and stored Max fleet which, when paired with grounding compensation, rendered Airbus unable to compete. This saw significant new 737 Max commitments from US carriers, including 200 new orders from United Airlines, 100 additional units from Southwest Airlines and a deal with Alaska Airlines and Air Lease that sees the airline swap out young A320s for new Max aircraft.

At earnings time in late July, Boeing said it had some 390 Max aircraft remaining in inventory. It now confirms to *Airfinance Journal*: "Just prior to the 737 Max return to service in the US, we estimated that around half of the approximately 450 aircraft we had in storage would be delivered by the end of 2021 and the majority of the remaining aircraft by the end of 2022. That expectation has not changed.

"At earnings time, we had about 390 Max aircraft built and stored in inventory; keep in mind, too, that 737s we are producing currently may also become part of our inventory. We expect delivery timing and the production rate ramp profile to remain dynamic given the market environment, customer discussions and the remaining global regulatory approvals."

Boeing confirms to *Airfinance Journal* that its current 737 orderbook backlog stands at more than 3,300 aircraft. "The official 737 backlog is robust. This year, through the end of July, the 737 orderbook has grown by 168 airplanes (535 gross orders, 343 cancellations, -24 ASC 606 changes). As Dave Calhoun [Boeing president and chief executive officer] talked about during our earnings call, we're seeing commercial recovery accelerating in some regions, especially in domestic markets, but the global recovery remains uneven."

Boeing's interim chief financial officer, David Dohnalek, adds: "We have made significant progress in our efforts to remarket some of our inventory airplanes and have now largely addressed that issue and put it behind us."

Boeing is currently producing Max aircraft at 16 units a month and the original equipment manufacturer says it expects gradually to increase the rate to 31 a month in early 2022, with further gradual increases to correspond with market demand and, importantly, supply chain capacity.

This summer Airbus confirmed plans to increase single-aisle A320neo production by more than 10% from a current rate of 40 aircraft to 45 units a month by the end of 2021.

"There is a strong market in Asia for single-aisle airplanes. With the recovery of domestic and shorter-haul markets within Asia, our 2020 Commercial Market Outlook forecast demand for single-aisle airplanes at approximately 13,640 units in Asia through 2039, creating a strong market for the 737 Max," states Boeing.

On recertification delays, the manufacturer notes that it continues to work with the respective regulators so they can "better understand enhancements to the airplane".

Since November 2020, about 175 out of 195 global regulators have opened their airspace to the 737 Max.

Lessors continue to support the programme. The leasing community signed for hundreds of new 737 Max aircraft last year and in 2021. In particular, lessors stepped up early during the pandemic with sale and leaseback support to airlines. Chinese players especially developed an appetite for Max transactions with North America-based carriers.

After many months of cancellations, there have been notable new 737 Max orders from lessors in the first half of 2021, including the first direct commitment from Dubai Aerospace Enterprise and a top-up order from SMBC Aviation Capital.

Investment consortia eye **HNA restructuring**

The restructuring of HNA Group has opened the door for China's biggest aviation mergers and investments, reports **Elsie Guan**.

In June, Hainan Fangda Aviation Development was established in Hainan with a registered capital of Rmb30 billion ($4.6 billion) to invest in the aviation industry, according to Qichacha, a Chinese enterprise information provider.

The two major shareholders of the new company are Liaoning Fangda Group Industrial and Jiangxi Fangda Steel, each owning 30%.

This is not the first strategic investor to show interest in the restructuring of HNA Group.

"We know that the next taker will be a big name. One of the favourites is Juneyao because the government wants a Chinese private entity to take over. The next owner will be quite healthy," says Carine Truong, founder and chief executive officer (CEO) of Careva Aero Capital.

In May, Juneyao Airlines and Juneyao Aviation Investment, together with external strategic investors, established a new company to invest in the aviation industry.

Yuyuan Tourist Mart and Yuyuan Holding – affiliates of Fosun Group – have also established a company to invest in Hainan Airlines' aviation business under the restructuring of the HNA Group in May.

"As long as everybody's comfortable with the plan for re-emerging, the idea of having a set of airlines with a solid financial footing able to pay everybody on time and keep flying is pretty attractive. It is an 'it might make you hurt but not cry' kind of category, in terms of losses. They've managed the situation pretty well so far this year," says Paul Sheridan, CEO of AMCK Aviation.

A Reuters report in June indicated that about 67,400 creditors of HNA Group are seeking a total of Rmb1.2 trillion from the company.

HNA Group has confirmed Rmb405.7 billion in claims as valid and has rejected Rmb353.5 billion, the report added, noting that another Rmb156.5 billion in claims are being assessed as part of a preliminary review while some claims are yet to be reviewed.

"These bankruptcies and restructurings obviously have a very damaging impact on creditors. One of the largest creditor groups to airlines are lessors. Hainan has about 70% of its fleet leased, many of these were SLBs [sale and leasebacks] where the lessors invested tens if not hundreds of millions of dollars to acquire aircraft from manufacturers on behalf of HNA on the assumption of being paid an agreed lease rental for the lease term," says Leo Fattorini, a partner at Bird & Bird in Singapore.

In August, a court in Hainan announced it had agreed to extend the deadline for Hainan Airlines to submit restructuring plans by three months to 10 November 2021. Restructuring plans should have been submitted before 10 August 2021.

"One of the suggestions from the administrators is to appoint trustees to a trust that will eventually pay creditors," says Jordan Yang, a partner of Allbright Law Offices in Beijing.

Yang also suggests that the HNA case is subject to certain "sensitivities". These include: extremely complex aircraft transactions and governing law issues from cross-border transactions, as well as jurisdiction problems; the involvement of many local governments; and the sheer size of the HNA restructuring, with more than Rmb1 trillion in total creditor claims.

The restructuring of Hainan Airlines should prove beneficial for the company, although creditors and lessors may face challenges, several observers have told *Airfinance Journal*.

"Those carriers with large international widebody fleets will face more challenges than the smaller narrowbody-only type operators in China. A weakness of Hainan Group is that its share of widebodies is higher. Also, the hub of Hainan is going to be comparatively weaker when international travel resumes. We expect this to be driven through the big hubs in Beijing, Shanghai and Guangzhou. People probably won't be going to Hainan first," says Truong.

"There will be fleet downsizing in restructuring. Definitely there will be an excess of aircraft, which compounds the situation because quite a lot of the fleets have been grounded," says Subhas Menon, director general of Association of Asia Pacific Airlines.

On 30 January, Shanghai-listed Hainan Airlines applied to Chinese courts for restructuring alongside two other listed companies of the HNA Group: HNA Infrastructure Investment and CCOOP.

Apart from these three companies, HNA-affiliated companies to have filed for bankruptcy and restructuring by creditors include Grand China Airlines, Air Chang'an, Shanxi Airlines, Lucky Air, Fuzhou Airlines, Urumqi Airlines, GX Airlines, Kehang Investment, HNA Technology, HNA Capital and HNA Industry.

"Restructuring means that there is a high probability that strategic investors will be introduced. Funding and operation will also be considered and adjusted. How to rejuvenate the main aviation business should be the direction of restructuring," says Zhou Yao, a partner of Dentons in Beijing.

Hainan Airlines is aiming to remain independent after the restructuring and potential investors have shown strong interest in the airline, according to Chinese financial publication Caixin.

"It is likely that Hainan Airlines will become a state-owned carrier. Creditors may become shareholders, and equity of current controlling shareholders may be diluted in the process of restructuring," says Yang.

"Some creditors still want to continue to fulfil their contracts rather than retrieving their aircraft because it is hard for them to remarket their aircraft in the market now, especially under the Covid-19 pandemic," adds Yang.

At least 20 lessors are involved in Hainan Airlines' restructuring programme. *Airfinance Journal*'s Fleet Tracker indicates that Bocomm Leasing, GECAS, Avolon, Tianjin Bohai Leasing and CDB Aviation are the most impacted lessors.

Among them, Bocomm Leasing, GECAS and Avolon have more than 40 aircraft with HNA carriers, while Tianjin Bohai Leasing and CDB Aviation have more than 20 aircraft.

Zhou does not think that large-scale aircraft lease terminations will happen because of the restructuring.

"If their fleet management efficiencies could be improved, the reduction of fleets is beneficial, not negative," notes Zhou.

She adds: "If resources are concentrated on the main business, I think it is a good opportunity for Hainan Airlines to restructure."

With Sputnik and high yields through the pandemic

Kazakhstan's carrier Air Astana is set to emerge from the pandemic with a new business model, with point-to-point flying the way forward, group chief executive officer Peter Foster tells **Dominic Lalk**.

Air Lease (ALC) has delivered its latest long-range Airbus A321neo (A321LR) to Air Astana, the Kazakh flag carrier's chief executive officer, Peter Foster, confirms in an interview with *Airfinance Journal*.

He notes that another A321neo from ALC will follow in September, with three additional A321neos, also from ALC's orderbook, scheduled to join the fleet in 2022.

As of 24 August, Air Astana and its Fly Arystan low-cost subsidiary operated a fleet of 37 aircraft, including 11 A321neos and six A320neos.

Foster says: "The whole fleet is active. We are now operating 1,100 flights a week; this number is actually greater than in the summer of 2019. The domestic market is the fastest-growing domestic market in the world right now. It is up 37%, compared to 2019 while globally there's been a decrease of 25%.

"Particularly our low-cost carrier Fly Arystan has had an extremely successful crisis, so to speak. The total cost of the airline is down more than 45% from 2019, with 37 aircraft, the same number we had at that time," says Foster.

Air Astana underlined its resilience by swinging to a first-half profit of $4.9 million. Earnings before interest, taxes, depreciation and amortisation for the first half came in at $91 million.

The airline's international network is 40% smaller than it was in 2019, confirms Foster, although Air Astana has been able to fill that void with a renewed focus on regional and domestic flying, as well as mounting various new "lifestyle routes".

The pandemic may have forever changed Air Astana's business model, adds Foster, noting that point-to-point flying is the way forward for the airline.

He says the Kazakhstan government has adopted "a more European- or American-style approach to Covid" compared with the zero-Covid policies across most of Asia.

"In Kazakhstan, the government has been keen to find a balance between economic activity and virus control. We've had a pretty aggressive vaccination campaign with the Sputnik vaccine, including myself. The economy remains reasonably open. Travel is restricted, but permitted, although frequencies are down as per government order," says Foster.

With the exception of one lessor, we were able to obtain deferral and/or lease reductions from all our lessors.

Peter Foster, chief executive officer, Air Astana

"Our international network is 40% smaller than it was in 2019. However, we did inaugurate several what we call 'lifestyle routes': to the Maldives, Sri Lanka, Hurghada, Sharm el Sheikh, Montenegro, in addition to existing ones to Antalya, Bodrum and, of course, Dubai. We hope to launch Phuket as soon as the Thai government allows the Sputnik vaccine to qualify for the [quarantine-free] 'sandbox'.

"Regional routes are performing extremely well, too. With the reduced frequencies, there is very high demand and therefore high load factors and yields."

For example, Air Astana has been deploying its Boeing 767 widebody capacity into Bishkek and Tashkent in neighbouring Kyrgyzstan and Uzbekistan over the summer, routes previously serviced by Embraer 190-E2s.

"We are out of the sixth freedom business. We are transforming into an exclusively point-to-point carrier. Covid has changed the way we operate, and I don't expect a return to the status quo ante. For us, point-to-point will be the way forward as we have seen with the 'lifestyle routes'.

"Sixth freedom made up about 26% of our revenue in 2019 and now it is zero. I do not expect that to come back for a very long time. Point-to-point yields are higher and managing traffic flows is less complex. The market has pivoted and we're fine with that," says Foster.

The former Cathay Pacific executive notes that the A321LR has become "the backbone" of Air Astana's international fleet, with a high-spec business-class cabin equipped with "throne seats", which are very popular with customers.

"Covid has resulted in the fleet-renewal programme being accelerated, put on steroids really. As we were able to effect early returns of the [Boeing] 757 and E190 fleets last year, the A321LR is proving to be a high-value, high-performance acquisition," says Foster.

"We will continue mainly to lease rather than own, although we do have three 787-8s on order and those will be purchased, most probably from 2025. It is too early to say what the long-term financing strategy for those aircraft will be," he says.

Foster confirms that early in the pandemic Air Astana undertook a combination of renegotiations and deferrals because it made it "very clear" from the start of the pandemic that it must not tap either the government or its shareholders for a bailout.

"And we achieved that. We did not require any bailouts of any kind. We did, however, open and extend lines of credit with commercial lenders, although most remain untouched," says Foster.

"March to August of 2020 was an extremely tough period as there was very little flying. A significant reason why we were able to meet the financial challenge at that time was as a result of the successful discussions with the European credit agencies (ECAs), US Ex-Im Bank and operating lessors.

"Generally, the lessors were very helpful, as indeed were the export credit agencies and Ex-Im Bank," adds Foster. "With the exception of one lessor, we were able to obtain deferral and/or lease reductions from all our lessors, vindicating the long-standing relationships we've had with them, including with one which goes all the way back to 2002 when we launched the airline."

Chinese carriers lean on in-house lessors

Chinese airlines' in-house aircraft leasing platforms continue to provide multilayered financing solutions to their operating carriers. This results in significant savings and faster business growth, writes **Elsie Guan**.

The leasing arms of China's "big three" state-owned airlines have played important roles in helping their parent carriers introduce new aircraft during the one-and-a-half years since the outbreak of the Covid-19 pandemic.

China Southern Air Leasing, the leasing arm of China Southern Airlines, provided finance leases on two Airbus A320neos and two Boeing 777Fs for the carrier in May and June 2020.

In July and August last year, CES Leasing, the leasing arm of China Eastern, provided finance leases on three A320neos for China Eastern Airlines.

China Eastern added seven A320neos in 2020: the three aircraft from CES Leasing, three under operating leases and one owned unit.

"After IFRS 16 [the new accounting standard] is applied in China, both operating leases and financial leases have been included in financial statements of airlines. Airlines which have affiliated lessors will choose to use their own leasing platforms to do transactions because it involves the issue of obtaining local government financial subsidies," says Zhou Yao, a partner of Dentons in Beijing.

In February and March 2021, CES Leasing closed finance lease transactions on three A320neos with China Eastern.

CES Leasing confirmed to *Airfinance Journal* in March this year that it had financed all the A320neos that joined China Eastern's fleet since the outbreak of Covid-19.

Chinese carriers lean on domestic lessors for finance leases mainly based on cost considerations during post-Covid times, according to Justin Sun, a partner at Holman Fenwick Willian in Hong Kong.

"The main reason should be cost considerations. Domestic airlines introduced aircraft during the pandemic, with domestic leasing companies providing finance leases at a low cost for them," says Sun.

During the pandemic, leasing companies do not have new aircraft to place for airlines and, at the same time, airlines do not want to expand their fleets, so domestic lessors help them place aircraft previously ordered by airlines, according to Sun.

On 21 July, China Eastern Airlines received the first A350 delivered from China

"In addition, the new accounting standard will also have an impact on the airline's decision on not using operating leases," adds Sun.

China Southern Air Leasing closed several finance lease deals on new A320neos with Shenzhen Airlines and Sichuan Airlines in 2020 and 2021.

In March this year, China Southern Air Leasing delivered another A320neo to Shenzhen Airlines. The aircraft, which is powered by Pratt & Whitney PW1127G engines, is on finance lease between China Southern Air Leasing and Shenzhen Airlines.

This is the second aircraft China Southern Air Leasing has delivered to Shenzhen Airlines in 2021. The previous unit was delivered to the carrier in February under the same lease structure.

Airbus's Tianjin facility completed the final assembly of the A320neo.

Shenzhen Airlines has added three A320neos in 2021 – the other one is on finance lease with Shanghai-based Bocomm Leasing.

China Southern Air Leasing has also delivered a 737-800 to 9 Air under a sale and leaseback structure in 2021.

Bank-backed lessors have a strong support from their parent companies, which could offer relatively low-cost capital for their lessors.

"In recent years, there has been a fiercer price competition on finance lease between Chinese lessors. Bank-backed lessors and airline captured lessors have lived better than commercial lessors," says Shen Cheng, a lawyer at Jingtian & Gongcheng in Beijing.

Shen thinks that most lessors are struggling in maintaining their business volumes.

"I will not see large expansions about their business volumes this year," adds Shen.

CES Leasing is not only dealing with narrowbody aircraft with China Eastern, but also widebody types such as A350-900s.

On 21 July, China Eastern received the first A350 delivered from China. The aircraft is on finance lease between China Eastern and CES Leasing. It was delivered from Airbus's widebody completion and delivery centre in Tianjin.

The lessor also delivered an A350-900 to China Eastern under the same lease structure on 18 April.

Moreover, for Chinese lessors, Chinese-manufactured COMAC ARJ21s and C919s are their financing targets.

In October 2020, Air China and China Southern introduced an ARJ21, which were both financed by their respective leasing arms, CNAC (Beijing) Financial Leasing and China Southern Air Leasing.

"I understand that leasing companies are no longer willing to take commercial risks, but airlines need to continue to purchase new aircraft due to operational needs, so most of them adopt a finance lease structure," says Jordan Yang, a partner of Allbright Law Offices in Beijing.

Yang adds: "Financial leasing companies do not have many differences between each other, if financing channels of the leasing companies are smooth. Using airline captured lessors could help airlines keep some profits, compared with external lessors."

LCCs bullish in Latin America

Some of Latin America's largest low-cost carriers are nearing or already back to pre-Covid-19 activity and are mulling aggressive expansion plans post-pandemic, writes **Hugh Davies**.

All carriers in Latin America continue to grapple with the Covid-19 pandemic to varying degrees, with a significant imbalance in different markets and business models having consequences for fleet development in the region.

Viva Aerobus and Volaris, however, have led an impressive recovery in Mexico and are bullish in terms of post-pandemic growth opportunities, backed by pent-up demand and a strong domestic market more conducive to the low-cost carrier (LCC) business model, not to mention the market exit of Interjet and entry into Chapter 11 bankruptcy protection by Aeromexico.

"We never stopped growing. We took deliveries even during the peak of the pandemic and we were optimistic about the recovery," says Viva Aerobus's chief executive officer, Juan Carlos Zuazua, in an interview with *Airfinance Journal*.

"A year ago, we were playing defence, now we're playing offense," adds Zuazua.

Viva Aerobus reached pre-pandemic passenger levels last November. In June, the carrier exceeded its monthly passenger record for the second consecutive month, with traffic up 31% compared with June 2019.

The airline has also been cash positive since the fourth quarter of last year.

Zuazua notes that during the height of the pandemic, the Mexican government provided a more favourable domestic operating environment for airlines than elsewhere in Latin America.

"We managed to send a strong message to the Mexican consumer... that it was safe to travel. We managed to regain trust in air travel and that allowed us to recover at a much pace and right now people are flying like never before," says Zuazua.

"We never stopped growing. We took deliveries even during the peak of the pandemic and we were optimistic about the recovery."

Juan Carlos Zuazua Viva Aerobus's chief executive officer.

Viva Aerobus has already exceeded 2019 passenger levels, seeing a 29% improvement in the second quarter of 2021 compared with two years ago, the carrier's director of fleet procurement, Ciprian Rodriguez, told delegates during *Airfinance Journal*'s North America conference in Miami.

"North and Central America have been the regions with the most rapid recovery in the world," he says, noting that Viva increased its fleet size by 19% last year as it looked to match capacity with demand.

Year-to-date passengers have reached nearly 20% above the same period in 2019.

Load factor reached 88.1% in June, up 10 percentage points compared with last year but down three points compared with June 2019.

"We're looking to be a bit more aggressive increasing our fleet by 25% this year," says Rodriguez, noting the focus on growth will be on new-generation technology.

"New-technology narrowbodies will continue to dominate the market. These are the assets that offer the lowest cost. That's the only way you can offer the lowest ticket price," adds Rodriguez.

Low-cost competitor Volaris has also seen traffic exceed prepandemic levels, reporting a 10% increase in passenger numbers to 6.2 million in the second quarter of 2021 versus the same period in 2019.

Domestic and international passenger traffic increased 9% and 11%, respectively. Load factor reached 86.6%, also recovering to pre-pandemic levels.

Fleet growth

Viva Aerobus has the Airbus A321neo pegged as the preferred aircraft in its future fleet composition, providing both the optimal range and seat density for the carrier.

"In 10 or 15 years from now, I believe Viva Aerobus will be an A321neo-only operator," says Zuazua.

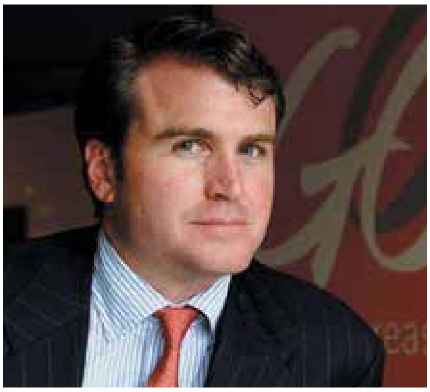
"We like the aircraft, it has the right economics and the lowest cost per seat. There's not another aircraft in the marketplace today that can match the cost per seat metrics on this aircraft," he adds.

Quizzed about the potential for Airbus's A321XLR long-range narrowbody aircraft currently under development, Zuazua says the additional range is not needed based on geography which can comfortably be covered by Viva with the A321neo.

"The fact that we have a five-hour flying radius all of North America, all Central America and all northern South America, that is pretty much the region in which Viva will be growing in the next 10 to 15 years," he says.

Mexico is the second-biggest domestic market after Brazil, which facilitates getting maximum productivity out of its 240-seat A321neos, adds Zuazua.

"It's a huge domestic market with very short sectors. You can get a lot of productivity. We're doing more than six sectors per day per aircraft," he says.



"We're basically in a pivot right now from the pandemic to where we want to be post-pandemic."

Richard Lark, chief financial officer, Gol

The carrier has four A321neos in its fleet with a further 41 on order with Airbus, *Airfinance Journal*'s Fleet Tracker shows.

The ultra-low-cost carrier also operates a fleet of 40 A320 and A320neo aircraft and three A321s leased from Avolon, Aircastle, GOAL, ICBC Leasing, Dubai Aerospace Entreprise, CDB Aviation, Jackson Square Aviation, Jade Aviation and SMBC Aviation Capital.

This includes 25 A320neo and A321neo aircraft, with its most recent A321neo sold and leased back to Aviation Capital Group in early August.

For Volaris, financing through the sale and leaseback market will remain the focus for the carrier for at least the next two years despite its strong cash-generation results during the second quarter.

Volaris also raised $164.4 million in net proceeds through a follow-on equity offer that was 4.4 times oversubscribed late last year to help it expand aggressively in the Mexican market.

The carrier reported second-quarter cash inflow of MXN$2 billion ($100 million), with MXN$5.8 billion generated from operating activities.

Its chief executive officer, Enrique Beltranena, recently remarked that the carrier is seeing "absolutely astonishing" sale and leaseback rate factors for aircraft it has contracted in recent months.

Underlining this, the carrier signed a sale and leaseback with CDB Aviation for four A320neos, to be delivered between October 2021 and May 2022.

Brazil

For Brazilian carrier Gol, the recovery opportunities are still behind that of Mexico; however, it is still expecting a ramp-up in the medium term, according to its chief financial officer, Richard Lark.

"We're basically in a pivot right now from the pandemic to where we want to be post-pandemic," Lark tells delegates during *Airfinance Journal*'s Latin America conference. Lark notes that traffic is currently mainly composed of visiting friends and relatives and leisure travel, with total traffic at about 60% of 2019 volumes.

He adds that corporate travellers are the "missing piece" that Gol aims to regain in the next six to nine months.

On the international side, Gol has recently revealed it aims to restore cross-border activities later this year, beginning with service from Sao Paulo to Montevideo from 3 November before resuming flights to Cancun and Punta Cana.

The international segment accounted for about 15% of Gol's flight capacity before the pandemic.

Lark says the airline is targeting one-third of its fleet to be comprised of new-generation Boeing 737 Max aircraft by the end of next year.

"We think in the industry that new-tech narrowbodies are the future," says Lark.

He notes that while Gol will focus on a single fleet type, it will address other fleet opportunities through partnerships to match capacity in the market.

"The Max allows us to get to some international destinations with a lower total trip time than companies hubbing through other areas, which is a huge market for us."

Gol operates 12 737 Max 8s with a further 56 737 Max 8s and 27 737 Max 10s remaining on its orderbook, shows *Airfinance Journal*'s Fleet Tracker.

The carrier recently committed to accelerating its fleet transformation after agreeing financing for 28 additional 737 Max 8 units.

The 28 aircraft will be financed via 15 direct operating leases, nine sale and leaseback deals and four finance leases.

Gol's plan is to own about half of its fleet via finance leases, with the remainder in operating leases to give it flexibility to upsize or downsize capacity based on demand.

Additionally, the airline explained that bringing in more 737 Max units enables it to accelerate the returns of 737-700 and 737-800 aircraft on short-term leases.

The 28 additional Max 8 aircraft will replace 23 737NGs by the end of 2022.

"Long-term value creation through aircraft acquisition and finance has been a key component of Gol's business since inception," says Lark.

He also reveals the airline is consistently reviewing smaller narrowbody assets but says that there is, each time, never enough of a business case for the investment.

"Every year," admits Lark, "it gets a bit closer."

COFI finds right fit

Leveraging years of interactions with airlines, long-time OEM and leasing executive **Colin Bole** and his team are now offering a performance index assessing the "stickiness" of an aircraft within a fleet.

If this Covid crisis has been a challenge for the majority of players in our industry, it has also been the opportunity for a new birth for some. This is particularly the case for the former Bombardier marketing and sales team, which was part of the transfer to Mitsubishi Heavy Industries (MHI) of the CRJ platform in mid-2020.

With a Spacejet programme put on pause just before this transition and the end of CRJ deliveries in February 2021, this former commercial team led by Colin Bole could have seen its tenure end there. However, at such a critical juncture, when the market needed to better understand decisions made by airlines, the decision was obvious to the new owners: the experience and knowledge of a team which had interacted with airlines and leasing companies for years, and which sought to understand and analyse how airlines develop their fleets and networks in order to better sell their aircraft products, were key assets to preserve, nurture and repurpose in this market-defining time.

From there came the idea of launching a new entity, MHI Aero Advisory Services. The initial intended focus of this advisory group was to provide strategic direction for the MHI aerospace business.

"As you probably know, MHI's involvement is quite diverse ranging from aircraft manufacturing to space and defence systems, shipbuilding, power solutions, and many others. Yet, given our relationships with airlines and suppliers throughout the world, soon after this new venture was launched, we received several external requests for advisory services from different areas of the aerospace industry: lessors, airlines, airports, OEMs [original equipment manufacturers] and financiers," Bole tells *Airfinance Journal* exclusively.

In an environment where airlines and investors constantly make long-term strategic and capital-intensive decisions, not only do they seek additional capabilities to analyse and understand all the complex data that is becoming available, but they also look for people who can help them see the full aviation sector picture.

With more than 30 years in commercial aviation both from the "buy-side" and the "sell-side", Bole held several senior executive positions with lessors such as Intrepid Aviation, ILFC, Macquarie Airfinance and GATX before leading the


Colin Bole

global commercial team at Bombardier Commercial Aircraft. As the underdog selling what would become the Airbus A220, Bole and his team challenged Airbus and Boeing for several years.

"It's all those years of experience we can leverage today: from analysing future market requirements to supporting a fleet in service, from understanding airlines' key success factors to making the right aircraft financing decisions. All this without being partial," says Bole.

With his strong background in the leasing industry, Bole fears that the financial community is becoming nervous about the aviation sector.

"The unprecedented crisis that the aviation industry just went through has further reinforced the need for a greater understanding of the strengths or the risks associated with aircraft investments sought by financiers, whether this be lessors, banks or investors participating in securitisations," adds Bole.

"The same way credit rating agencies provide an independent evaluation of the creditworthiness of debt securities issued by governments and corporations, we hear more and more financiers and aircraft lessors looking for a deeper level of analysis of the role and contribution of an aircraft within an airline's fleet and network," he says.

"Hence, our idea to come up with an overall index to reflect the contribution of a specific aircraft type within a fleet," continues Bole. This index has been named COFI, Commercial and Operational Fit Index, and Bole described it as the combination of 30 metrics being monitored, allowing a deeper understanding of how and why this "fit" index provides an accurate picture of any aircraft/airline combination.

"Understanding why and how an aircraft contributes to the operational and commercial success of an airline will explain ahead of time the airline's financial performance and the role of each asset. It is a recurring debate among banks and lessors: are we sure an airline will keep an aircraft and could a lease be extended? Very often it is more a gut-feeling based on how they feel about an aircraft type and separately an airline, but this does not answer the true question which is the match between the two : is this aircraft the right one for that airline right now?" says Bole.

"It is taking into account all the major commercial and operational metrics an airline has to monitor – as indicated by its name," adds Bole. "It includes performances such as the contribution of the asset to the overall market share performance, from a revenue or a passenger volume standpoint, how the aircraft compares in terms of cost on the network it is being deployed on and how the competition is evolving overtime on that network.

"This index also considers whether the aircraft is a tool used by the airline to hunt down the competition or if the airline is being hunted with that aircraft with a network at risk. All this information is available today but through many different databases. Our goal is to harmonise it so that any aircraft/airline fit can be benchmarked with the rest of the industry."

Doug Runte, managing director Securitized Products and High Yield Research at Deutsche Bank, commented: "It is a recurring debate among investors: how likely is it that a particular airline will keep a particular aircraft and could this lease be extended? There are many quantitative and qualitative metrics that go into this assessment and the COFI Index provides a broad analysis of these metrics to assist in the decision-making process."

Bole insists: "Like in any other industry, there is a lot more data available today."

He adds: "How much a specific aircraft is bringing in terms of revenue and passenger volume on its network and how does it compare with its competitors on that same network is, for instance, something that was not easy to get in the past. Today, should you have access to the right databases and know how to connect and interpret all those data points, we can see how an aircraft is gaining or losing ground on its network against its competitors and how it is impacting its yield performance. The consequences will be reflected at some point in the financial performance of airlines and those aircraft will start building a reputation internally on their role and efficiency within the fleet. What matters is to anticipate those operational performances as they will likely trigger fleet and network decisions.

"Another example is to look at the network itself. Is the airline in a monopoly position, or is its network mainly a duopoly or facing multiple players? How does it compare with its peers? Some airlines are on purpose going after those 'blue oceans' where there is no competition, but it is not always easy as others may try to go after them. What we can bring is that view: is this airline in control with this aircraft, or are they being challenged and struggling with an asset that is no longer the right tool to compete and fight back. Again, there are facts and data, and we are happy to offer a methodology and a tool that allows any investor to get a rational answer on how an asset is performing at a given airline."

This COFI index ends up being a rating between 0 and 10. Any score above five meaning "better than the average" while any score below reflects a risk from a fit standpoint. The 30 metrics used to build this index have been divided in three main categories: airline-operating performance, aircraft programme market performance and aircraft/airline fit. Most of the metrics fall under the latter category, which represents the core of this index. But the airline operating performance sub-score provides a reference: to see how the aircraft being analysed for this specific airline performs and compares with the rest of that fleet.

Additionally, the third category analysing the aircraft programme market performance is probably more common, looking at the backlog and how it compares with the segment dynamic and the retirements, the liquidity of the asset, or the ability of the airframer to fill its skyline as planned.

"Those three views are necessary but they obviously don't have the same weight in the overall index," indicates Bole.

In order to illustrate this new approach, Bole shared with *Airfinance Journal* the "COFI" of the portfolio offered by Castlelake earlier this year – an example to show the diversity of leases and aircraft/airline fits that can be mixed in a portfolio like this one.

"What matters the most is the third section, the aircraft/airline fit which will have the biggest weight in the overall index," adds Bole. "What is important to mention is the fact that those performances are based on the past three to five – relevant – years depending on the metric.

"Let's put aside 2020 for obvious reasons. We are not here to anticipate how a future asset could perform within a fleet. We don't have a crystal ball and we would be rich if we could do that! But looking back at how the airline has been deploying and using an asset and how it has impacted its operational performance can say a lot on how the airline will use it going forward. Airlines rarely make dramatic shifts in the way they use their assets. That consistency makes this analysis very robust. The challenge is more to get years of data, and to have the right eye and experience to be able to analyse the operational performance of each asset," he says.

"In this specific portfolio put together by Castlelake, we can see the range of aircraft/airline fit performances that can be observed in the industry. From the low 3.5 of the A330-200 at Air Namibia or 4.3 of the A320 at Iberia, and the high performers like the [Boeing] 737-800 at Gol with a score of 8.9 or the A320 at Air Asia India at 8.4. We agree that a score on its own does not say everything, and we provide with each COFI index a 40-page report going through each metric, providing quantitative but also qualitative analyses to explain each sub-score. What is interesting with this analysis is to see that the same asset like the A320 will not perform the same way from an aircraft/airline fit perspective at Qatar Airways (5.7), Air Asia (6.8) or Iberia (4.3) for instance in this portfolio. Sometimes, it is in line with our gut feeling, but often it is an eye-opener on how those airlines compare.

"Each crisis is an opportunity to go deeper in the understanding of how customers use their products," says Bole.

He adds: "If a few years ago nobody would question the pertinence of an A320 or a 737-800, today we can feel that they don't all have that same 'stickiness' everywhere. The drop of demand seen during this Covid-19 was unfortunately a strong reminder for some that for each market some aircraft types are more resilient than others."

Colin Bole contributed to this article. He can be contacted at **colin.bole@mhirj.com**

Commercial and Operational Fit Index (COFI)

CASTLELAKE ABS / GOLDMAN SACHS 2021

ABS SCORE
AIRCRAFT 5.9
AIRLINE 5.7
FIT 6.0
TOTAL 6.1

	Delta	Delta	Delta	Qatar Airways	Qatar Airways	GOL	Aeroflot	AirAsia (India)	Azur Air	Air Namibia	AirAsia	Lauda Europe	Asiana	Iberia
	A220-100	737-900	CRJ900	A320	777-300ER	737-800	A321	A320	777-300ER	A330-200	A320	A320	747-400F	A320
Aircraft count	2	1	5	2	1	3	3	3	1	1	1	2	1	1
Assessed value (Moody's)	50.4	40.5	61.5	46.1	54.9	66.2	64	52.7	51.3	46.5	37.7	32	31.7	10.5
COFI TOTAL SCORE :	5.9	7.2	6.8	6.3	6.9	8.5	5.4	8.2	5.5	3.4	7.1	0.0	4.7	4.8
AIRCRAFT PROGRAM MARKET PERFORMANCE	3.2	2.4	2.8	7.3	7.6	7.5	5.5	7.9	7.6	6.1	7.9	7.9	2.4	7.9
AIRLINE OPERATING PERFORMANCE	7.8	7.8	7.8	6.0	6.0	6.5	4.1	6.2	6.3	2.7	5.9	0.0	5.1	4.3
AIRCRAFT / AIRLINE FIT	5.2	7.5	6.7	5.7	6.5	8.9	6.0	8.4	4.3	3.5	6.8	0.0	5.2	4.3

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Pegasus demonstrates resilience

The Turkish low-cost carrier has been busy throughout the pandemic financing new deliveries, many through the e-delivery concept, and with its plans to transition from A320neo aircraft to A321neos, its chief financial officer, Barbaros Kubatoglu, tells *Airfinance Journal*.

In 2020, Pegasus Airlines stuck to its original plan of 14 new aircraft deliveries, despite the negative effects of the Covid-19 pandemic on the aviation market. Its treasury and aircraft financing team managed to introduce new financing structures in the fleet.

Pegasus closed insurance-supported financing product Balthazar on four Airbus A320neos, Japanese operating lease with call option (Jolco) financings of three A321neos as well as seven A320/A321neo deliveries under the guarantee of the export credit agencies.

The Turkish low-cost carrier's chief financial officer, Barbaros Kubatoglu, recalls the innovation the carrier achieved in a Jolco A321neo transaction.

"The transaction, integrated with Aviation Capital Group's Aircraft Financing Solutions programme (AFS) with Bank of China debt, and in which ABL Aviation acted as equity and overall arranger, was the first-ever deal under such a structure. This deal closed back in April 2020, during the early days when the Covid-19 pandemic hit the world. During that period, the Jolco market was reluctant to deal with the aviation market, and uncertainty took over all businesses.

"During this same period, Airbus was also working on the e-delivery concept which was designed to help its customers to take delivery of their aircraft remotely. In cooperation with Airbus, the delivery of this aircraft has also been a world first for the e-delivery concept. Pegasus has pioneered the industry in many aspects not only becoming the global launch customer of CFM powered A320neo aircraft but also exercising the first fully remote delivery," says Kubatoglu.

He adds: "Furthermore, despite the uncertainty at that time throughout the documentation process and despite there having been several parties involved, we greatly appreciate the commitment of all parties to finalise the transaction in a limited timeframe, that took only a few weeks. In our view, this is the testimony of cooperation and enthusiasm.

"Along with our award-winning Jolco deal, we also have been able to close our very first UKEF-backed financings consisting of seven A320neo-family aircraft, four Balthazar financings and two particular Jolco financings."

Except for one aircraft that was delivered semi-remotely in March, all of Pegasus deliveries in 2020 were completed 100% remotely. Kubatoglu says the Turkish carrier plans to continue taking deliveries under the remote delivery concept because the process is considered efficient by its technical team.

"During the pandemic period, in parallel with our needs and the manufacturing capacity of Airbus, we made some amendments on the expected delivery schedule, which also includes the upgrade of 15 A320neo aircraft on our orderbook, to the A321neo model.

"In the first half of 2021, we took delivery of four A320neos and for the rest of the year, we are expecting to take delivery of the final two A320neos from the orderbook and one A321neo in the fourth quarter of 2021. Our expected delivery schedule consists of 20 A321neo aircraft in 2022, 18 in 2023, 10 in 2024 and three in 2025."

Kubatoglu says the carrier's plans involves the transition from A320neo aircraft to the A321neo model, in order to add seat capacity, improve the fleet's seat-kilometre cost and reinforce its cost advantage.

"Overall, this will be a key driver for the improvement in our future financial performance," he says.

In line with its planned delivery schedule, Pegasus is working on its financing plans for the upcoming term.

Kubatoglu tells Airfinance Journal that, despite the ongoing uncertainties in the aviation market, the aircraft financing market is still open and dynamic.

"We see sufficient appetite at reasonable cost levels and tenors for our aircraft financing requirements. Our unique business model, which is tailor made for Turkey and the region, also invigorates our perception by the financiers' market," says Kubatoglu.

But he admits the pace of recovery of the Jolco market has been slower. "Although the appetite has been fluctuating depending on the aircraft type, age and most importantly the credit, we still attract equity providers' attention. We consider our Jolco financing of one A320neo in April 2021 as proof of Pegasus's positive perception by the Jolco market."

Along with other financing options, Pegasus is liaising with equity/debt providers to add more Jolco financing deals as a part of its 2021-22 aircraft financing plans.

"Jolco structures are not our primary aircraft financing instruments. We are open to considering various financial instruments available in the aircraft financing market and innovative solutions. We evaluate all financing alternatives carefully, but with an open mind, before making a final decision for our aircraft financing," he says.

Barbaros Kubatoglu, chief financial officer, Pegasus

The low-cost carrier is expanding its funding sources further this year via the capital markets on the domestic and international side.

"Airlines have been burning cash continuously since the beginning of the Covid-19 pandemic. Our objective has been to strengthen our cash position against future uncertainties in the market. Along with bank loans drawn down from local and international banks, we have also tapped domestic and international bond markets," he explains.

The carrier utilised its first tranche of domestic bond issuance of TRY260 million ($30.9 million) in February 2021, with 12 months maturity, in accordance with the approved limit by the Turkish Capital Markets Board up to TRY2.5 billion for local bond issuance. Then, in April 2021, Pegasus conducted its inaugural Eurobond issuance of $375 million with a five-year tenor and with a call option after the third year.

"The proceeds from those issuances have helped us to diversify financing resources during the unstable pandemic environment, extend maturity of the funding portfolio, create ammunition for further turbulence and have helped us to be ready for the reopening of the market," says Kubatoglu.

He adds: "This is not a one-time tapping into the bond markets; rather, in line with the rationale of diversification, we will continue to follow the domestic and international bond markets closely and avail of the opportunities at the suitable times in order to keep our cash in hand position at an optimal level for such turbulent periods. We will maintain our footprint in different loan and bond markets."


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How Bain Capital acquired **Virgin Australia**

Matthew Evans, a managing director at Bain Capital and a member of the wider team of senior partners and investment professionals working on the deal, discusses the Virgin Atlantic acquisition, fleet mix and Bain's wider investment strategy in the air transport sector with **Hugh Davies**.

Boston-based Bain Capital completed its landmark acquisition of Virgin Australia in November 2020 after the business fell victim to the Covid-19 pandemic.

The second-largest Australian carrier entered voluntary administration on 21 April 2020 with A$6.8 billion ($5.3 billion) in debt owing to a broad and diverse group of stakeholders.

The corporate rescue of the airline represented the largest of its kind in the past two decades and pushed Bain Capital over the line to win *Airfinance Journal*'s M&A Deal of the Year 2020.

In an exclusive interview with *Airfinance Journal* following the award, Matthew Evans, a managing director at Bain Capital and part of the wider team of senior partners and investment professionals who worked on the deal, says there was some "pretty significant time pressure" to see the transaction through, because of the strategic nature of the asset for Australia and the need to get it back on its feet quickly.

"Vaccines still hadn't been developed let alone certified, delivered and in people's arms, so there was a tremendous amount of uncertainty around the shape of the recovery and what that would look like," says Evans.

"It was much more complicated than a typical bid for a company where highest price with someone who can execute with certainty wins. This was a case where there was a ton of other moving pieces that we had to successfully navigate for the business to get back on its feet and back to its full potential," he adds.

Bain Capital Credit's special situations division worked hand-in-hand with Bain Capital Private Equity to make the investment possible.

About 20 internal investment professionals across Bain's credit and private equity divisions worked on the deal, plus a suite of advisers and experts in different critical areas "without which we would not have been able to complete this transaction," reflects Evans.

"It was really the combined resources that we were able to bring from the special situations business and the private equity business together that positioned us well to win this deal and drive the airline to a successful outcome as we bring it back to its full potential," he adds.

Having built up two office locations in Australia over the past decade was also crucial to facilitate the deal during a period where strict border closures ruled out any form of travel in and out of Australia, explains Evans.

Before Virgin Australia went under administration and was sold to Bain Capital, it operated a widebody fleet of leased Airbus A330-200 and Boeing 777-300ER aircraft as well as ATR42 and ATR72 turboprops and Embraer 170 and 190 regional jets with the backbone of the fleet made up of 737-800s.

Evans tells *Airfinance Journal* that Virgin Australia's overall fleet strategy, built over many years with many different management teams and different goals, was complex prior to Bain's investment and led to an inefficient fleet structure.

Since the acquisition, Virgin Australia's overall fleet strategy has transitioned from seven different aircraft types to focus on just one – the 737 family.

"Negotiating with all the different counterparties to ensure that we got the right mix of aircraft, the right number of aircraft, the right mix of owned versus leased aircraft and ultimately on the right economic terms, was a pretty complicated jigsaw puzzle that we had to put together," says Evans.

Last December, *Airfinance Journal* reported Virgin Australia restructured and cancelled 737 Max orders comprising 25 Max 10s previously scheduled to be delivered from July 2021 and 23 737 Max 8s that were expected from February 2025.

Under a new sales agreement with Boeing, the Max 8s remain cancelled, while Virgin Australia will take the 25 Max 10s from mid-2023.

"The restructured agreement and changes to the delivery schedule of the Boeing 737 Max 10 gives us the flexibility to continually review our future fleet requirements, particularly as we wait for international travel demand to return," Virgin Australia's chief executive officer, Jayne Hrdlicka, said at the time.

Bain strategy

The aviation sector has historically been an important area for Bain, Evans tells *Airfinance Journal*.

"That activity has increased. I would say it has not massively changed but has certainly increased as a result of the pandemic," says Evans.

"Though cyclically depressed right now, longer term it will be a secularly growing space. There's been cycles before where demand has been reduced in different geographies but there's never been this global, coordinated suspension of travel that Covid's caused," he adds.

"It's created a lot of strain across the industry, but once the industry recovers from this downturn, severe though it is, we feel very good about the long-term outlook for this sector," says Evans.

He notes that although social and governance are important, environment is "front and centre" of every Bain investment.

"Every investment we make in the space is very cognisant of the dynamics around the environmental impacts of these companies," says Evans.

He notes the "sweet spot" is looking at mature businesses that either help transition to a more environmentally friendly model, or investing in businesses that are facilitating that transition for the broader aviation space.

"If we can invest in a manufacturer or another type of service provider that facilitates the introduction of newer aircraft that can help the global fleet transition to a more fuel efficient, noise efficient place, that's something we're actively looking for," Evans continues.

Airlines still wary of **GATS**

Leasing and legal experts talk to **Dominic Lalk** about the challenges that remain when hoping to convince airlines that their leased aircraft should be moved onto the GATS ledger.

The Aviation Working Group (AWG), in 2020, launched the online platform for the Global Aircraft Trading System (GATS), enabling leasing companies to trade aircraft electronically by executing documents for the first time using digital signatures and migrating their existing owner trusts onto the GATS platform or by establishing new trusts directly on the platform.

AWG proclaims GATS reduces the burdens on lessees, lessors and financiers while also promoting aircraft equipment trading and financing in an efficient, secure and predictable manner.

The rights of lessees will be protected by prohibiting transfers unless agreed conditions in favour of the lessee have been satisfied or waived. GATS will further reinforce "no increased obligations" lease provisions in favour of lessees.

Watson Farley & Williams assisted AWG in developing the GATS standard form trust and security documentation and the e-terms, and initially acted as its single point of contact with Fexco, which developed and operates the platform.

Airfinance Journal queried that if it is so easy and so convenient, why are industry players not rushing to get all their aircraft onto GATS immediately? What is not being said? Why may some stakeholders deliberately opt out?

"Getting every interested party involved in an aircraft trade can be challenging. There's not just the buyer and seller, you need to obviously consider the airline operator, too. Sometimes, there are lender interests to accommodate as well," says Singapore-based Milbank partner Paul Ng.

"You're right in that it's not yet universally happening. In fact, on all the leases we've worked on since the platform went live, we haven't seen one, or been asked to draft one, which is expressed to be a GATS lease - although many are structured through owner trustees so could be relatively easily transitioned down the line," says Leo Fattorini, Singapore-based partner at Bird & Bird.

"Even some of the keenest lessor proponents of GATS don't seem to be using them across the board. That's not to say that they're not being used, but I don't believe they are prevalent in Asia. As to why, I suspect it's a factor of the market over the past 18 months. I suspect it's a factor of the market over the past 18 months. There have been fewer lease transactions (and transfers) as a result of the pandemic and on this basis, lessors perhaps don't want to over-complicate deals (or slow things down) by bringing lessees up to speed on GATS," says Fattorini.

He adds: "GATS is in many ways a good concept. It could be that things change as the market recovers – but the educational piece will still be needed. While lessors, financiers and their lawyers are aware of GATS, for many airlines themselves, it has possibly passed them by - and learning about it definitely isn't a priority right now."

Another Asia-based lawyer talks about airlines looking to take potential advantage of a situation in which they are being approached with a request to move their leased asset onto the GATS ledger.

"We have seen some bad behaviours on the airline side. Often airlines are unconvinced about GATS because they see it as extra work and potential trouble for them. A lot of airlines don't like it when their leases are being transferred from one lessor to another lessor as lessors trade assets. There are various reasons for that, including reputational and lease management concerns," says the aviation legal expert.

"For example, if your aircraft is being traded from a large tier-one lessor to a small player with just a handful of aircraft, then some operators may question the new lessor's capabilities. The way they might look at it is that the original lessor had 80 people doing client management, but the new owner only has 10 people involved. So, they may feel like they are receiving a downgrade and it is not uncommon that they then demand certain concessions on their leases. In short, they gain bargaining power and some lessees have used aircraft transfers between owners, including requests to move the asset onto GATS, to reshape their lease deals or demand sizeable transfer fees compensating them for their time and extra work. We are talking about six-digit 'fees' for their extra time," adds the legal expert based in Hong Kong.

"It is true that lessees might push back. Many will not be used to the concept of trusts in their jurisdiction, although this hasn't tended to hinder lessors leasing through them. Others have tax concerns, and there's also the issue of the lessee having to effectively sign off on the GATS platform that they agree they will suffer no additional obligations or reduced rights as a result of a GATS beneficial owner transfer," says Bird & Bird's Fattorini.

> *"Some lessees try to use the opportunity of a transfer to improve the terms of their leases."*
>
> **Leo Fattorini**, partner, Bird & Bird

"Once they've done this, they might perceive that they lose the right, which they believe they have in a typical non-GATS transfer, to come back to the transferring parties if something, for example, a tax crops up down the line. And some lessees try to use the opportunity of a transfer to improve the terms of their leases. Although the documentation doesn't permit this, it does happen, and GATS would put a stop to it," adds Fattorini.

Other experts warn of "resistance" they have observed in certain jurisdictions about moving assets onto GATS, in Russia, India and China, in particular, potentially because of perceived confidentiality and privacy concerns.

No official statistics on the take-up of the GATS ledger has been provided by AWG. The notable transactions recorded by *Airfinance Journal* include GECAS migrating a portfolio of 40 aircraft comprising a mix of Airbus A320 and A321 units along with Boeing 737 Max and 787-9 aircraft onto GATS, while BOC Aviation and SMBC Aviation Capital added A321neos on lease to Scoot and Air Busan to the digital ledger.

"We have worked on quite a number of aircraft which have been enrolled into the GATS system, but a mass migration onto the GATS platform will take time," says Milbank's Ng. "As with most things, there is always some inertia adopting a new system and Covid has slowed the roll out to some extent."

Evolving with the market

Castlelake further diversified its global aviation platform in 2020 with the addition of a lending strategy offering creative, flexible solutions for operators of commercial aircraft and engines. The firm is also leading the reopening of the ABS space and moving towards newer technology aircraft. **Olivier Bonnassies** reports.

In its latest $450 million asset-backed securities (ABS) deal, the $315 million senior tranche notes issued by Castlelake Aircraft Structured Trust 2017-1R (CLAS 2017-1R) priced at a 2.74% coupon in late July. Guidance was for about 250 basis points (bps), according to data, and the spread was MS+230 bps. The tranche was sold at a 99.9907 issue price.

The initial weighted average age is about 16.4 years and the weighted average lease term is about 3.8 years.

"This [CLAS 2017-1R] was an opportunity for us to refinance while taking advantage of record-low interest rates," says Evan Carruthers, Castlelake chief investment officer and managing partner, in an interview with *Airfinance Journal*.

Carruthers says a lot of ABS aircraft deals are designed to be refinanced.

"These pools are not designed to be static where you run them to zero. I think the debt investors have an expectation that the issuers, assuming good performance, will look to refinance portfolios opportunistically. It is going to be a good outcome for everyone," he explains.

Castlelake has issued more than $6.5 billion-worth of debt in the ABS market since starting the programme in 2014, making it one of the largest issuers in the aviation sector.

"It has been a successful programme that allows us to find unique ways of financing a pool of aircraft. We manage about 340-350 aircraft and one of the areas we've focused on during Covid has been managing capital structure and liabilities, including thinking about the most efficient ways of financing our vehicles," he says.

"As a firm, we have been front-footed in our approach to the capital markets. We try to be a leader in terms of innovative financing structures and as an experienced and scaled servicer in the industry," adds Carruthers.

"The ABS programme has proven to be successful in a sense that the liability structures are actually quite flexible. They have been good for the debt issuers and the debtholders in times of significant disruptions. The beauty of ABS is the soft amortisation and the flexibility built into that structure to allow the issuers to navigate their way through payment disruptions," he says.

The firm was the first issuer to come back to the market following the onset of the Covid-19 pandemic with its $595 million CLAS 2021-1 in January of this year.

"Every time we do a deal, we try to modify the structure and make sure it is on the cutting edge and balances issuers' interest as well as debtholders' interest," says Carruthers.

He adds: "Given the Covid crisis, we significantly modified previous ABS aircraft financing structures and that led to a strong reception from the debt market. We have performed quite well during the Covid-19 crisis in terms of the underlying cash flows and servicing the debt. I think debtholders have appreciated the fact that we have tried to be proactive to address concerns in the aircraft ABS market."

High ABS appetite

The 2018-19 years enjoyed a period of record appetite in the aircraft ABS market and while Carruthers notes that aviation "arguably is one of the sectors that has not fully recovered yet," he believes the investor base for ABS debt is confident the structures used in new transactions adequately protects them in Covid related scenarios. As a result, Carruthers says Castlelake has "seen debt investors feeling more comfortable stepping back into the market."

He went on, "There is a lot of volatility and disruption, but we are pleased that the aircraft ABS market has opened up. It speaks volumes about the resiliency of the product and some of the innovations that we have taken to address investor concerns and make sure the ABS market is viable on a go-forward basis."

"Investors have a challenge in a low interest rate environment where they are looking for excess yield. If you are looking at the investment-grade market right now, they are trading, in essence, at historically tight spreads and one of the attractive elements of aircraft ABS is that it is still considered an esoteric asset class where you can capture excess yield."

"For fixed-income managers that are struggling to find excess yield, this is a very attractive feature but they need to be comfortable with the volatility of the sector, need to feel good about the financing of the structure they are investing in and that you can deliver that yield to them. We believe they can generally capture an extra 50-75 basis points of yield stepping into a more esoteric asset-class ABS, such as aviation, versus some of the other plain vanilla products," he says.

The highest demand and appetite is for the senior tranche and there is a tremendous amount of scrutiny on any subordinated tranches issued in today's deals.

Carruthers says demand is more sparse on the equity side.

"One of the big changes in the aircraft ABS market from 2018-19 to today, is that demand for the equity portion, which was prevalent in those years, isn't there as much today," he says.

He estimates that 60% to 70% of the market in 2018-19 was incumbent leasing companies which were using aircraft ABS as a tool to ultimately get gain on sale treatment and sell aircraft on the market. However, finding an external equity buyer is a critical component to that type of transaction, and as a result the ABS market is effectively closed for those types of issuers.

"The only issuers that have come back are issuers like Castlelake that are comfortable retaining the equity," he comments.

Airlines held on to assets much longer than they would have preferred because the revenue environment was favourable.

Joe McConnell, Castlelake co-head of aviation, portfolio manager and partner

"Our objective in the ABS programme is not getting gain on sale but to properly finance a pool of aircraft. There are different motivations from different type of issuers," he adds.

Until that equity bid comes back, Carruthers still sees much lower volumes than in 2018 and 2019.

"Our overall goal is not always to sell equity. We are comfortable owning equity longer-term and benefitting from the cash flows and distributions. One of the differentiators, when you study our performance in the ABS market, is we aim to use aircraft trading as a tool to not only de-risk these financing structures but to drive cash to the equity portion."

"We believe it gives debtholders comfort that we have skin in the game. Each transaction is different, but usually we are committed to a meaningful hold, the amount of which may decrease over time."

Regarding Castlelake's active approach to managing collateral, Carruthers notes that the firm has "been a much more aggressive seller of aircraft out of aircraft ABS, which from an issuer perspective means that you are a lot less reliant on selling a piece of equity down because you can drive cash flow to the equity through sales of aircraft as well," he says.

E-buyer profile

Carruthers anticipates changes in the buyer base in ABS transactions.

"Many equity sales that were done prior to the Covid-19 period may have underperformed buyers' expectations. So, one can assume that a lot of those buyers perhaps are not going to double down in that asset class because it is challenging to go back to your stakeholders saying: This time it is different'."

The jury is still out for Carruthers on when the buyer base is coming back in any size.

"If that buyer base does come back, I anticipate that there may be some crossover where some of the buyers pre-Covid buy in the future, but I also expect that some buyers are no longer there and there is going to be a natural rotation to find a new investor base to absorb that equity risk post-Covid," he says.

Carruthers adds that some deals could include the equity portion this year, although he does not expect meaningful volumes.

"The equity buyers are going to be quite selective in terms of the structures they are willing to own equity in and the servicer that is managing those structures," he says.

Evolving to a younger fleet

Joe McConnell, Castlelake co-head of aviation, portfolio manager and partner, says the current cycle is more severe than previous ones in terms of reductions to the global commercial aviation fleet. He predicts a record number of aircraft will never come back into service.

"That is what really differentiates this crisis from prior crises. Post-9/11, you might have seen 2-4% of the global fleet going into retirement. We believe through this crisis you will see more than 10% of the global seats never come back from the desert again," he says.

McConnell adds that going into the crisis the global fleet was as old as it had ever been.

"Airlines held on to assets much longer than they would have preferred to because the revenue environment was favourable and the OEMs [original equipment manufacturers] were struggling to deliver new-technology aircraft. This dramatically changed overnight. We believe older aircraft are now going to retire en masse and the fuel-efficient younger aircraft are a better fit for a recovery."

Castlelake had focused on the end-of-life space but moved to the mid-life market in more recent years. McConnell says a natural evolution of the Castlelake business is to move to newer aircraft.

"We are moving to a younger mid-life space. This is a continuation of our natural evolution and our investment strategy. We are going to focus on the younger mid-life space, whether it is brand-new technology A220s or five-to-eight year old narrowbodies and widebodies, as older aircraft values are severely impacted by this crisis," he says.

Carruthers adds: "As a business, we have the flexibility to invest in young aircraft all the way to end-of-life aircraft. That is a big part of our strategy: to be able to be opportunistic and identify the right opportunities that we think are compelling as markets evolve."

One of the differentiators that makes Castlelake unique is its ability to offer a number of different financing solutions for any type of commercial aircraft. It can provide capital for a sale and leaseback transaction, or line up capital for a more structured financed lease. Alternatively, if a customer is looking for lower-cost debt financing, more akin to senior secured corporate debt, its lending business can deliver solutions more akin to investment-grade or bank financing.

"We think that's a powerful and differentiating pitch to make to an airline because, in many cases, operating lessors only do one thing: operating leases. The bank markets have been dominated by French and US banks. What makes Covid-19 unique here is the capital void that has been created that needs to get filled over the next three to five years," comments Carruthers.

"As a private investment firm, we have made a conscious decision to build in-house operating lease infrastructure. Most investment firms won't own that infrastructure; they will obviously look to invest in the space but on a more passive basis through a management team."

"To properly manage the risk in the space, we believe being infrastructure heavy is important," he adds. "We have conviction that, every five to seven years, there is a volatile event. You need to be able to engage that infrastructure to play 'defence' while also engaging a capital base to play 'offence' and really commit capital at the times when airlines needed it most."

Boeing joint venture not exclusive

Ultimately, Castlelake wants to be the most flexible capital provider that is able to deliver whatever type of solution an aircraft operator may need. Its lending platform, announced in the final quarter of last year, was the missing piece of the jigsaw puzzle.

Castlelake's lending business has thus far focused on Boeing deliveries following its announcement of a financing programme with the American OEM last year, but Carruthers says the company can, and he expects will, finance Airbus assets.

"Airbus and Boeing have record numbers of new aircraft on order and with the banking sectors having pulled back, we believe there is a financing gap that will be there for the next three to five years that's worth up to $80 billion a year for delivery financing," he says.

> *"Lending against aircraft is capital intensive and people have a high awareness of the risk in the industry."*
>
> **Evan Carruthers**, chief investment officer and managing partner, Castlelake

How is Castlelake now coordinating between its direct lending and its leasing activities?

McConnell says the airline relationship is the most important part of the equation.

"Those are relationships we have invested in over the past 16 years, and we want to continue to build those relationships and to work with individuals at the airlines to help solve their problems. We have leased aircraft to over 175 airlines and have a dedicated marketing team that manages those relationships," he says.

"We think it makes a lot of sense to have a lending business sitting alongside a large servicing infrastructure. If Covid-19 has taught the aviation finance community anything it is that active asset management matters in terms of protecting your downside. We think that investors take comfort in the fact that we are setting up this business to lend, but also have the tools to engage if something goes wrong," observes Carruthers.

"Lending against aircraft is capital intensive and people have a high awareness of the risk in the industry. In our view, there are a lot of merits to and synergy in placing that financing vehicle and that lending business alongside significant human resource infrastructure. We believe there is a lot of value in the downside protection that we can deliver which has been a powerful part of the value proposition," he adds.

The growing importance of environmental, social, and governance (ESG) issues is becoming apparent and is potentially putting pressure on the mid-life aircraft segment.

"When you dive into ESG and its impact on aviation, there are two principle impacts for us: First, it is having an impact on airline behaviour and how they are managing their fleets. Airlines are using Covid as an opportunity to refleet with fuel-efficient aircraft – a component of that decision tree is ESG," says Carruthers.

He adds that ESG is a big component to the risk profile when underwriting a transaction. "This is one reason why we think it makes sense to migrate to younger aircraft because they are going to be more favourable for airlines and we see this trend continuing," he says.

The second impact that is equally important is investor appetite.

"A lot of our investors ask us how we think about ESG in the context of aviation and how we demonstrate that we are effectuating changes within the portfolio. We feel an obligation to be responsive to our investor base, and that impacts the investment decisions we make. I do think that drumbeat is going to get louder over the next three-to-five years. If you don't pay attention and respond, the investor base will vote with their feet," says Carruthers.

Consolidation

The aircraft finance and leasing market has been consolidating recently, as evidenced by Carlyle's recent acquisition of Fly Leasing and the Aercap/Gecas deal. How does Castlelake view this trend?

"We are opportunistic investors," says McConnell, adding that consolidation on the lessor side will continue.

"I think a lot of people are not fully understanding the amount of distress that lies with some of the smaller, less capitalized start-up lessors that formed pre-Covid and didn't have much infrastructure. You have not yet seen real distress in that part of the market, which is typical in what we see across all the asset classes we invest in at Castlelake. Post a shock event, it typically takes 12-18 months for any real consolidation to happen. The banks have not yet started to enforce their contracts on the collateral, but that is starting to change. It is likely going to result in additional consolidation over the next few years."

"When you look at the history of consolidation, there are certainly one or two deals happening in the depth of crises. But the vast majority of M&A transactions are in a more stabilised market environment following the crisis," observes Carruthers.

"It is difficult to convince shareholders to sell when there's volatility or a perception that they are not getting a fair value and if they waited for recovery in 20-24 months that there might be a better outcome.

"Aircraft trading is a great example, as over the last 12-18 months it has probably been at an historic low because the bid ask spread is high. The seller doesn't want to take a value hit and the buyers are, generally speaking, going to price in the volatility they are currently experiencing in the market."

He adds: "The same is true in M&As and perhaps there are lots of fatigued equity owners. If there is more stabilisation and perhaps a recovery in aircraft values, they will be motivated to hit a bid when the time is right. Ultimately, we would anticipate both aircraft trading activity with lessors and corporate transaction activity to continue to pick up as we move past the depth of the crisis."

Lessons **learned**

Although extreme climatic conditions have played havoc with airline flights causing concern about future funding, the Covid-19 pandemic has proved the value of liquidity and assets in a crisis, writes **Laura Mueller**.

No doubt climate change will increase the likelihood of extreme heat, wildfires and big storms, and therefore flight delays and cancellations, as witnessed by the US flight activity this past summer, but will the human-caused climate crisis lead to more expensive capital to the sector?

Aviation is a necessary part of the global economy. The global aviation industry supports more than 87 million jobs and accounts for 3.5% of global GDP ($3.5 trillion – based on 2018 data from IATA.)

However, the global airline industry is increasingly under pressure from investors to address rising carbon emissions. In 2020 aviation accounted for 2.5% of all human-induced (CO_2) emissions. According to IATA, with other gases and the water vapour trails produced by aircraft, the industry is responsible for around 5% of global warming.

In 2018, passenger transport produced 81% of global commercial aviation emissions, and air freight generated the remaining 19%. According to the Environmental and Energy Study Institute, both categories have a history of steady growth, and the trend will continue. By 2050, commercial aircraft emissions could triple given the projected growth of passenger air travel and freight, the Institute says.

Still, this reality has not translated into pricier capital for the industry yet.

In July, Lufthansa Group issued bonds with a total volume of €1 billion ($1.2 billion).

The first €500 million tranche has a three-year tenor and a coupon of 2%.

The second €500 million tranche was raised via eight-year bonds with an interest rate of 3.5%.

Both tranches were nearly two times oversubscribed, according to early data.

Meanwhile. across the pond, eight flights in Denver were cancelled during the same month, and another 300 were delayed due to smoke from forest fires burning in the US Pacific Northwest.

A month later, storms forced the cancellation of more than 300 flights at both Chicago's O'Hare airport and Dallas/Fort Worth airport in Texas.

As the frequency of weather events increase, airlines need to prepare for further disruptions; however, will aviation be considered risker, and therefore more expensive due to climate interruptions?

The pandemic has proved otherwise.

The liquidity punch bowl has been overflowing, especially for the lessors. In August, Air Lease came to market with a $1.1 billion public offering of senior unsecured medium-term notes.

The California lessor offered $600 million senior unsecured medium-term notes with a coupon of 0.8%, maturing in August 2024, and $500 million 2.1% senior unsecured notes due September 2028.

Before that issuance, Dubai Aerospace Enterprise (DAE) issued a $1 billion unsecured notes offering with a 2024 maturity.

The fixed senior unsecured issuance carried a 1.55% coupon.

Also, the same month, SMBC Aviation Capital, via SMBC Aviation Capital Finance DAC, closed a seven-year $500 million issuance at a 2.3% coupon. The bond placement - priced at 110 basis points (bps) over US Treasury - represented the lowest credit spread achieved in a bond issuance by SMBC Aviation Capital.

According to early data, investor orders reached $3.9 billion, indicating that the transaction was oversubscribed 5.8 times.

Still, some are optimistic investors will influence aviation financings.

"Look at the green bonds that Etihad issued at a low cost and then IAG committing to ESG improvements in order to get lower cost of debt," says a source. "Investors are forcing their asset managers to commit to funding green improvements even if it means lower returns."

Etihad Airways launched the world's first transition sukuk and the first sustainability-linked bond in aviation, under their Transition Finance Framework in October 2020.

The sustainability-linked bond is tied to one key performance indicator: a reduction of 17.8% of its emission intensity in its passenger fleet by 2024, against a 2017 baseline of 574 CO_2/revenue tonne kilometres for the total fleet.

The $600 million bond was slightly oversubscribed with an orderbook of more than $700 million. Etihad has announced a $3 billion sukuk programme expected to be rated A by Fitch.

A penny saved

The cost of funds is important for all industries. However, Covid-19, more than any other crisis, has taught the aviation industry the importance of liquidity and assets when trying to contain the impact of uncertainty on operations, declared panellists at *Airfinance Journal*'s North America event in Miami in August.

"I would have pulled a few transactions a few weeks earlier," said Meghan Montana, vice-president and treasurer at American Airlines, reflecting on the industry's worst-ever crisis.

Global airlines lost a combined $125 billion in 2020 and are forecast by International Air Transport Association to lose another $48 billion this year.

Montana says: "The industry had a 9/11 playbook, a Sars playbook, but what has been so different about Covid is that it is hard to tell when you are going to be through it. There have been a lot of starts, a lot of stops and waves.

"September 11 was horrible, but you knew it wasn't going to get any worse on September 12 as you had the TSA spooling up, passengers returning to the skies… this has been much harder to navigate."

She adds what has made American Airlines' recovery "so successful" has been "building strong recovery liquidity bases, pointing to days of available runway".

American went into the pandemic with better liquidity than some of its competitors, according to Montana.

"We have always had the view, given our elevated leverage position, that we needed more liquidity, and it paid off. We went into March with $8 billion, and that gave us the ability to be patient and thoughtful about when we did go to market," she adds.

The carrier has completed a series of financings during the past 16 months, raising about $40 billion.

"The industry had a 9/11 playbook, a Sars playbook, but what has been so different about Covid is that it is hard to tell when you are going to be through it. There have been a lot of starts, a lot of stops and waves."

Meghan Montana, vice-president and treasurer, American Airlines

"That doesn't sound like we were that patient, but we were able to time our markets better. We were able to go in with less painful structures than some of the cumbersome, restrictive stuff that we had to do, so that really paid off," says Montana.

Allegiant Airlines, meanwhile, rues missed buying opportunities earlier on in the pandemic.

"We had seen some really nice opportunities out there, and that was still at a time when everybody was scared to put any money to work, so I would have transacted on a handful of aircraft," says Robert Neal, corporate finance, senior vice-president and treasurer at Allegiant Airlines.

"We have 104 aeroplanes in service today, but without an orderbook except some for used assets in 2020, so it would have been a great opportunity to build faster," he adds.

Placing priority on a robust financial strategy is a very effective way to prepare airlines for a recession, regardless of the cause or nature of the downturn, says Southwest Airlines' senior vice-president, finance and treasurer, Chris Monroe.

"What has mattered to us is the fortress balance sheet, the investment-grade ratings, and that is reflective in what we did in our financings – we did an equity component, a convert and some things that maybe we didn't have to do, but it was important to us to send a signal to the markets that we were serious about keeping this investment-grade balance sheet, so I think being as prepared as possible was the biggest lesson.

"I remember coming into this, and folks on Wall Street telling us to lever up the balance sheet, and the consistent response from our management team was that we have been through 9/11, Sars, 2008 [global financial crisis], and while we don't know what is coming, we aren't going to run the business that way," adds Monroe.

Montana also points to timing, or the lack thereof, in the US Treasury process for financial support as "part of the learning curve" of the pandemic.

"In hindsight, we would like to have known the US Treasury's timeline. I learned how important it is to have uniform transactions. The US treasury is not a commercial lender, so you have to be thoughtful about what they are trying to balance.

"Still, it would have been nice to know timelines because it came later than we all thought. Had we known, 'hey, you aren't getting money until September, so do what you have to do to navigate it', I would have pulled a few deals forward."

Doing so would have been to American's benefit, she adds, "but I can't put an amount of basis points or proceeds on it."

But the surest way to protect airlines against future shocks is to have an arsenal of assets available to bolster liquidity.

"I think we all learned as an industry about having really high-quality assets available to finance, so loyalty programmes, namely," says Montana. "When we think about future-proofing our businesses, whatever asset allocation we chose – aircraft, spare parts, loyalty programmes – we are going to make sure we have assets in size that can quickly be deployed."

Covid-19 further reinforced the need for large cash piles. "For our size, we had a very successful track record, so 60 consecutive profitable quarters, and so we kind of got comfortable," says Allegiant's Neal.

"What I learned looking back is that we can have more cash, and we will keep more cash on the balance sheet for a long time to come."

And with the rapid spread of the Delta coronavirus variant prompting further uncertainty, Montana says American is "going to sit on higher liquidity for longer" to make sure it can navigate through whatever is in front of the industry.

777X delays extend A350-1000's head start

Boeing's latest widebody already faced a daunting entry into service. Further delays to its development programme will not help its ability to overtake the competing Airbus model, writes **Geoff Hearn**.

Both Boeing and Airbus have faced difficulties in transitioning between generations of widebody aircraft. The European manufacturer had to rethink its initial plans for the Airbus A350, and the A380 has proved a disappointment in terms of orders and programme sustainability. The revised A350 design has proved relatively successful, albeit sales of the largest variant, the A350-1000, remain modest. The US manufacturer seems to be faced with greater problems as it seeks to replace the iconic Boeing 747 and the current 777 models.

These problems are set against a background of a widebody market ravaged by the Covid-19 pandemic. Airbus expects the commercial aircraft market to return to pre-Covid levels between 2023 and 2025, but the European manufacturer says the single-aisle segment will lead recovery – implying that the widebody market will lag behind. In May, Airbus briefed suppliers that it expected to increase the production rate of the A350 family from five to six units a month by the end of 2022. In contrast to its briefing on single-aisle products, the company did not outline plans for widebody production beyond this date.

Damaging delays

At the beginning of this year, Boeing announced it did not expect the 777X to enter into service until late 2023, more than two years behind the previous target date. In February, a securities filing by the manufacturer disclosed that it had cut its official backlog for the 777X by more than one-third after the announcement of further delays. Boeing said its 777X order tally at the end of 2020 stood at 191 compared with 309 a year earlier. However, there appears to have been a recent recovery.


The 777X has suffered setbacks


Sales of the A350-1000 are modest

Airfinance Journal's Fleet Tracker shows a current backlog of 320, of which 29 are identified as -8 variants. The Boeing website confirms there are 320 unfilled orders, but does not specify the split between -9 and -8 models.

Boeing suffered a further setback when the Federal Aviation Administration said in May it would need to commit more resources to certifying the aircraft, and that Boeing might need to conduct additional test flights.

Key data

Model	A350-1000	777-9
Typical seating	350-410	426
Max seating	440	Not specified
Typical range (nm/km)	8,700/16,100	7,290/13,500
Engine	Trent XWB	GE9X
Thrust per engine (lbf)	97,000	105,000
Entry into service	2018	2023 (planned)

Source: Manufacturers

Boeing 777-9 characteristics

Boeing launched the 777X family in late 2013. The X designation was originally applied to the individual models, but is now used only as a programme designation.

The manufacturer offers two variants of the new family. The 777-9 provides seating for more than 400 passengers in a two-class configuration and has a range of close to 7,300 nautical miles (13,500km).

The second member of the family, the 777-8, seats more than 350 passengers and offers a range capability of about 8,700 nautical miles – matching the A350-1000 variant. Although Boeing says it remains committed to the long-range model, development of the -8 variant appears to be on hold.

Airbus A350-1000 characteristics

The A350-1000 is the largest variant of the A350 family and Airbus's largest offering in the absence of the A380. The aircraft seats 350 to 410 passengers in a typical three-class layout with a range of 8,700 nautical miles. The aircraft was originally conceived with a nine-abreast economy configuration and was designed to replace the A340-600 and compete with the 777-300ER.

Economy layouts with 10-abreast seating have subsequently been developed, which go some way to reducing the seating gap to the new 777-9. This competitiveness is aided by an increase of the maximum certificated capacity by 40 seats.

The European authorities awarded it type certification in November 2017. It entered commercial service with Qatar Airways in February 2018.

Order status

Combined orders for the new 777 family lag behind those for the A350 models. However, with unfilled orders back up to 291 aircraft, the 777-9 has accrued more sales than the A350-1000, despite an entry into service several years behind the Airbus model.

Another consolation for Boeing is that the direct competitor to the -9 has garnered no sales in 2020 or 2021 to date (to 31 July 2021, as per the manufacturer's latest updates). Given the pandemic, this is perhaps not surprising, but the Airbus

777X and A350 recent orders

Aircraft	Up to 2019	2019	2020	2021 (to 31 July)	Total
777-8	17	1	None	11	29
777-9	273	18	None	None	291
A350-1000	161	8	None	None	169
A350-900	623	105	21	5	754

Source: Airfinance Journal Fleet Tracker, 31 July 2021

aircraft only registered eight sales in the last full year before Covid-19 struck.

The drop in Airbus sales during the current crisis may be providing some respite to Boeing in terms of market share, but the 777X is also struggling to obtain orders and will not be helped by the delays and technical issues that have been encountered in the GE9X engine development as well as the airframe programme.

Cost comparison

Determining the relative operating costs of larger aircraft is complicated by the opaqueness of manufacturer claims. Boeing's website says: "The 777X will deliver 10% lower fuel use and emissions and 10% lower operating costs than the competition."

It is not clear whether this relates to seat costs or trip costs, let alone which competition is being used as the benchmark. Airbus's claims are no more illuminating, with the marketing material suggesting: "The A350-1000 burns 25% less fuel than its nearest competitor."

In order to steer through these apparent contradictions, *Airfinance Journal* has estimated the relative costs based on its own model. The 777-8 has also been included in the comparison, because it is arguably a more direct competitor to the A350-1000 than the larger 777-9.

Relative cash cost at fuel price of $1.75 per US gallon

	A350-1000	777-8	777-9
Cash cost per trip	Base	102%	104%
Cash cost per seat	Base	101%	93%

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

The closeness of the 777-8 and A350-1000 is borne out by *Airfinance Journal*'s analysis. At a recent fuel price of $1.75 per US gallon, the 777-8 appears to have a marginally higher cost per trip than the A350-1000, which is not completely offset by the slightly higher seating capacity of the Boeing aircraft.

Differences are more marked in the case of the 777-9 comparison. The largest Boeing model has a 4% higher trip cost than the A350-1000, which translates to a 7% advantage in cost per seat, based on *Airfinance Journal*'s assumptions on capacity. A caveat to these findings is that 777-9 performance figures are estimates based on Boeing's early briefings and will only be verified once the aircraft has entered service. Relative seat counts are also a source of claim and counter-claim.

Based on their respective cash costs, *Airfinance Journal*'s analysis suggests that the 777-9 will provide significant efficiencies for airlines that can use its full capacity, while the A350-1000 is a less-expensive lower-risk option.

Comparing pricing, and therefore capital costs, of the aircraft is difficult, not least because Airbus no longer publishes list prices. *Airfinance Journal*'s analysis suggests the 777-9 would sustain a total cost per seat advantage with a price increase of about 15% compared with the A350-1000. Perhaps most significantly, once the latest 777 enters service, Airbus will no longer be able to offer an aircraft that matches the capacity of Boeing's largest model.

Future freighters

Airbus's launch of an A350 freighter could challenge Boeing's historic dominance of the cargo-aircraft market.

The airfreight market has been a rare source of relatively good news for the commercial aviation market during the Covid-19 crisis, and provides an encouraging backdrop for the European manufacturer's announcement that its board has backed the development of an Airbus A350 freighter.

There have been reports over recent months that Airbus was talking to potential customers, and chief executive officer (CEO), Guillaume Faury, announced at the company's half-year results briefing that, following board approval, Airbus was adding an A350 freighter to its product line. The freighter version will be based on the A350-1000, with entry into service targeted for 2025. This development will not be welcomed by Boeing, which has long dominated the freighter market. It comes at a time when two of the company's successful cargo aircraft, the Boeing 777-200LRF (777F) and the 767-300ERF (767F), face an end to production as new noise regulations come into effect in 2027, although both are still attracting orders.

The 777F and similar aircraft face new noise regulations.

Since January, Boeing has recorded eight 777F orders from FedEx, Lufthansa Cargo and Silk Way Airlines along with 11 undisclosed orders. The manufacturer has also received orders for 19 767Fs, of which 18 are from FedEx.

However, no launch customers have been announced as yet for the A350F, and the fate of the freighter version of the A380 serves as a reminder that there is a way to go before the latest Airbus model becomes a reality.

Nonetheless, Boeing is likely to respond and the company's CEO, Dave Calhoun, is reported to have said he hopes to announce the development of a freighter version of the 777X in the near term. Boeing's existing dominance of the freight market may help it convince carriers that its model will offer greater commonality with existing infrastructure.

In any case, the large freighter market looks likely to become another area of stiff competition between the two manufacturers.

ATR72-600 – competing alone

ATR's manufacturing rivals have left the regional aircraft market - at least temporarily, but challenges remain for the turboprop. **Geoff Hearn** reports.

The ATR72 is a twin-engined turboprop developed from the smaller ATR42 to provide capacity for 70 plus passengers. It is used primarily to serve regional routes. The ATR72-600 is the current production standard. The most recent addition to the family is the ATR72-600F - a factory-built freighter. Close to 1,300 ATR72s of all variants have been sold.

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Market background

The regional aircraft market appears to have been less impacted by Covid-19 than other sectors of the commercial aircraft busines, and forecasts suggest that it will be the first to recover after the pandemic. ATR's senior vice-president commercial, Fabrice Vautier, supported this view when he told *Airfinance Journal* that: "We have been relatively resilient in our market." Vautier suggests there is a shift in mentality in the regional sector, whereby operators are now looking to focus on cost per trip rather than cost per seat, which he implies is an advantage for ATR.

It is not just the manufacturer that expects current difficulties to recede in the medium term. Turboprop asset management company Elix Aviation sees the regional aircraft market remaining distressed and relatively uncertain at the moment, but foresees opportunities for growth and development as the market for regional and domestic demand steadily recovers. Chief operating officer John Moore told *Airfinance Journal*: "It [the market] is still well below what it could be but we do see a bit more activity and more prospecting for aircraft on the ATR side with a number of start-ups in the regional sector." He added: "There are some opportunistic companies coming into the market and there is still a large installed base of turboprops that is going to continue to grow."

ATR is confident the regional and turboprop market will continue to grow as the recovery begins and the Covid-19 pandemic recedes. Any recover could, however, result in De Havilland of Canada restarting the Dash 8-400 programme – the ATR72's most direct competitor. Another potential threat on the horizon comes from plans by Brazilian manufacturer Embraer to launch a new passenger turboprop, which it is looking to produce in 70-seat and 90-seat variants. However, entry into service is not planned before 2027, even if the programme is launched, as the company hopes, in 2022.

The factory-built freighter is the latest ATR72-600 variant

Operating cost

Previous analysis by *Airfinance Journal* confirms that the ATR aircraft has a significant advantage in terms of trip cost over 70-seat regional jets and compared to the Dash 8-400. On a 200 nautical-mile sector in a high fuel price environment ($2 per US gallon) *Airfinance Journal*'s analysis indicates that the cash operating costs per trip of the regional jets are about 40% higher than the ATR72- 600. The Dash 8-400 is more competitive than the jets, but nonetheless has a 24% higher cash cost per trip than the ATR. With a lower fuel price ($1 per US gallon), the jets and Dash 8-400 are marginally more competitive. If cash cost per trip is becoming a bigger factor in operator choices as Vautier suggests, then ATR's competitive position will be strengthened. However, as previous analysis by *Airfinance Journal* has suggested, other factors, such as capital cost and operational flexibility, have a big role to play in selection criteria.

Recent transactions

In what the manufacturer will be hoping is a sign of the market picking up, ATR has announced its first sale of 2021. Greek operator Sky Express has signed a deal to acquire six ATR72-600s, with the first aircraft delivered on 30 June. In 2020 the company only managed two orders according to *Airfinance Journal*'s Fleet Tracker. ATR declined to comment on the commercial terms of the transaction but said there was a short-term need for the new ATR72-600 aircraft and added: "With a fleet of 10 ATR -500 series aircraft, the airline has opted to continue its long relationship with ATR for its fleet modernisation project."

Although the sale to Sky Express has given a much-needed boost to ATR, the market remains difficult for the manufacturer as witnessed by recent activity. One worrying development was Singapore-based Avation's cancellation of six firm orders for the ATR72-600. Avation's firm ATR72 orderbook has thus been reduced to just two aircraft. The lessor nonetheless says it believes the regional market will recover. "We are pleased to reach agreement with ATR to reduce our committed orderbook from eight to two aircraft while retaining future flexibility afforded by additional purchase rights with extended expiry dates. We have faith in the recovery of the regional aviation sector post Covid-19," commented Avation's executive chairman, Jeff Chatfield.

Blueberry Aviation is another company expressing confidence in the market despite short-term difficulties. The asset management and remarketing company has been mandated to manage and remarket the remaining ATR72-600s previously operated by Latin American carrier Avianca and its subsidiaries. Blueberry Aviation chief executive officer Francois Gautier says: "As for any aircraft type, we are currently seeing an overcapacity and we expect this situation to take some time to dissipate, however, we have received a number of serious enquiries lately in particular from new entrants and ATR is clearly the turboprop of first choice for the regional market. In this market, which is by definition mainly domestic, the traffic has been less affected than jet/international traffic and we expect to see a quicker recovery than for other aircraft types."

In a development that reflects the observation by Elix Aviation's Moore that start-up activity is increasing in the regional sector, fledgling Irish carrier Emerald Airlines expects to receive its first ATR72-600 imminently, following the signing of a 10-year franchise agreement with Aer Lingus to operate regional flights between Ireland and regional airports in the UK, the Isle of Man and Jersey. Emerald is in the

ATR72 recent orders

	2017	2018	2019	2020	2021 (to 1 August)
Orders per year	112	33	47	2	6

AIRCRAFT CHARACTERISTICS

Seating/range

Max seating	78
Typical seating	72
Maximum range 825 nautical miles (1,526km)	

Technical characteristics

MTOW	23 tonnes
OEW	14 tonnes
MZFW	21 tonnes
Fuel capacity (standard model)	6,370 litres
Engines	PW127M
Thrust	2,475 shp

Fuels and times

Block fuel 100 nautical miles (nm)	370 kg
Block fuel 200 nm	610 kg
Block fuel 500 nm	1,310 kg
Block time 100 nm	36 minutes
Block time 200 nm	58 minutes
Block time 500 nm	125 minutes

Fleet data (-600 only)

Entry into service	2011
In service	363 (624 all variants)
Operators (current and planned)	104
In storage	190 (374 all variants)
On order	150
Estimated Production 2021	30
Average age	5.0 years

Source: *Airfinance Journal* Fleet Tracker 1 August 2021

Indicative maintenance reserves

C-check reserve	$35 to $40/flight hour
Higher checks reserve	$25-$30/flight hour
Engine overhaul	$100-$105/engine flight hour
Engine LLP	$30-$35/engine cycle
Landing gear refurbishment	$20-$25/cycle
Wheels, brakes and tyres	$35-$40/cycle
Component overhaul	$125-$130/flight hour

Source: Air Investor 2021

process of securing an AOC with the Irish civil aviation authorities with plans to launch operations towards the end of the year.

In a sign that existing ATR customers are continuing with fleet development plans, Romanian flag carrier Tarom is reported to be seeking operating or financial leases for three ATR72-600 turboprops. Since February 2020, the airline has received four out of a planned nine ATR72-600 aircraft, which will be used to replace older ATRs in its fleet. There is some evidence that lessors are starting to place aircraft. For example, Indigo Airlines is taking delivery of a new ATR72-600 aircraft on lease from GOAL Aircraft Leasing. However, the New Delhi-based airline is representative of the continuing problems faced by many carriers around the world, having posted its sixth consecutive quarterly loss of 31.79 billion rupees ($426.84 million) in the latest reported quarter. The airline expects capacity to return to pre-pandemic levels by the end of the year but says that another wave of infections could impact recovery efforts.

An Appraiser's view

Gueric Dechavanne, vice-president, commercial aviation services, Collateral Verifications (CV), assesses ATR72-600 values

The market for the ATR72-600 has remained quite soft over the last 18 months. This is only partly due to the Covid crisis, as the market for the aircraft was already struggling prior to the pandemic. CV has seen values decline by about 20% for most vintages. Lease rentals have also dropped for the type by around 30%. With around 11 aircraft listed as available for sale and/or lease and about 30% of the fleet still in storage, the market is likely to remain challenging for the type for some time. This situation will remain, at least until the European and Asian markets begin to show greater signs of a recovery. However, with Covid cases once again surging in some areas, a full recovery may be on hold for a bit longer as airlines determine what capacity they will need once traffic returns.

The demand for the ATR72-600 should return as the recovery takes shape, due to the aircraft's attractive operating economics, reliability, and manufacturer support. CV also feels many of the larger operators of ATR72-500s may look to take advantage of attractive pricing in the near-term and replace their aging aircraft with newer, more efficient -600 variants. De Havilland's decision to temporarily stop production of the competing Dash 8-400 could also present some additional opportunities for ATR as the market returns. Although production rates have been significantly reduced during the pandemic, CV believes that ATR has been preparing to ramp production back up to ensure that they have delivery slots available when needed. However, should demand surge in the near-term, the potential lack of new aircraft could present some good opportunities for used aircraft values and lease rates to stabilize and even rebound.

With the cargo market being a bright spot during this downturn, interest in the ATR72 as a factory and converted freighter has gained some traction during the pandemic. This trend is expected to continue as express and package-freight operators look to expand their fleets to support the growing E-commerce markets. CV expects the older ATR72 variants to be the most attractive freighter candidates, due to the lower pricing needed to make sense of the conversion. However, the ATR72-600 is likely be viewed as the next generation of aircraft to be converted as values drop.

Overall, CV feels that the ATR market will remain challenging for the next twelve months, but the aircraft continues to be attractive to many operators and offers various alternatives to investors which should bode well for the long-term success of the fleet.

Current market value ($m)

Build year	2012	2016	2020	2021 (new)
CV view	9.9	12.9	16.8	19.5
Fleet Tracker (Avitas)	8.1	11.3	17.1	18.8

Assuming standard Istat criteria and respective maintenance status

Indicative lease rates ($'000s/month)

Build year	2012	2016	2020	2021 (new)
CV view	82	97	127	135
Fleet Tracker (Avitas)	86	112	144	158

Rating agency unsecured ratings

Airlines

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

Source: Ratings Agencies - 23/08/2021

Lessors

	Fitch	Moody's	S&P	Kroll Bond Ratings
Aercap	BBB-(watch neg)	(P)Baa3(stable)	BBB(neg)	-
Air Lease Corp	BBB(Stable)	-	BBB(stable)	A-(neg)
Aircastle	BBB(stable)	Baa3(Stable)	BBB-(stable)	-
Avation PLC	WD	-	CCC(Developing)	-
Aviation Capital Group	A-	Baa2(stable)	BBB-(stable)	A-(neg)
Avolon Holdings Limited	BBB-(Stable)	Baa3(stable)	BBB-(neg)	BBB+(neg)
AWAS Aviation Capital Limited	-	Baa3(Stable)	-	-
BOC Aviation	A-(stable)	-	A-(stable)	-
CCB Leasing (International) Corporation	-	-	A (stable)	-
CDB Aviation Lease & Finance	A+(stable)	A2(stable)	A(stable)	-
Dubai Aerospace Enterprise	BBB-(Stable)	Baa3(stable)	-	BBB+(neg)
Fly Leasing	-	B1(Stable)	BB-(neg)	BBB-(watch dev)
Global Aircraft Leasing	-	B1(neg)	-	-
ICBC Financial Leasing	A(stable)	A1(stable)	A(stable)	-
ILFC (Part of Aercap)	BBB-(watch neg)	(P)Baa3(stable)	-	-
Macquarie Group Limited	A-(Stable)	A3	BBB+(stable)	-
Marubeni Corporation	-	Baa2(stable)	BBB(stable)	-
Mitsubishi UFJ Lease	-	A3(stable)	A-(stable)	-
Park Aerospace Holdings	BBB-(Stable)	Baa3(Stable)	-	-
SMBC Aviation Capital	A-(neg)	-	A-(stable)	-
Voyager Aviation	B(Stable)	WD	CC(watch neg)	WR

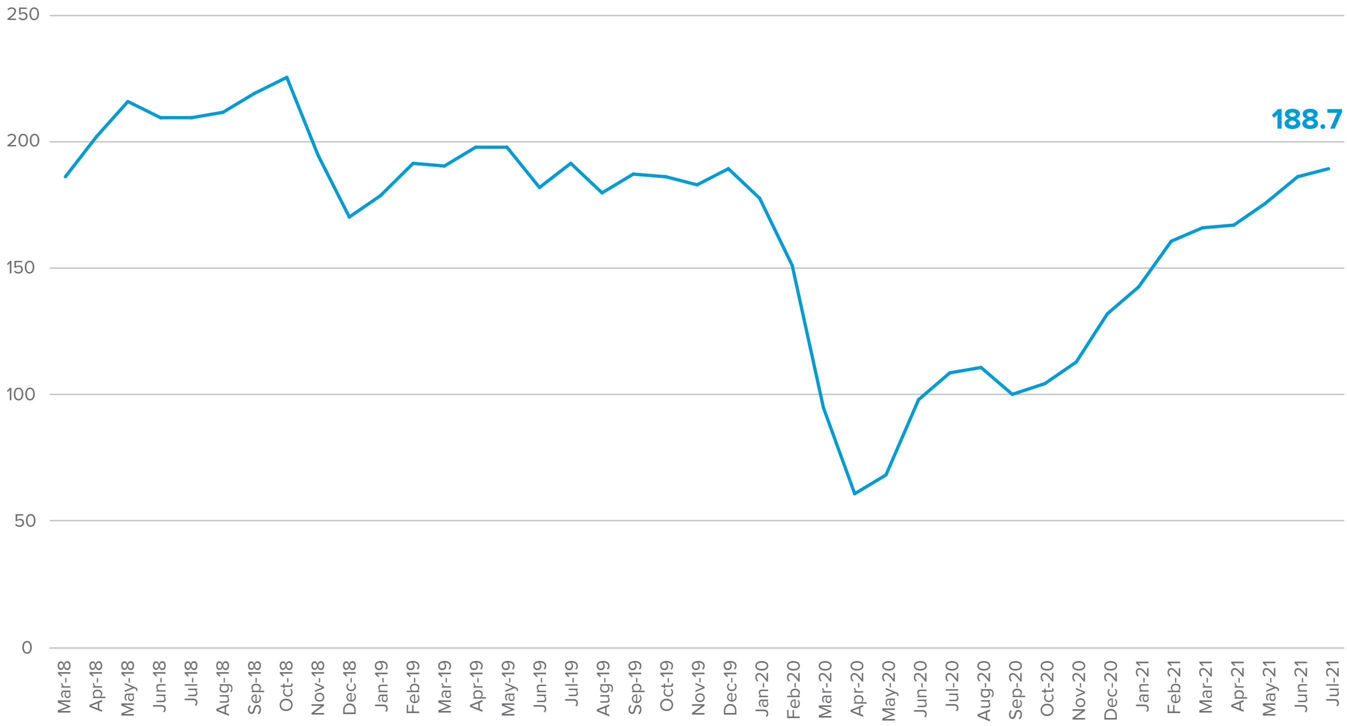
Source: Ratings Agencies - 23/08/2021

Manufacturers

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

Source: Ratings Agencies - 23/08/2021

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



Source: *US Energy Information Administration*

Commercial aircraft orders by manufacturer

	Gross orders 2021	Cancellations 2021	Net orders 2021	Net orders 2020
Airbus (31 July)	167	134	33	268
Boeing (31 July)	630	360	270	-471
Bombardier - Mitsubishi Heavy Industries	0	0	0	0
De Havilland of Canada	0	0	0	0
Embraer	78	0	78	20
ATR	6	0	6	5

Based on *Airfinance Journal* research and manufacturer announcements until 30/08/2021

Recent commercial aircraft orders (June-August 2021)

Customer	Country	Quantity/Type
FedEx	USA	One 777-200F
GOL	Brazil	Nine 737 Max
Horizon Air	USA	Nine E175
Porter Airlines	Canada	30 E195-E2
Sky Express	Greece	Six ATR72-600
Skywest Airlines	USA	Nine E175
Southwest Airlines	USA	Six 737 Max
United Airlines	USA	70 A321neo
United Airlines	USA	50 737 Max 8
United Airlines	USA	150 737 Max 10
United Airlines	USA	30 A321neo
Unidentified Customer		One A220-300
Unidentified Customer		One A321neo
Unidentified Customer		One 787-8
Unidentified Customer		Four 787-9
Unidentified Customer		Five 777-200F
Unidentified Customer		One 767-300F
Unidentified Customer		Three 737 Max

Based on *Airfinance Journal* research August-September 2021

New aircraft values ($ million)

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

*Based on ISTAT appraiser inputs for Air Investor 2021

New aircraft lease rates ($'000 per month)

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

Betting on an **even rosier long-term outlook**

Adam Pilarski, senior vice-president at Avitas, attempts to assess the direction aviation will travel post-pandemic, but he says revolutionary changes are coming.

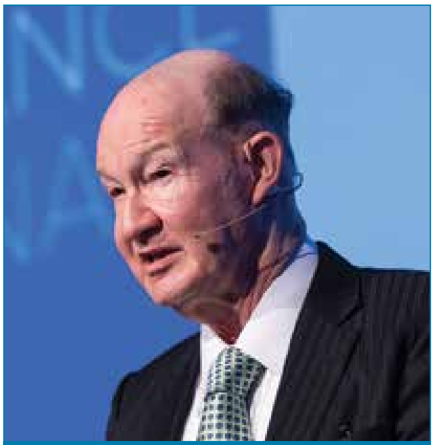
A lot has changed in aviation. Covid-19 caused an unprecedented drop in passenger traffic. This is because the remedy for the virus (social isolation) is the antithesis of our industry whose raison d'être is to bring the whole world closer together. The setbacks are causing many to question the viability of the whole industry. There is some logic to those gloomy prognosticators and we are entering a period of, possibly, paradigm shifts that will reshape the industry for some time to come. It is interesting to ponder which way the industry will go.

Aviation started well over a century ago with the first flight of the Wright brothers on 17 December 1903. That flight lasted a few seconds, carried one passenger and travelled 120 feet at a speed of 34 mph. From then on we experienced tremendous improvements. We surpassed one billion passengers by 1990 and reached 4.5 billion in 2019. The inspiring work of countless dreamers, pioneers and inventors transformed the world.

Terrific enhancements were made in safety and comfort and there were significant gains in speed and distance flown. Early on, there were famous competitions followed by a determination to see who could fly faster and further. The crossing of the Atlantic by Charles Lindbergh in 1924 won him the prestigious Orteig Prize and worldwide adulation and fame. Speed recorded further improvement when the Boeing 707 was the first consistently successful jet to carry passengers on commercial flights.

This was, though, basically the end of truly revolutionary improvements in flight. Since then, for more than half a century, the industry changed only by making travel cheaper and more efficient. There is nothing wrong with being profitable, mind you, but aviation, by definition, should soar in the sky.

All the work done in aviation for the past 50 years or more has been of a purely incremental nature with no paradigm shifts, no real improvements. All the creativity of our scientists and engineers went into efforts on how to squeeze another few cents per revenue passenger kilometres of cost.



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

> *We have now entered a period of great uncertainty. New ideas will be tried – some will prevail, some will fail. A new future will be formed in the next decade.*

We have now entered a period of great uncertainty. New ideas will be tried – some will prevail, some will fail. A new future will be formed in the next decade after which we will benefit from the successful new ideas being tried.

The pace of change, which has been stagnant for decades, will rapidly accelerate.

The direction of some of the forthcoming changes is obvious, though. It looks like environmental concerns will impact us more seriously than most industry players anticipate. The car industry gives us an example of such possible transformation. A decade ago electric cars were dismissed as a fantasy of technology fanatics. Tesla's first entry into the market was a very expensive vehicle and not given a chance to succeed. Today, its new products are widely successful, some variants costing about one-third of the original, and all powered by non-carbon fuel. And the market capitalisation of Tesla exceeds the cap of all the other car manufacturers in the US. By far. It exceeds it even if we add the market capitalisation of Boeing and Airbus to the total.

I realise there are idiosyncrasies of our industry that make electric-powered flights not highly likely soon but reality will evolve faster than we anticipate and carbon neutral aviation is in our future.

This brings me back to my favourite subject: high speed. Will supersonic travel come back? An attempt was made with the Concorde in 1969. It was a government project designed for national glory and not a response to market opportunities. It failed for several reasons. One was the sonic boom that prohibited flights over land. But tremendous technological advances have been made in the past half-century to mute the boom. Since it was a governmental prestige project it did not provide the luxury elements that the initial customers ("high rollers") expected. That included a very limited range, which deprived the flying public of the main benefit of high-speed, eliminating the possibility of flights to Asia. And finally, the project was way too timid. It charged business-class ticket prices for all seats instead of charging high prices for luxurious long-distance flights.

Interestingly, I have an old ad from 1932 that promotes "coast-to-coast flights in one business day for $155.83 one way". That allowed an average American worker four such trips a year. Today, incomes and prices of everything are dozens of times higher. But ticket prices are about the same as they were in 1932 allowing the average American to take a flight once every other day. Why do we believe that people will not be willing to pay much more for a different product? Early transatlantic flights eliminated ships to carry passengers and nobody compared the prices of these two journeys.

Revolutionary changes are coming to aviation that will also include environmentally friendly supersonic flights in the near future. And many more changes I cannot yet fathom.

AIRFINANCE
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An *Airfinance Journal* special supplement

Airline top 100 2021

Top 100 airlines[1]

Basic information				TAA Financial Rating					TAA Financial Rating Scores - LTM					Overall Rating Scores	
Rank	Airline	Most recent 12 month "Latest Twelve Months" (LTM)	LTM revenues [USDm]	Average age of fleet (years) *Source: AeroTransport Data Bank*	Ebitdar (Earnings before interest, tax, depreciation, amortisation and rents)/ Total Revenues (%)	Fixed charge cover: Ebitdar/Net Interest plus Rent (x)	Liquidity as % of revenue	Adjusted net debt/Ebitdar (x)	Average age of fleet score	Ebitdar margin score	Fixed charge cover score	Liquidity score	Leverage score	Score for most recent 12 month (LTM) period	Movement in latest 12 months
1	Air Arabia	31-Mar-21	$424	6.3	27.9%	6.4	207.7%	2.3	6	5	8	8	6	6.7	-0.7
2	Air Greenland	31-Dec-20	$179	23.0	15.2%	12.3	16.8%	0.9	1	3	8	4	8	5.4	0.0
3	EVA Airways	30-Jun-21	$2,979	6.6	31.9%	1.4	51.5%	8.0	6	6	2	8	3	4.9	0.4
4	Turkish Airlines	30-Jun-21	$7,447	8.0	25.4%	2.5	31.6%	8.2	6	5	5	7	2	4.9	0.7
5	Air Wisconsin	31-Mar-21	$169	18.8	24.1%	2.2	37.3%	4.8	2	4	4	8	4	4.8	1.8
6	China Airlines	30-Jun-21	$4,068	9.8	29.9%	2.3	29.6%	5.2	5	5	4	6	4	4.8	0.5
7	Grupo VivaAerobus	30-Jun-21	$632	4.4	26.1%	1.0	61.4%	5.1	7	5	1	8	4	4.7	0.2
8	Republic Airlines	31-Mar-21	$860	8.0	16.4%	1.6	49.9%	7.1	6	3	3	8	3	4.4	-1.4
9	Korean Air	31-Dec-20	$6,739	10.4	25.9%	2.4	23.8%	7.6	5	5	4	5	3	4.3	0.9
10	Allegiant	30-Jun-21	$1,199	14.5	10.8%	1.7	98.9%	4.3	4	2	3	8	4	4.2	-1.6
11	Volaris	30-Jun-21	$1,509	5.3	27.2%	0.8	34.0%	6.5	7	5	1	7	3	4.2	0.0
12	SkyWest	30-Jun-21	$2,239	11.8	15.2%	1.3	42.7%	9.6	5	3	2	8	2	3.9	-1.3
13	Emirates	31-Mar-21	$8,415	7.5	15.1%	0.3	48.9%	27.5	6	3	1	8	1	3.5	-0.9
14	Mesa Air Group	30-Jun-21	$481	8.6	15.5%	1.0	37.6%	11.0	6	3	1	8	1	3.5	-0.2
15	SunExpress	31-Dec-20	$577	10.3	18.1%	0.9	62.9%	14.1	5	3	1	8	1	3.4	0.0
16	Juneyao Airlines	31-Mar-21	$1,571	5.6	16.0%	1.1	27.2%	20.2	7	3	2	6	1	3.3	0.2
17	Pegasus Airlines	31-Mar-21	$480	4.9	10.3%	0.3	103.1%	54.3	7	2	1	8	1	3.3	-3.2
18	Spring Airlines	31-Mar-21	$1,422	5.6	10.9%	0.7	101.6%	21.1	7	2	1	8	1	3.3	-1.4
19	airBaltic	31-Dec-20	$168	2.2	-40.3%	-0.4	104.0%	-12.7	8	1	1	8	1	3.2	-0.4
20	Cathay Pacific	30-Jun-21	$4,570	6.3	10.1%	0.4	65.8%	31.0	6	2	1	8	1	3.2	1.2
21	Nordic Regional Airlines	31-Dec-20	$103	8.5	33.2%	1.0	2.9%	7.9	6	6	2	1	3	3.2	0.0
22	Shenzhen Airlines	31-Mar-21	$2,369	8.2	12.2%	0.6	50.9%	30.9	6	2	1	8	1	3.2	0.9
23	Air Astana	31-Dec-20	$393	3.2	7.0%	0.2	51.2%	31.7	7	1	1	8	1	3.1	-0.8
24	Atlantic Airways	31-Dec-20	$48	3.5	-11.6%	-0.8	61.1%	-13.6	7	1	1	8	1	3.1	-1.6
25	Cebu Pacific	30-Jun-21	$222	4.8	-104.6%	-1.2	145.8%	-9.5	7	1	1	8	1	3.1	-0.5
26	Frontier Group	30-Jun-21	$1,333	4.1	-12.0%	-0.3	70.2%	-23.5	7	1	1	8	1	3.1	N/A
27	Jazeera Airways	30-Jun-21	$100	5.2	-43.5%	-0.6	69.8%	-9.5	7	1	1	8	1	3.1	-1.6
28	Qantas Airways	31-Dec-20	$5,547	13.0	8.3%	1.1	48.4%	11.7	4	1	2	8	1	3.1	-1.8
29	SIA Group	31-Mar-21	$2,800	5.1	-8.4%	-0.5	211.6%	-19.8	7	1	1	8	1	3.1	-1.4
30	Solaseed Air	31-Mar-21	$184	4.7	-21.1%	-0.7	59.8%	-13.2	7	1	1	8	1	3.1	0.0
31	Tigerair Taiwan	30-Jun-21	$15	5.6	-278.8%	-0.9	787.7%	-9.2	7	1	1	8	1	3.1	-0.9
32	Vueling Airlines	31-Dec-20	$749	5.7	-61.4%	-1.3	95.8%	-6.6	7	1	1	8	1	3.1	-1.3
33	Wizz Air	30-Jun-21	$996	5.8	-17.4%	-0.4	170.9%	-16.1	7	1	1	8	1	3.1	-1.5
34	Air Canada	30-Jun-21	$2,458	8.2	-86.1%	-1.9	238.1%	-4.1	6	1	1	8	1	3.0	-0.5
35	ANA Holdings	30-Jun-21	$7,342	7.0	-11.9%	-0.8	129.5%	-16.8	6	1	1	8	1	3.0	-0.7
36	Avianca Holdings	30-Jun-21	$1,339	8.5	-5.5%	-0.1	76.8%	-82.3	6	1	1	8	1	3.0	0.9
37	Azul S.A.	30-Jun-21	$1,128	6.4	-9.1%	-0.1	71.6%	-55.4	6	1	1	8	1	3.0	0.6
38	Copa Holdings	30-Jun-21	$681	7.0	-3.0%	-0.1	173.7%	-45.3	6	1	1	8	1	3.0	-3.0
39	easyJet	31-Mar-21	$1,213	7.6	-89.0%	-2.9	262.3%	-3.6	6	1	1	8	1	3.0	-2.5
40	Grupo Aeromexico	30-Jun-21	$1,409	8.3	1.3%	0.0	61.6%	263.7	6	1	1	8	1	3.0	1.1
41	Norwegian Air Shuttle	31-Dec-20	$1,057	7.0	-19.3%	-0.2	45.6%	-29.8	6	1	1	8	1	3.0	1.1
42	Shandong Airlines	31-Dec-20	$1,620	7.3	5.3%	0.2	50.4%	50.0	6	1	1	8	1	3.0	0.2
43	Spirit Airlines	30-Jun-21	$2,221	6.4	-8.8%	-0.5	88.7%	-16.2	6	1	1	8	1	3.0	-0.7
44	StarFlyer	30-Jun-21	$176	6.7	-25.1%	-1.4	82.9%	0.9	6	1	1	8	1	3.0	0.1
45	Thai Airways	30-Jun-21	$484	6.0	-82.1%	-0.4	53.8%	-16.6	6	1	1	8	1	3.0	0.8
46	Aegean Airlines	31-Mar-21	$386	10.2	-13.0%	-0.2	133.2%	-27.5	5	1	1	8	1	2.9	-1.4
47	Aer Lingus	31-Dec-20	$574	11.0	-47.3%	-1.9	48.2%	-6.2	5	1	1	8	1	2.9	-2.9
48	Air Busan	31-Mar-21	$111	11.7	-53.1%	-0.5	35.2%	-12.2	5	1	1	8	1	2.9	1.4
49	Air France	31-Dec-20	$7,504	13.0	-25.2%	-1.7	66.5%	-6.8	4	1	1	8	1	2.9	-0.6
50	Air France-KLM	30-Jun-21	$11,516	11.7	-17.6%	-1.0	66.6%	-7.5	5	1	1	8	1	2.9	0.0

Source: *Airfinance Journal's The Airline Analyst*

[1] As rated by *AFJ Financial Ratings* on 22 August 2021 based on data from *The Airline Analyst*

Basic information				TAA Financial Rating					TAA Financial Rating Scores - LTM					Overall Rating Scores	
Rank	Airline	Most recent 12 month "Latest Twelve Months" (LTM)	LTM revenues [USDm]	Average age of fleet (years) *Source: AeroTransport Data Bank*	Ebitdar (Earnings before interest, tax, depreciation, amortisation and rents)/ Total Revenues (%)	Fixed charge cover: Ebitdar/Net Interest plus Rent (x)	Liquidity as % of revenue	Adjusted net debt/Ebitdar (x)	Average age of fleet score	Ebitdar margin score	Fixed charge cover score	Liquidity score	Leverage score	Score for most recent 12 month (LTM) period	Movement in latest 12 months
51	**Alaska Air Group**	30-Jun-21	$3,833	9.4	-23.5%	-2.5	103.1%	-1.4	5	1	1	8	1	2.9	-2.0
52	**American Airlines Group**	30-Jun-21	$18,686	10.5	-34.9%	-2.2	96.1%	-5.1	5	1	1	8	1	2.9	0.4
53	**Austrian Airlines**	31-Dec-20	$736	14.8	-41.5%	-4.5	65.6%	-0.3	4	1	1	8	1	2.9	-0.1
54	**Bangkok Airways**	30-Jun-21	$136	9.1	-23.8%	-0.4	48.0%	-24.4	5	1	1	8	1	2.9	0.0
55	**British Airways**	30-Jun-21	$2,932	10.1	-78.3%	-2.9	77.6%	-5.3	5	1	1	8	1	2.9	-1.6
56	**Delta Air Lines**	30-Jun-21	$18,311	13.5	-27.3%	-2.8	83.2%	-3.4	4	1	1	8	1	2.9	-1.6
57	**Finnair**	30-Jun-21	$545	10.4	-59.8%	-2.3	179.2%	-6.5	5	1	1	8	1	2.9	-0.7
58	**Hawaiian Airlines**	30-Jun-21	$819	9.4	-42.4%	-1.9	266.5%	-2.6	5	1	1	8	1	2.9	-0.7
59	**IAG**	30-Jun-21	$5,561	9.1	-57.5%	-2.0	161.2%	-4.8	5	1	1	8	1	2.9	-1.4
60	**Japan Airlines**	30-Jun-21	$4,899	9.1	-28.3%	-7.9	84.6%	-2.2	5	1	1	8	1	2.9	-3.0
61	**jetBlue**	30-Jun-21	$3,386	11.2	-39.6%	-4.1	110.0%	-1.1	5	1	1	8	1	2.9	-0.7
62	**Jin Air**	31-Dec-20	$237	12.4	-25.8%	-0.5	52.7%	-13.0	4	1	1	8	1	2.9	0.3
63	**LATAM Airlines Group**	30-Jun-21	$2,998	10.2	-24.0%	-0.6	56.6%	-14.6	5	1	1	8	1	2.9	-0.3
64	**LOT**	31-Dec-20	$858	9.7	9.1%	0.4	40.6%	23.9	5	1	1	8	1	2.9	0.7
65	**Lufthansa Group**	30-Jun-21	$13,448	11.0	-22.3%	-3.5	58.0%	-3.5	5	1	1	8	1	2.9	0.2
66	**Royal Jordanian Airlines**	30-Jun-21	$260	11.2	-8.8%	-0.2	48.8%	-48.0	5	1	1	8	1	2.9	0.7
67	**Ryanair**	30-Jun-21	$2,200	9.1	-20.2%	-2.8	237.6%	-5.2	5	1	1	8	1	2.9	-3.7
68	**SAS**	30-Apr-21	$1,108	11.2	-25.0%	-0.5	104.2%	-18.0	5	1	1	8	1	2.9	-0.1
69	**Skymark Airlines**	31-Mar-21	$310	9.4	-4.7%	-0.1	39.0%	-72.2	5	1	1	8	1	2.9	-2.0
70	**Southwest Airlines**	30-Jun-21	$9,866	11.8	-27.4%	-4.3	171.0%	1.4	5	1	1	8	1	2.9	-2.3
71	**TAP Group**	31-Dec-20	$1,267	9.1	-26.7%	-0.4	49.4%	-19.3	5	1	1	8	1	2.9	0.6
72	**T'way Airlines**	31-Dec-20	$239	10.7	-0.5%	0.0	36.9%	-940.8	5	1	1	8	1	2.9	0.0
73	**VietJet Air**	31-Dec-20	$656	4.0	17.1%	0.4	23.3%	25.3	7	3	1	5	1	2.9	-0.2
74	**China Southern Airlines**	31-Dec-20	$14,287	7.4	13.0%	0.8	27.5%	16.4	6	2	1	6	1	2.8	-0.7
75	**Croatia Airlines**	31-Dec-20	$99	15.8	-40.0%	-2.2	91.4%	-3.0	3	1	1	8	1	2.8	0.3
76	**Iberia**	31-Dec-20	$2,916	7.5	-21.5%	-1.4	30.8%	-6.7	6	1	1	7	1	2.8	-1.1
77	**Icelandair**	30-Jun-21	$285	16.8	-24.4%	-3.0	66.1%	-3.8	3	1	1	8	1	2.8	0.4
78	**Sun Country Airlines**	31-Mar-21	$349	15.3	3.2%	0.2	80.6%	52.3	3	1	1	8	1	2.8	-0.5
79	**United Continental Holdings**	30-Jun-21	$14,593	15.0	-37.8%	-2.4	144.4%	-3.8	3	1	1	8	1	2.8	0.4
80	**Aeroflot**	31-Dec-20	$4,100	9.7	4.9%	0.1	31.1%	87.6	5	1	1	7	1	2.7	0.4
81	**Aerolineas Argentinas**	31-Dec-20	$454	8.6	-1.7%	-0.2	29.1%	-85.1	6	1	1	6	1	2.6	1.2
82	**Hainan Airlines**	31-Mar-21	$4,668	5.9	11.6%	0.2	23.5%	86.6	7	2	1	5	1	2.6	-1.0
83	**Xiamen Airlines**	31-Mar-21	$3,130	7.7	17.5%	1.5	5.6%	8.6	6	3	2	2	2	2.6	-0.2
84	**Asiana Airlines**	31-Dec-20	$3,451	11.8	20.1%	0.7	13.0%	13.0	5	4	1	3	1	2.5	1.2
85	**Jeju Air**	31-Dec-20	$334	11.4	-39.8%	-0.9	26.6%	-8.9	5	1	1	6	1	2.5	0.3
86	**GoJet Airlines**	31-Mar-21	$114	15.1	8.0%	0.2	28.1%	47.1	3	1	1	6	1	2.3	-1.2
87	**Luxair Group**	31-Dec-20	$310	8.5	-49.4%	-52.8	20.6%	-0.1	6	1	1	5	1	2.3	-3.5
88	**Air Serbia**	31-Dec-20	$142	18.7	-14.4%	-0.5	28.9%	-13.7	2	1	1	6	1	2.2	-0.5
89	**AirAsia**	31-Dec-20	$799	5.4	-111.5%	-1.6	16.4%	-4.0	7	1	1	4	1	2.2	-0.9
90	**GOL**	30-Jun-21	$1,033	10.5	-20.8%	-0.4	23.2%	-18.3	5	1	1	5	1	2.2	-0.5
91	**Air New Zealand**	31-Dec-20	$2,211	6.6	9.2%	1.1	14.3%	10.5	6	1	2	3	1	2.1	-3.0
92	**Garuda Indonesia**	31-Mar-21	$1,077	7.6	-35.3%	-0.3	15.4%	-28.8	6	1	1	4	1	2.1	-0.5
93	**Kenya Airways**	31-Dec-20	$489	7.1	10.6%	0.2	14.7%	37.6	6	2	1	3	1	2.1	0.0
94	**Air Seoul**	31-Dec-20	$64	5.4	-46.3%	-0.7	14.1%	-9.4	7	1	1	3	1	1.9	-0.5
95	**China Eastern Airlines**	31-Dec-20	$9,064	7.1	5.0%	0.3	13.0%	65.1	6	1	1	3	1	1.9	-1.6
96	**DAT**	31-Dec-20	$66	24.7	-12.5%	-0.8	22.8%	-13.1	1	1	1	5	1	1.9	0.9
97	**EL AL Israel Airlines**	31-Dec-20	$623	5.7	-17.8%	-0.5	10.9%	-20.9	7	1	1	3	1	1.9	-0.8
98	**Enter Air**	31-Dec-20	$127	17.4	4.6%	0.1	16.5%	92.5	3	1	1	4	1	1.9	-1.1
99	**PAL Holdings**	30-Jun-21	$708	6.7	11.6%	0.2	6.6%	47.2	6	2	1	2	1	1.9	0.0
100	**Thai AirAsia**	30-Jun-21	$231	6.4	-43.6%	-0.5	13.0%	-17.6	6	1	1	3	1	1.9	0.0

Source: *Airfinance Journal's The Airline Analyst*

[1]As rated by *AFJ Financial Ratings* on 22 August 2021 based on data from *The Airline Analyst*

Commentary on **top 100**

The "Top 100" ranking of airlines is based entirely on "LTM" data and restricted to LTM figures no older than 30 September 2020. This ensures that our evaluation can be as up to date as possible. Our data sources are *The Airline Analyst* and *The Airline Analyst Financial Ratings*.

Shown in the table are the airlines' values and scores for the five parameters evaluated by *The Airline Analyst* for the LTM periods displayed. The rating is determined based on a weighted score of the five values by which the airlines are ranked.

As can be seen in the table, liquidity has by far the greatest weighting in the ratings calculation as EBITDAR margin and leverage are not in a normal range because of Covid. However, even the liquidity ratio should be interpreted carefully as it may be overstated due to a precipitate decline in LTM revenue. Below, we show latest liquidity compared to prior year revenue so that it is scaled to the "normal" size of operations.

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

In addition to the current rating we show the change from the 12 months prior rating. As would be expected, the number of decliners significantly outweighs the number of improvers.

"One observation is that many of the airlines show significantly higher liquidity than normal due to high levels of fundraising."

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 second consecutive year is Air Arabia, followed by Air Greenland, EVA Airways, Turkish Airlines, Air Wisconsin and China Airlines. LCCs fare well, including Viva Aerobus, Allegiant and Volaris in the top 11. The other winning category of carrier is airlines with substantial cargo business including those already mentioned and Korean Air and Emirates.

Other than Emirates, the major full-service carriers fare less well, though Cathay Pacific bounced back from last year's 94th position to come in at number 20. Air France-KLM comes in at 50th, followed by American at 52nd, Delta at 56th and IAG at 59th. Lufthansa Group appear well down the second page in 65th position.

Latin American performance is strong. The rankings of Azul and Copa Airlines are a stand-out at numbers 37 and 38. LATAM ranks 63rd despite its Chapter 11 filing, Avianca Holdings is 36th while Grupo Aeromexico has recovered from 96th position to 40th.

COVID-19 has brought humility to some formerly high-flying Asia-Pacific airlines, although those with large cargo operations have been able to offset some of the passenger losses. This includes Taiwan's two major carriers, EVA Airways and China Airlines at positions 3 and 6, respectively. SIA Group is ranked 29th. Korean Air performed well, buoyed by its cargo business and came in at number 9. Asia-Pacific LCCs have not had a good year. VietJet fell to number73 and Air Asia is at position 89.

Among the Chinese airlines, Juneyao Airlines was top ranked at number 16, followed by Spring Airlines and Shenzhen Airlines. 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. China Southern Airlines was at number 74 and China Eastern Airlines at 95. Air China did not even make the list. These airlines all report that they have substantial access to Chinese banks for their funding needs.

Air Arabia topped the ranking for the second consecutive year

Top airlines by **size of current fleet**

		Fleet size			%	Fleet value ($m)		
Rank	Airline	Leased	Owned	Total	Leased	Leased	Owned	Total
1	**American Airlines**	441	542	983	45%	8,780	14,821	23,601
2	**China Southern**	198	445	643	31%	6,473	15,612	22,085
3	**China Eastern**	103	498	601	17%	3,046	15,118	18,164
4	**United Airlines**	178	672	850	21%	2,633	15,471	18,104
5	**Delta Air Lines**	246	678	924	27%	6,208	11,739	17,947
6	**Qatar Airways**	116	117	233	50%	6,241	10,854	17,095
7	**Air China**	126	342	468	27%	4,294	11,382	15,676
8	**Emirates**	136	136	272	50%	7,271	7,974	15,245
9	**Fedex**	14	426	440	3%	275	14,311	14,586
10	**Turkish Airlines**	47	287	334	14%	1,825	12,056	13,881
11	**Southwest Airlines**	132	653	785	17%	2,241	11,500	13,741
12	**Singapore Airlines**	30	126	156	19%	2,054	8,837	10,891
13	**Ryanair**	71	368	439	16%	2,292	8,598	10,890
14	**All Nippon Airways**	35	189	224	16%	1,930	8,846	10,776
15	**Cathay Pacific Airways**	28	129	157	18%	1,493	8,501	9,994
16	**Hainan Airlines**	137	106	243	56%	6,516	3,295	9,811
17	**Indigo**	235	59	294	80%	7,460	1,962	9,422
18	**Lufthansa**	24	287	311	8%	476	8,156	8,632
19	**UPS**	4	274	278	1%	81	8,537	8,616
20	**British Airways**	104	147	251	41%	3,953	4,523	8,476
21	**Saudia**	64	115	179	36%	2,223	6,021	8,244
22	**Korean Air**	18	146	164	11%	1,343	6,390	7,733
23	**Etihad Airways**	56	68	124	45%	2,797	4,831	7,628
24	**Aeroflot**	217	3	220	99%	7,087	412	7,499
25	**Japan Airlines**	21	137	158	13%	528	6,595	7,123
26	**Air Canada**	88	106	194	45%	1,614	5,044	6,658
27	**Air France**	122	106	228	54%	3,136	3,368	6,504
28	**Jetblue**	71	208	279	25%	919	4,651	5,570
29	**Sichuan Airlines**	89	90	179	50%	3,255	2,308	5,563
30	**Shenzhen Airlines**	35	166	201	17%	695	4,447	5,142
31	**Alaska Airlines**	71	164	235	30%	1,391	3,682	5,073
32	**Xiamen Airlines**	66	101	167	40%	1,850	3,084	4,934
33	**Skywest Airlines**	110	469	579	19%	1,014	3,795	4,809
34	**Spirit Airlines**	69	97	166	42%	1,962	2,774	4,736
35	**Wizz Air**	121	17	138	88%	3,537	860	4,397
36	**Air India**	90	55	145	62%	2,841	1,535	4,376
37	**Easyjet**	80	103	183	44%	1,363	2,901	4,264
38	**Latam Chile**	59	79	138	43%	2,412	1,798	4,210
39	**SAS**	113	38	151	75%	3,061	995	4,056
40	**Lion Air**	130	11	141	92%	3,643	210	3,853
41	**Garuda Indonesia**	126	18	144	88%	3,447	189	3,636
42	**Azul Linhas Aereas**	142	19	161	88%	3,257	310	3,566
43	**Shandong Airlines**	79	54	133	59%	2,126	1,390	3,516
44	**Latam Brasil**	110	44	154	71%	2,668	826	3,494
45	**Vueling Airlines**	106	23	129	82%	2,490	863	3,353
46	**Qantas**	28	103	131	21%	727	2,613	3,340
47	**Gol Transportes Aereos**	124	5	129	96%	2,545	115	2,660
48	**Republic Airlines**	62	161	223	28%	606	1,702	2,308
49	**Tianjin Airlines**	119	5	124	96%	2,069	160	2,229
50	**Mesa**	75	82	157	48%	1,202	701	1,903

Source: *Airfinance Journal's* Fleet Tracker
Source: AVITAS BlueBook values as of 30-Apr-2021

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

		Manufacturer								
Rank	Airline	Allison	CFM International	Engine Alliance	GE	IAE	P&W	Rolls-Royce	Powerjet	Total
1	American Airlines		539		85	238	35	86		983
2	Delta Air Lines		454		61	22	267	120		924
3	United Airlines		378		122	184	104	62		850
4	Southwest Airlines		785							785
5	China Southern		359		60	140	51	33		643
6	China Eastern		412		23	105		61		601
7	Skywest Airlines				569		10			579
8	Air China		240		40	52	49	87		468
9	Fedex				280		95	65		440
10	Ryanair		439							439
11	Turkish Airlines		92		84	85	39	34		334
12	Lufthansa		108		29	64	40	70		311
13	Indigo		36			88	170			294
14	Jetblue				60	194	25			279
15	UPS				126		112	40		278
16	Emirates			89	151			32		272
17	British Airways		25		40	115		71		251
18	Hainan Airlines		156		35		7	45		243
19	Alaska Airlines		228		7					235
20	Qatar Airways		6	10	138	26		53		233
21	Air France		114	8	95			11		228
22	All Nippon Airways		45		48		51	80		224
23	Republic Airlines				223					223
24	Aeroflot		149		19			21	31	220
25	Endeavor Air				214					214
26	Shenzhen Airlines		133			41	21	6		201
27	Air Canada		72		80		26	16		194
28	Easyjet		183							183
29	Saudia		63		78			38		179
29=	Sichuan Airlines		35			85	39	20		179
31	Xiamen Airlines		155		12					167
31=	Envoy Air	68			99					167
33	Spirit Airlines					124	42			166
34	Korean Air		29	10	66		59			164
35	Azul Linhas Aereas		47		54		47	13		161
36	Japan Airlines		48		100			10		158
37	Mesa				157					157
37=	Cathay Pacific Airways				63		6	88		157
39	Singapore Airlines		5		27		7	117		156
40	Latam Brasil		69		24	53	6	2		154
41	SAS		87		20	23	6	15		151
42	Jazz Air				67		83			150
43	Air India		77		45	15	8			145
44	Garuda Indonesia		74		30		14	26		144
45	Lion Air		129					12		141
46	Psa Airlines				138					138
46=	Wizz Air					107	31			138
46=	Latam Chile		58		15	32	7	26		138
49	Shandong Airlines		133							133
50	Qantas		74		41			16		131

Source: *Airfinance Journal's* Fleet Tracker

Top airlines by **firm order backlog**

		Manufacturer						
Rank	Airline	*Airbus	ATR	*Boeing	De Havilland of Canada	Embraer	Mitsubishi	Total
1	Indigo	564	19					583
2	United Airlines	165		380				545
3	Lion Air	177		237				414
4	Southwest Airlines			371				371
5	Airasia	362						362
6	Vietjetair	120		200				320
7	Wizz Air	237						237
8	Delta Air Lines	213						213
9	Ryanair			198				198
9=	Emirates	53		145				198
11	Flydubai			167				167
12	American Airlines	84		81				165
13	Lufthansa	113		45				158
14	Spicejet			141	15			156
15	Qatar Airways	73		82				155
16	Frontier Airlines	144						144
17	Skywest Airlines					43	100	143
18	Jet Airways	1		135				136
19	Jetblue	130						130
20	Spirit Airlines	123						123
21	Air Arabia	120						120
22	Qantas	109		4				113
23	Easyjet	108						108
23=	Airasia X	108						108
25	Iran Air	97	7					104
26	Etihad Airways	41		57				98
27	Volaris	95						95
27=	Go First	95						95
27=	Republic Airlines					95		95
30	Turkish Airlines	75		19				94
31	Alaska Airlines	30		63				93
32	Gol Transportes Aereos			91				91
33	Air France	87						87
34	Norwegian			82				82
34=	Singapore Airlines	11		71				82
36	Korean Air	30		51				81
37	Jetsmart Airlines	77						77
38	All Nippon Airways	22		39			15	76
38=	Avianca	74		2				76
38=	Fedex		27	49				76
38=	Flynas	76						76
42	Azul Linhas Aereas	18				47		65
43	Garuda Indonesia	13	3	49				65
44	Saudia	63						63
45	Breeze Airways	60						60
46	Cebu Pacific	54	3					57
47	Cathay Pacific Airways	34		21				55
48	Pegasus Airlines	53						53
48=	Japan Airlines	21					32	53
50	China Southern	17		34				51

Source: *Airfinance Journal's* Fleet Tracker

* Based on official data from Airbus and Boeing as of 31 July 2021

Industry overview

Covid-19 has given this year's survey a vastly different look, writes **Michael Duff**, managing director, *The Airline Analyst*.

Normally in this publication we "celebrate the best" of the world's top 100 airlines in respect of financial and operational performance. This year, while there are some standout performers, most of the airlines reviewed have borne the full brunt of Covid and many are fighting to survive.

We have used the most recent "Latest Twelve Months" (LTM) data for all airlines, drawn from *The Airline Analyst*. Our data set includes airlines whose most recent LTM financials range from 30 September 2020 to 30 June 2021. We think it is not meaningful to look at older financials at this time.

We present the data for the entire top 100 by overall financial rating. This enables the reader to see where so many "fallen angels" lie in the ranking. Please see the list of all included airlines in "The data set".

The rankings are based on the criteria we use in *The Airline Analyst Financial Ratings*. These evaluate one operational and four financial criteria 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 last year is shown in the chart.

As can be seen, there has been a significant migration to the lower ratings with a bulge in the B-, CCC+ and CC categories. 69 of the 114 airlines are rated CCC+ or below, up from 48 last year. The

Top 10 most improved Financial Ratings scores

Rank	Airline	Grades improvement
1	**Air Wisconsin**	1.8
2	**Air Busan**	1.4
3	**Cathay Pacific**	1.2
4	**Aerolineas Argentinas**[1]	1.2
5	**Asiana Airlines**	1.2
6	**Grupo Aeromexico**	1.1
7	**Norwegian Air Shuttle**[1]	1.1
8	**Shenzhen Airlines**	0.9
9	**Korean Air**	0.9
10	**Avianca Holdings**	0.9

Top 10 most deteriorated Financial Ratings scores

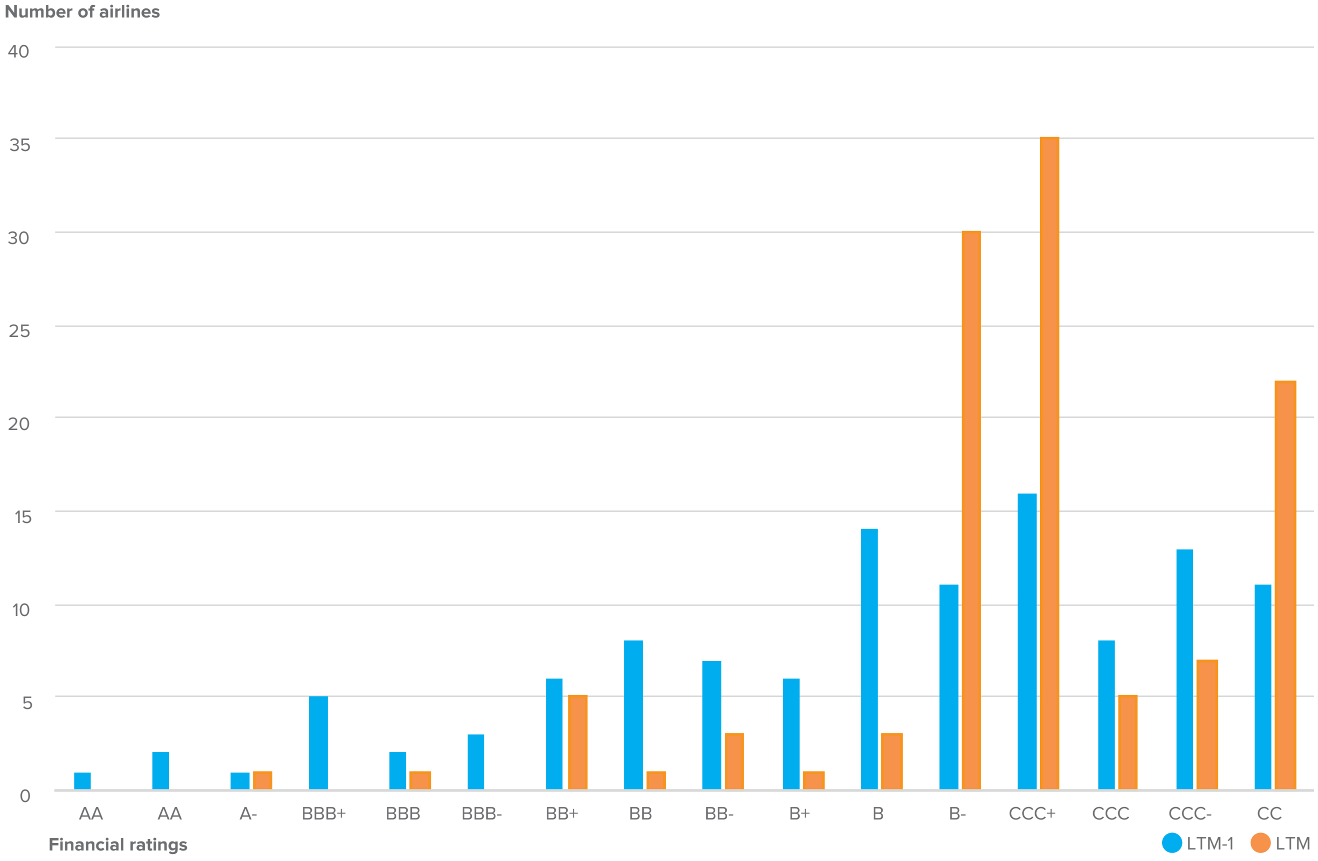
Rank	Airline	Grades deterioration
1	**Ryanair**	-3.7
2	**Luxair Group**	-3.5
3	**Pegasus Airlines**	-3.2
4	**Japan Airlines**	-3.0
5	**Copa Holdings**	-3.0
6	**Air New Zealand**	-3.0
7	**Aer Lingus**	-2.9
8	**easyJet**	-2.5
9	**KLM**	-2.5
10	**Southwest Airlines**	-2.3

Source: *Airfinance Journal's The Airline Analyst*

[1]based entirely on liquidity improvement

Air Busan has one of the most improved Financial Ratings scores

AFJ Financial Ratings Distribution as of 21 August 2021



Source: *Airfinance Journal's The Airline Analyst*

number of airlines rated CC has increased to 22 this year from 11 in 2020. A total of two airlines are rated BBB- or better, down from 14. Note that these ratings are 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 $72 billion and incurred $53 billion of investments in 2020-21. Loan repayments were an additional $113 billion outflow. This was funded by loan drawdowns of $241 billion, equity raised of $40 billion and proceeds of sale-leasebacks of $8 billion. Cash at the beginning of the period was $76 billion and increased to $155 billion by the end of the year.

But all of this came at the cost of their balance sheets. Balance sheet debt (including operating lease liabilities under ASC 842/IFRS 16) increased to $596 billion from $392 billion and the debt/equity ratio to 5.4x from 2.3x. Fixed charge cover, which best illustrates the affordability of the increased debt service, can only be assessed on an individual carrier basis, as presented in the analysis below.

The **data** set

Airlines included in the survey

Number	Airline	Country/Region	Most recent "Latest Twelve Months" (LTM)
1	**Aegean Airlines**	Greece	31-Mar-21
2	**Aer Lingus**	Ireland	31-Dec-20
3	**Aeroflot**	Russia	31-Mar-21
4	**Aerolineas Argentinas**	Argentina	31-Dec-20
5	**Air Arabia**	UAE-Sharjah	30-Jun-21
6	**Air Astana**	Kazakhstan	31-Mar-21
7	**Air Belgium**	Belgium	31-Dec-20
8	**Air Busan**	Korea	31-Mar-21
9	**Air Canada**	Canada	30-Jun-21
10	**Air China**	China	31-Dec-20
11	**Air France**	France	31-Dec-20
12	**Air France-KLM**	France	30-Jun-21
13	**Air Greenland**	Greenland	31-Dec-20
14	**Air Incheon**	Korea	31-Dec-20
15	**Air New Zealand**	New Zealand	31-Dec-20
16	**Air Seoul**	Korea	31-Dec-20
17	**Air Serbia**	Serbia	31-Dec-20
18	**Air Wisconsin**	USA	31-Mar-21
19	**AirAsia**	Malaysia	30-Jun-21
20	**AirAsia X**	Malaysia	31-Dec-20
21	**airBaltic**	Latvia	31-Dec-20
22	**Alaska Air Group**	USA	30-Jun-21
23	**Allegiant**	USA	30-Jun-21
24	**American Airlines Group**	USA	30-Jun-21
25	**ANA Holdings**	Japan	30-Jun-21
26	**Asiana Airlines**	Korea	31-Mar-21
27	**Atlantic Airways**	Faroe Islands	31-Dec-20
28	**Austrian Airlines**	Austria	31-Dec-20
29	**Avianca Holdings**	Colombia	30-Jun-21
30	**Azul S.A.**	Brazil	30-Jun-21
31	**Bangkok Airways**	Thailand	30-Jun-21
32	**British Airways**	UK	30-Jun-21
33	**Brussels Airlines**	Belgium	31-Dec-20
34	**Cargojet Airways**	Canada	31-Dec-20
35	**Cargolux**	Luxembourg	31-Dec-20
36	**Cathay Pacific**	Hong Kong	30-Jun-21
37	**Cebu Pacific**	Philippines	30-Jun-21
38	**China Airlines**	Taiwan	30-Jun-21
39	**China Eastern Airlines**	China	31-Dec-20
40	**China Southern Airlines**	China	31-Dec-20
41	**Copa Holdings**	Panama	30-Jun-21
42	**Croatia Airlines**	Croatia	31-Dec-20
43	**DAT**	Denmark	31-Dec-20
44	**Delta Air Lines**	USA	30-Jun-21
45	**easyJet**	UK	31-Mar-21
46	**EL AL Israel Airlines**	Israel	30-Jun-21
47	**Emirates**	UAE-Dubai	31-Mar-21
48	**Enter Air**	Poland	31-Mar-21
49	**Envoy Air**	USA	31-Mar-21
50	**EVA Airways**	Taiwan	30-Jun-21
51	**Finnair**	Finland	30-Jun-21
52	**Frontier Airlines**	USA	31-Mar-21
53	**Garuda Indonesia**	Indonesia	31-Mar-21
54	**GoJet Airlines**	USA	31-Mar-21
55	**GOL**	Brazil	30-Jun-21
56	**Grupo Aeromexico**	Mexico	30-Jun-21
57	**Grupo VivaAerobus**	Mexico	30-Jun-21
58	**Hainan Airlines**	China	31-Mar-21
59	**Hawaiian Airlines**	USA	30-Jun-21
60	**Horizon Air**	USA	31-Mar-21
61	**Iberia**	Spain	31-Dec-20
62	**Icelandair**	Iceland	30-Jun-21
63	**IndiGo**	India	30-Jun-21
64	**IAG**	Spain	30-Jun-21

Number	Airline	Country/Region	Most recent "Latest Twelve Months" (LTM)
65	**Japan Airlines**	Japan	30-Jun-21
66	**Jazeera Airways**	Kuwait	30-Jun-21
67	**Jeju Air**	Korea	31-Mar-21
68	**jetBlue**	USA	30-Jun-21
69	**Jin Air**	Korea	31-Mar-21
70	**Juneyao Airlines**	China	31-Mar-21
71	**Kalitta Air**	USA	31-Mar-21
72	**Kenya Airways**	Kenya	31-Dec-20
73	**KLM**	Netherlands	31-Dec-20
74	**Korean Air**	Korea	31-Mar-21
75	**LATAM Airlines Group**	Chile	30-Jun-21
76	**LOT**	Poland	31-Dec-20
77	**Lufthansa Group**	Germany	30-Jun-21
78	**Lufthansa Parent**	Germany	31-Dec-20
79	**Luxair Group**	Luxembourg	31-Dec-20
80	**Mesa Air Group**	USA	30-Jun-21
81	**Nippon Cargo Airlines**	Japan	31-Mar-21
82	**Nordic Regional Airlines**	Finland	31-Dec-20
83	**Norwegian Air Shuttle**	Norway	30-Jun-21
84	**PIA**	Pakistan	31-Mar-21
85	**PAL Holdings**	Philippines	30-Jun-21
86	**Peach Aviation**	Japan	31-Mar-21
87	**Pegasus Airlines**	Turkey	30-Jun-21
88	**Polar Air Cargo**	USA	31-Mar-21
89	**PSA Airlines**	USA	31-Mar-21
90	**PT AirAsia Indonesia**	Indonesia	30-Jun-21
91	**Qantas Airways**	Australia	31-Dec-20
92	**Regional Express**	Australia	31-Dec-20
93	**Republic Airways**	USA	31-Mar-21
94	**Royal Jordanian Airlines**	Jordan	30-Jun-21
95	**Ryanair**	Ireland	30-Jun-21
96	**SAS**	Sweden	30-Apr-21
97	**Shandong Airlines**	China	31-Dec-20
98	**Shenzhen Airlines**	China	31-Mar-21
99	**SIA Group**	Singapore	31-Mar-21
100	**Skymark Airlines**	Japan	31-Mar-21
101	**SkyWest**	USA	30-Jun-21
102	**Solaseed Air**	Japan	31-Mar-21
103	**Southwest Airlines**	USA	30-Jun-21
104	**SpiceJet**	India	31-Mar-21
105	**Spirit Airlines**	USA	30-Jun-21
106	**Spring Airlines**	China	31-Mar-21
107	**StarFlyer**	Japan	30-Jun-21
108	**Sun Country Airlines**	USA	31-Mar-21
109	**Sunclass Airlines**	Denmark	30-Sep-20
110	**SunExpress**	Turkey	31-Dec-20
111	**TAM**	Brazil	31-Mar-21
112	**TAP Group**	Portugal	31-Dec-20
113	**Thai AirAsia**	Thailand	30-Jun-21
114	**Thai Airways**	Thailand	30-Jun-21
115	**Tigerair Taiwan**	Taiwan	30-Jun-21
116	**Turkish Airlines**	Turkey	30-Jun-21
117	**T'way Airlines**	Korea	31-Mar-21
118	**United Airlines Holdings**	USA	30-Jun-21
119	**Ural Airlines**	Russia	31-Dec-20
120	**VietJet Air**	Vietnam	31-Dec-20
121	**Vietnam Airlines**	Vietnam	31-Mar-21
122	**Virgin Atlantic Airways**	UK	31-Dec-20
123	**Volaris**	Mexico	30-Jun-21
124	**Vueling Airlines**	Spain	31-Dec-20
125	**Western Global Airlines**	USA	31-Mar-21
126	**Wideroe**	Norway	31-Dec-20
127	**Wizz Air**	Hungary	30-Jun-21
128	**Xiamen Airlines**	China	31-Mar-21

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 United States, Europe and China plus Emirates from the UAE. American Airlines leads the industry by revenues, totalling $18.7 billion, closely followed by Delta Air Lines 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 International Airlines Group come in at numbers four, six and 17th, respectively. These are then followed by the three Chinese majors, China Southern, Air China and China Eastern. Emirates has fallen from fifth position to 10th. Southwest Airlines also makes the top 10.

We also show the percent change in revenue from the previous period. While most show significant declines, a few Latin American passenger carriers achieved revenue growth, notably TAM, Volaris and Grupo Viva Aerobus. The other airlines that achieved revenue growth were all dedicated cargo carriers.

Rank	Airline	LTM Revenues [USDm]	% Change from prior period
1	American Airlines Group	18,686	-44.0%
2	Delta Air Lines	18,311	-46.2%
3	United Airlines Holdings	14,593	-54.0%
4	Lufthansa Group	13,663	-56.1%
5	China Southern Airlines	13,431	-38.0%
6	Air France-KLM	11,643	-48.6%
7	Air China	10,119	-47.2%
8	Southwest Airlines	9,866	-40.6%
9	China Eastern Airlines	8,522	-49.8%
10	Emirates	8,415	-66.3%
11	ANA Holdings	7,556	-48.8%
12	Turkish Airlines	7,447	-31.6%
13	Air France	7,348	-60.0%
14	Korean Air	6,205	-38.9%
15	KLM	5,864	-52.1%
16	TAM	5,784	19.9%
17	IAG	5,650	-72.9%
18	Lufthansa Parent	5,150	-71.8%
19	Japan Airlines	5,042	-51.1%
20	Qantas Airways	4,942	-61.1%
21	Hainan Airlines	4,599	-47.3%
22	Cathay Pacific	4,590	-55.5%
23	China Airlines	3,990	-15.9%
24	Alaska Air Group	3,833	-42.6%
25	Aeroflot	3,389	-66.6%
26	jetBlue	3,386	-42.8%
27	Cargolux	3,168	40.6%
28	Xiamen Airlines	3,087	-26.4%
29	Asiana Airlines	3,069	-44.6%
30	SIA Group	3,014	-74.1%
31	LATAM Airlines Group	2,998	-64.3%
32	EVA Airways	2,928	-37.6%
33	British Airways	2,893	-76.2%
34	Iberia	2,733	-57.6%
35	Air Canada	2,447	-76.9%
36	SkyWest	2,239	-13.4%
37	Ryanair	2,236	-68.1%
38	IndiGo	2,229	-39.8%
39	Spirit Airlines	2,221	-22.7%
40	Shenzhen Airlines	2,220	-43.0%
41	Air New Zealand	1,997	-48.7%
42	Kalitta Air	1,772	51.2%
43	Polar Air Cargo	1,610	29.4%
44	Juneyao Airlines	1,548	-2.8%
45	Shandong Airlines	1,529	-42.7%
46	Volaris	1,459	3.9%
47	Spring Airlines	1,401	-28.1%
48	Grupo Aeromexico	1,362	-46.8%
49	Avianca Holdings	1,339	-62.1%
50	Vietnam Airlines	1,266	-67.9%
51	TAP Group	1,240	-66.3%
52	Allegiant	1,199	-16.7%
53	Nippon Cargo Airlines	1,153	66.5%
54	easyJet	1,151	-86.0%
55	SAS	1,144	-73.5%
56	Virgin Atlantic Airways	1,124	-70.1%
57	Garuda Indonesia	1,077	-74.6%
58	GOL	1,019	-59.1%
59	Wizz Air	1,007	-58.0%
60	Azul S.A.	978	-54.5%
61	Frontier Airlines	977	-61.0%
62	LOT	864	-55.1%
63	Republic Airways	860	-37.7%
64	Hawaiian Airlines	819	-60.7%
65	Envoy Air	810	-42.7%
66	SpiceJet	771	-55.9%
67	Ural Airlines	752	-44.9%
68	PAL Holdings	732	-66.0%
69	Austrian Airlines	721	-69.6%
70	Pegasus Airlines	708	-50.2%
71	Vueling Airlines	702	-74.2%
72	Copa Holdings	681	-66.0%
73	VietJet Air	649	-61.0%
74	Aerolineas Argentinas	632	-77.6%
75	Grupo VivaAerobus	611	14.8%
76	Brussels Airlines	566	-68.4%
77	SunExpress	565	-64.3%
78	Finnair	553	-78.5%
79	Aer Lingus	538	-77.1%
80	Air Arabia	530	-46.7%
81	Cargojet Airways	500	36.4%
82	Kenya Airways	498	-60.6%
83	EL AL Israel Airlines	490	-70.1%
84	Mesa Air Group	481	-23.0%
85	PSA Airlines	460	-44.2%
86	PIA	457	-54.1%
87	Western Global Airlines	418	83.9%
88	Wideroe	390	-22.3%
89	Horizon Air	385	-12.2%
90	Aegean Airlines	379	-73.8%
91	Sun Country Airlines	349	-49.1%
92	Air Astana	336	-63.3%
93	Thai Airways	334	-94.0%
94	Skymark Airlines	321	-61.5%
95	Luxair Group	301	-56.4%
96	Icelandair	285	-74.6%
97	AirAsia X	270	-73.7%
98	Royal Jordanian Airlines	260	-61.7%
99	Norwegian Air Shuttle	251	-92.4%
100	Thai AirAsia	249	-72.0%

Source: *Airfinance Journal's The Airline Analyst*
LTM = Latest Twelve Months

Top airlines ranked by **RPKs**

Emirates is knocked off its number one position, falling to 24th due to Covid and absence of a domestic market. As expected, the top 10 are dominated by the Chinese and US majors. Among the LCCs, Southwest Airlines, Easyjet, Volaris, Wizz Air and Indigo make the top 30.

LATAM is the largest Latin American carrier in 23rd spot followed by GOL at 30th and Grupo Aeromexico at 33rd. Copa Airlines, the most consistently profitable Latin American carrier, is at number 44.

The percent change from the previous period highlights the growth achieved by Volaris and Viva Aerobus.

Rank	Airline	RPKs (m) (LTM)	% Change from prior period
1	**American Airlines Group**	167,225	-41.0%
2	**China Southern Airlines**	153,440	-46.1%
3	**Delta Air Lines**	125,466	-54.0%
4	**United Airlines Holdings**	118,200	-56.7%
5	**Air China**	109,830	-52.9%
6	**Southwest Airlines**	108,207	-29.7%
7	**China Eastern Airlines**	107,273	-51.6%
8	**Air France-KLM**	65,180	-69.0%
9	**Hainan Airlines**	61,221	-48.7%
10	**Air France**	57,167	-69.0%
11	**Aeroflot**	54,222	-64.3%
12	**Turkish Airlines**	51,517	-54.4%
13	**Lufthansa Group**	41,566	-79.7%
14	**Spirit Airlines**	40,007	-7.2%
15	**Lufthansa Parent**	39,267	-76.5%
16	**jetBlue**	38,626	-37.3%
17	**Alaska Air Group**	38,479	-42.1%
18	**IndiGo**	36,819	-41.7%
19	**IAG**	36,238	-82.1%
20	**KLM**	33,873	-69.1%
21	**Qantas Airways**	32,158	-74.9%
22	**Volaris**	29,896	7.9%
23	**LATAM Airlines Group**	29,060	-68.9%
24	**Emirates**	28,353	-90.2%
25	**Shandong Airlines**	25,627	-31.9%
26	**Spring Airlines**	24,417	-32.3%
27	**easyJet**	21,130	-80.0%
28	**Wizz Air**	20,229	-59.5%
29	**Iberia**	18,712	-72.5%
30	**GOL**	18,430	-43.5%
31	**Pegasus Airlines**	18,393	-42.4%
32	**Azul S.A.**	17,911	-27.9%
33	**Grupo Aeromexico**	17,438	-43.6%
34	**ANA Holdings**	16,869	-74.6%
35	**Frontier Airlines**	15,021	-61.4%
36	**British Airways**	14,561	-86.7%
37	**Air Canada**	13,626	-87.5%
38	**Japan Airlines**	13,399	-76.3%
39	**Grupo VivaAerobus**	12,952	15.9%
40	**Air New Zealand**	12,225	-68.9%
41	**TAP Group**	11,885	-71.7%
42	**Vueling Airlines**	9,179	-72.5%
43	**SkyWest**	9,032	-67.2%
44	**Copa Holdings**	8,542	-65.1%

Rank	Airline	RPKs (m) (LTM)	% Change from prior period
45	**Virgin Atlantic Airways**	7,969	-79.9%
46	**SpiceJet**	7,397	-73.7%
47	**Hawaiian Airlines**	7,385	-64.8%
48	**Garuda Indonesia**	7,381	-81.2%
49	**Republic Airways**	7,369	-58.9%
50	**Asiana Airlines**	6,949	-87.0%
51	**Envoy Air**	6,604	-45.3%
52	**Korean Air**	6,567	-91.5%
53	**Avianca Holdings**	6,369	-79.2%
54	**Mesa Air Group**	6,022	-49.5%
55	**Thai AirAsia**	4,812	-68.0%
56	**PSA Airlines**	4,484	-53.7%
57	**Austrian Airlines**	4,412	-80.9%
58	**SAS**	4,180	-88.0%
59	**Aer Lingus**	4,055	-83.6%
60	**AirAsia**	3,768	-91.3%
61	**Kenya Airways**	3,457	-73.2%
62	**Sun Country Airlines**	3,184	-61.8%
63	**Aegean Airlines**	3,139	-79.6%
64	**SIA Group**	2,891	-97.9%
65	**Horizon Air**	2,761	-46.0%
66	**Peach Aviation**	2,403	-73.9%
67	**Jeju Air**	2,286	-88.2%
68	**EL AL Israel Airlines**	2,261	-86.2%
69	**Cathay Pacific**	2,198	-97.4%
70	**EVA Airways**	2,171	-93.7%
71	**Finnair**	1,752	-93.6%
72	**Norwegian Air Shuttle**	1,668	-97.0%
73	**Cebu Pacific**	1,559	-90.9%
74	**airBaltic**	1,455	-74.5%
75	**Thai Airways**	1,089	-98.4%
76	**China Airlines**	1,028	-96.5%
77	**Luxair Group**	863	-64.3%
78	**Icelandair**	818	-91.0%
79	**Solaseed Air**	691	-63.3%
80	**GoJet Airlines**	622	-80.4%
81	**PT AirAsia Indonesia**	539	-89.3%
82	**Air Wisconsin**	535	-77.9%
83	**StarFlyer**	480	-65.3%
84	**Bangkok Airways**	466	-84.9%
85	**Croatia Airlines**	432	-74.2%
86	**Air Greenland**	259	-55.4%
87	**Atlantic Airways**	196	-55.0%

Source: *Airfinance Journal's The Airline Analyst*
LTM = Latest Twelve Months

Top airlines ranked by **passenger load factor**

Passenger load factor has fallen considerably in the most recent LTM period. Last year the top 50 all achieved load factors in excess of 80%.

This year, only the top six achieved this and 27 airlines reported load factors below 50%. LCCs take up most of the top 10 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 Cathay Pacific, China Airlines and SIA.

Rank	Airline	Load factor (LTM)
1	easyJet	89.1%
2	Jeju Air	82.1%
3	Spring Airlines	81.6%
4	GOL	81.1%
5	Grupo VivaAerobus	80.8%
6	Volaris	80.2%
7	Azul S.A.	78.0%
8	Aeroflot	76.8%
9	Shandong Airlines	75.8%
10	SpiceJet	75.7%
11	Hainan Airlines	74.9%
12	Spirit Airlines	74.9%
13	Pegasus Airlines	74.3%
14	Copa Holdings	73.6%
15	Qantas Airways	73.4%
16	Mesa Air Group	72.3%
17	China Southern Airlines	71.5%
18	Vueling Airlines	70.9%
19	China Eastern Airlines	70.5%
20	Iberia	70.5%
21	Air China	70.4%
22	Thai AirAsia	69.9%
23	Air New Zealand	69.5%
24	LATAM Airlines Group	68.5%
25	IndiGo	67.5%
26	American Airlines Group	66.5%
27	AirAsia	66.5%
28	Grupo Aeromexico	66.4%
29	Air France	66.0%
30	Avianca Holdings	65.9%
31	Wizz Air	65.5%
32	Kenya Airways	65.3%
33	Frontier Airlines	64.8%
34	TAP Group	64.6%
35	Bangkok Airways	63.9%
36	Turkish Airlines	63.8%
37	Envoy Air	63.8%
38	Southwest Airlines	63.0%
39	jetBlue	63.0%
40	GoJet Airlines	62.9%
41	PSA Airlines	62.4%
42	Lufthansa Parent	62.1%
43	Austrian Airlines	61.9%
44	Virgin Atlantic Airways	61.1%

Rank	Airline	Load factor (LTM)
45	Regional Express	60.7%
46	United Airlines Holdings	59.8%
47	Air Greenland	59.4%
48	Aegean Airlines	59.2%
49	EL AL Israel Airlines	58.7%
50	Luxair Group	58.4%
51	Alaska Air Group	57.9%
52	Republic Airways	57.6%
53	Atlantic Airways	56.7%
54	Hawaiian Airlines	56.0%
55	Norwegian Air Shuttle	55.4%
56	SkyWest	55.3%
57	Air Wisconsin	53.1%
58	KLM	52.2%
59	airBaltic	51.6%
60	Delta Air Lines	50.8%
61	Horizon Air	49.8%
62	Croatia Airlines	49.6%
63	Icelandair	49.0%
64	Lufthansa Group	48.7%
65	Peach Aviation	48.7%
66	IAG	47.9%
67	Aer Lingus	46.4%
68	Cebu Pacific	45.5%
69	StarFlyer	45.1%
70	Emirates	44.3%
71	Air France-KLM	43.6%
72	Sun Country Airlines	42.2%
73	Air Canada	42.0%
74	British Airways	41.2%
75	Asiana Airlines	40.7%
76	SAS	37.5%
77	Japan Airlines	36.0%
78	ANA Holdings	35.7%
79	Solaseed Air	34.9%
80	Garuda Indonesia	31.6%
81	Finnair	31.6%
82	Korean Air	30.6%
83	Thai Airways	30.2%
84	EVA Airways	21.9%
85	Cathay Pacific	19.9%
86	China Airlines	19.3%
87	SIA Group	13.3%

Source: *Airfinance Journal's The Airline Analyst*
LTM = Latest Twelve Months

Top airlines ranked by **revenue per passenger**

Average revenue per passenger increased significantly for a number of airlines in the most recent period.

Topping the list at $1,152 is SIA Group, followed by China Airlines, EVA Airways and Cathay Pacific. These increases were driven by significantly longer average trip lengths, related to the cargo operations of these carriers.

Next was a niche airline, Air Greenland, arising from its narrow focus on Greenland routes with limited competition.
At the other extreme we see several LCCs headed by Air Busan and Grupo Viva Aerobus at $25 and $28, Air Asia at $32, Wizz Air at $37 and Ryanair at $38. These figures are for ticket prices only and do not include ancillary revenues.

Rank	Airline	Revenue per passenger ($) (LTM)
1	**SIA Group**	1,152
2	**China Airlines**	1,125
3	**EVA Airways**	739
4	**Cathay Pacific**	531
5	**Air Greenland**	528
6	**Regional Express**	519
7	**Emirates**	458
8	**EL AL Israel Airlines**	439
9	**KLM**	291
10	**Sunclass Airlines**	272
11	**British Airways**	270
12	**Air Canada**	248
13	**Lufthansa Parent**	229
14	**Aerolineas Argentinas**	223
15	**Copa Holdings**	223
16	**Air France-KLM**	221
17	**Qantas Airways**	218
18	**TAP Group**	209
19	**Aer Lingus**	207
20	**Lufthansa Group**	203
21	**Icelandair**	196
22	**Hawaiian Airlines**	191
23	**Kenya Airways**	176
24	**jetBlue**	174
25	**ANA Holdings**	172
26	**United Airlines Holdings**	170
27	**Finnair**	166
28	**Air Wisconsin**	163
29	**IAG**	161
30	Air New Zealand	160
31	**Sun Country Airlines**	159
32	**Alaska Air Group**	155
33	**Japan Airlines**	152
34	**Wideroe**	148
35	**Austrian Airlines**	141
36	**American Airlines Group**	137
37	**Turkish Airlines**	134
38	**Southwest Airlines**	130
39	**SAS**	126
40	**Horizon Air**	118
41	**GoJet Airlines**	118
42	**Air China**	118
43	**Croatia Airlines**	114
44	**Envoy Air**	110
45	**Allegiant**	109
46	**Ural Airlines**	108
47	**Republic Airways**	107
48	**China Southern Airlines**	106
49	**airBaltic**	105
50	**Korean Air**	104
51	**Avianca Holdings**	101
52	**Aeroflot**	100
53	**China Eastern Airlines**	96
54	**Grupo Aeromexico**	93
55	**Norwegian Air Shuttle**	92
56	**Spirit Airlines**	92
57	**Aegean Airlines**	88
58	**Garuda Indonesia**	83
59	**Thai Airways**	82
60	**Shandong Airlines**	78
61	**PSA Airlines**	67
62	**LATAM Airlines Group**	64
63	**Bangkok Airways**	64
64	**PT AirAsia Indonesia**	64
65	**easyJet**	61
66	**GOL**	59
67	**Frontier Airlines**	52
68	**LOT**	51
69	**Azul S.A.**	49
70	**SkyWest**	48
71	**Volaris**	43
72	**Ryanair**	38
73	**Cebu Pacific**	37
74	**Wizz Air**	37
75	**Jeju Air**	33
76	**AirAsia**	32
77	**Pegasus Airlines**	30
78	**Grupo VivaAerobus**	28
79	**Air Busan**	25

Source: *Airfinance Journal's The Airline Analyst*
LTM = Latest Twelve Months

Top airlines ranked by **passenger yield**

As can be seen from the table, there is a huge distribution between airlines whose yields increased significantly and those that declined in the most recent LTM period. The explanation for the largest increases is primarily changes in the route structure operated, as long-haul flights which have lower yields were disproportionately suspended.

Among the decliners, the three US majors were down between 8% and 13%, LATAM was down 29.3% as were many of the LCCs at the bottom of the list.

Air Greenland comes out top on this ranking at 50.2 US cents followed by Air Wisconsin in second place and then China Airlines and SIA. There are no surprises at rankings seven, eight and nine with Japan Airlines, ANA Holdings and SAS. The three US majors are between 9.09 cents and 10.14 cents with Southwest lagging at 7.76 cents. Air China is the leading mainland Chinese carrier at 7.36 cents. Lufthansa Group significantly out-performed Air France-KLM and IAG.

The numbers at the bottom of the list will attract attention, with four LCCs having yields lower than 3 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 5.26 cents and Aeroflot just below them at 4.86 cents.

Rank	Airline	Passenger yield (US cents per RPK) LTM	% Change from prior period
1	**Air Greenland**	50.17	76.9%
2	**Air Wisconsin**	31.50	184.0%
3	**China Airlines**	30.21	252.8%
4	**SIA Group**	23.74	240.8%
5	**GoJet Airlines**	18.12	117.3%
6	**Croatia Airlines**	16.29	18.6%
7	**Japan Airlines**	16.06	25.8%
8	**ANA Holdings**	15.63	14.8%
9	**SAS**	14.98	49.4%
10	**Horizon Air**	13.95	62.7%
11	**SkyWest**	13.67	123.9%
12	**EVA Airways**	13.07	91.8%
13	**Icelandair**	12.70	48.4%
14	**Envoy Air**	12.26	4.9%
15	**Finnair**	12.16	68.8%
16	**Korean Air**	11.93	52.7%
17	**Republic Airways**	11.67	54.1%
18	**Qantas Airways**	11.17	28.2%
19	**Lufthansa Group**	11.15	14.5%
20	**Air New Zealand**	11.09	30.7%
21	**Aer Lingus**	10.80	17.3%
22	**Bangkok Airways**	10.73	-23.7%
23	**Avianca Holdings**	10.70	17.9%
24	**Emirates**	10.57	48.0%
25	**Thai Airways**	10.40	57.1%
26	**Air Canada**	10.28	20.1%
27	**PSA Airlines**	10.26	20.5%
28	**Lufthansa Parent**	10.22	3.8%
29	**Delta Air Lines**	10.14	-7.5%
30	**Austrian Airlines**	9.96	4.9%
31	**Norwegian Air Shuttle**	9.79	109.7%
32	**Aegean Airlines**	9.79	17.3%
33	**KLM**	9.65	6.8%
34	**Cathay Pacific**	9.63	34.0%
35	**airBaltic**	9.63	12.9%
36	**British Airways**	9.55	-1.0%
37	**EL AL Israel Airlines**	9.44	20.5%
38	**American Airlines Group**	9.24	-13.0%
39	**Kenya Airways**	9.19	15.5%
40	**United Airlines Holdings**	9.09	-12.0%
41	**Air France-KLM**	9.01	12.3%
42	**Hawaiian Airlines**	8.47	-5.5%
43	**Garuda Indonesia**	8.44	-4.0%
44	**Alaska Air Group**	8.42	-7.7%
45	**IAG**	8.41	-4.1%
46	**TAP Group**	8.18	6.8%
47	**jetBlue**	8.05	-11.9%
48	**Sun Country Airlines**	7.77	9.7%
49	**Southwest Airlines**	7.76	-20.8%
50	**Copa Holdings**	7.37	-6.6%
51	**Air China**	7.36	-1.8%
52	**Turkish Airlines**	7.27	-1.2%
53	**Jeju Air**	7.01	36.6%
54	**China Southern Airlines**	6.67	-2.3%
55	**China Eastern Airlines**	6.66	-4.8%
56	**Grupo Aeromexico**	6.34	-14.9%
57	**Iberia**	6.19	-1.7%
58	**Shandong Airlines**	5.57	-18.2%
59	**Spirit Airlines**	5.44	-16.4%
60	**LATAM Airlines Group**	5.26	-29.3%
61	**PT AirAsia Indonesia**	5.06	-13.3%
62	**GOL**	4.88	-31.5%
63	**Aeroflot**	4.86	-17.1%
64	**Azul S.A.**	4.68	-42.5%
65	**Cebu Pacific**	4.17	-8.3%
66	**easyJet**	3.92	-35.3%
67	**AirAsia**	3.55	-2.7%
68	**Frontier Airlines**	3.30	-3.6%
69	**Volaris**	2.72	-18.3%
70	**Pegasus Airlines**	2.47	-22.6%
71	**Grupo VivaAerobus**	2.44	-6.3%
72	**Wizz Air**	2.25	-12.5%

Source: *Airfinance Journal's The Airline Analyst*
LTM = Latest Twelve Months

Top airlines ranked by **cargo revenues**

The air cargo business has proved a critical offset to almost non-existent passenger revenues for a large number of airlines during Covid.

Among the passenger carriers, Emirates came top of the ranking with $4.7 billion of cargo revenues, up from $3.2 billion. Second was Korean Air at $4.4 billion, a heady 71% of total revenues. Next were Air France-KLM, Lufthansa, Cathay Pacific and China Airlines.

Turkish Airlines, not often talked about in the same terms as the others as a cargo carrier, generated $3.3 billion of cargo revenues.

Dedicated cargo operator Cargolux came in at number eight followed by Kalitta Air at $1.7 billion.

Rank	Airline	Cargo revenues ($m) (LTM)	Cargo revenues as % of total revenues (LTM)
1	**Emirates**	4,657	55%
2	**Korean Air**	4,411	71%
3	**Air France-KLM**	3,885	33%
4	**Lufthansa Group**	3,770	28%
5	**Cathay Pacific**	3,597	78%
6	**China Airlines**	3,423	86%
7	**Turkish Airlines**	3,274	44%
8	**Cargolux**	3,127	99%
9	**China Southern Airlines**	2,393	18%
10	**EVA Airways**	2,242	77%
11	**ANA Holdings**	2,162	29%
12	**SIA Group**	2,140	71%
13	**United Airlines Holdings**	2,085	14%
14	**KLM**	1,758	30%
15	**IAG**	1,735	31%
16	**Kalitta Air**	1,676	95%
17	**Japan Airlines**	1,405	28%
18	**LATAM Airlines Group**	1,354	45%
19	**British Airways**	1,351	47%
20	**Air China**	1,241	12%
21	**American Airlines Group**	1,133	6%
22	**Polar Air Cargo**	977	61%
23	**Air Canada**	886	36%
24	**Delta Air Lines**	813	4%
25	**Qantas Airways**	806	16%
26	**TAM**	750	13%
27	**China Eastern Airlines**	710	8%
28	**Cargojet Airways**	490	98%
29	**Western Global Airlines**	412	99%
30	**Air New Zealand**	410	21%
31	**Aeroflot**	400	12%
32	**Garuda Indonesia**	296	27%
33	**Iberia**	276	10%
34	**Finnair**	254	46%
35	**PAL Holdings**	221	30%

Rank	Airline	Cargo revenues ($m) (LTM)	Cargo revenues as % of total revenues (LTM)
36	**Grupo Aeromexico**	216	16%
37	**LOT**	200	23%
38	**Alaska Air Group**	182	5%
39	**Southwest Airlines**	176	2%
40	**EL AL Israel Airlines**	152	31%
41	**TAP Group**	144	12%
42	**Cebu Pacific**	124	54%
43	**SAS**	101	9%
44	**Aer Lingus**	100	19%
45	**Thai Airways**	89	27%
46	**Kenya Airways**	85	17%
47	**Icelandair**	81	28%
48	**Ural Airlines**	80	11%
49	**Sun Country Airlines**	60	17%
50	**Royal Jordanian Airlines**	59	23%
51	**Aerolineas Argentinas**	55	9%
52	**Austrian Airlines**	50	7%
53	**AirAsia**	46	20%
54	**Copa Holdings**	33	5%
55	**Air Astana**	28	8%
56	**PIA**	27	6%
57	**Air Incheon**	21	100%
58	**AirAsia X**	21	8%
59	**Norwegian Air Shuttle**	18	7%
60	**Air Greenland**	15	9%
61	**Volaris**	11	1%
62	**Jin Air**	8	5%
63	**Jazeera Airways**	6	6%
64	**airBaltic**	5	3%
65	**Shandong Airlines**	4	0%
66	**PT AirAsia Indonesia**	2	7%
67	**Jeju Air**	2	1%
68	**Croatia Airlines**	1	1%
69	**Regional Express**	1	1%
70	**Air Busan**	1	1%

Source: *Airfinance Journal's The Airline Analyst*
LTM = Latest Twelve Months

Top airlines ranked by **lowest employee costs**

There is a huge range on this measure, from 2% of revenues to 57%. Included in the top 10 are major LCCs such as Wizz Air and Volaris.

Two Polish airlines are in the top three which may reflect accounting methods rather than actual lower costs. Three cargo carriers are also in the top 10 reflecting their unique cost structures.

Clearly this is a ratio that has increased significantly as a result of the pandemic as revenues disappeared overnight while employee costs tended to be fixed in the short-term.

Some airlines have benefitted from employment support measures such as the US "Payroll Support Program" which have been booked as an offset to employment costs. However, despite this, two of the US majors did not make the top 100 on this measure.

Rank	Airline	Employee costs as % of revenue (LTM)
1	Polar Air Cargo	2%
2	LOT	7%
3	Enter Air	8%
4	Ural Airlines	10%
5	Cargojet Airways	10%
6	SpiceJet	12%
7	Volaris	13%
8	Grupo VivaAerobus	13%
9	Cargolux	14%
10	Turkish Airlines	14%
11	Wizz Air	16%
12	Western Global Airlines	17%
13	Air Incheon	18%
14	Pegasus Airlines	18%
15	Aegean Airlines	19%
16	Asiana Airlines	19%
17	DAT	20%
18	IndiGo	20%
19	VietJet Air	20%
20	PAL Holdings	20%
21	AirAsia X	21%
22	Air Astana	21%
23	Hainan Airlines	21%
24	Kalitta Air	22%
25	China Airlines	22%
26	Aeroflot	23%
27	Air Seoul	23%
28	Aerolineas Argentinas	23%
29	Air Arabia	25%
30	EVA Airways	25%
31	Emirates	25%
32	Kenya Airways	26%
33	Xiamen Airlines	26%
34	Korean Air	26%
35	StarFlyer	26%
36	PIA	26%
37	Avianca Holdings	26%
38	Juneyao Airlines	27%
39	China Southern Airlines	27%
40	Ryanair	27%
41	Air Serbia	28%
42	Shandong Airlines	28%
43	LATAM Airlines Group	28%
44	TAM	28%
45	Spring Airlines	28%
46	Wideroe	28%
47	Azul S.A.	29%
48	SIA Group	30%
49	Thai AirAsia	31%
50	Jazeera Airways	31%

Rank	Airline	Employee costs as % of revenue (LTM)
51	Air New Zealand	31%
52	Air China	32%
53	Copa Holdings	32%
54	Virgin Atlantic Airways	32%
55	GOL	32%
56	Qantas Airways	32%
57	Nordic Regional Airlines	32%
58	Grupo Aeromexico	33%
59	Vueling Airlines	33%
60	Allegiant	34%
61	Iberia	34%
62	China Eastern Airlines	35%
63	Royal Jordanian Airlines	36%
64	Cathay Pacific	36%
65	Atlantic Airways	37%
66	Croatia Airlines	38%
67	Air Greenland	38%
68	SkyWest	38%
69	Sunclass Airlines	39%
70	KLM	39%
71	Air Busan	39%
72	Shenzhen Airlines	40%
73	airBaltic	41%
74	Garuda Indonesia	41%
75	IAG	41%
76	Finnair	42%
77	Aer Lingus	42%
78	Spirit Airlines	43%
79	Austrian Airlines	43%
80	TAP Group	44%
81	Brussels Airlines	45%
82	Sun Country Airlines	46%
83	Delta Air Lines	46%
84	Jin Air	46%
85	Japan Airlines	47%
86	Hawaiian Airlines	47%
87	Air France-KLM	49%
88	Republic Airways	49%
89	Lufthansa Parent	50%
90	GoJet Airlines	52%
91	Norwegian Air Shuttle	52%
92	T'way Airlines	53%
93	Air France	53%
94	Air Wisconsin	53%
95	Frontier Airlines	54%
96	PT AirAsia Indonesia	54%
97	Lufthansa Group	55%
98	Alaska Air Group	56%
99	Regional Express	57%
100	Icelandair	57%

Source: *Airfinance Journal's The Airline Analyst*
LTM = Latest Twelve Months

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 LTM periods. Indeed, only 52 airlines achieved positive EBITDAR margins. At the top are a number of dedicated cargo carriers, reflecting the buoyant market for freight in both volume and yields.

Two regional carriers, Horizon Air and Nordic Regional Airlines, achieved very high margins.

Of the international carriers, Air Arabia achieved a stellar EBITDAR margin of 35%, followed by airlines with substantial cargo operations. LCCs Volaris and Viva Aerobus also performed strongly as did three Turkish carriers – Turkish Airlines, Pegasus Airlines and SunExpress.

Helped by the recovery of their domestic market, the Chinese airlines reported positive results on this measure. Deeply in negative territory were the US, Japanese and European majors.

Rank	Airline	LTM EBITDAR Margin
1	**Polar Air Cargo**	74%
2	**Nippon Cargo Airlines**	55%
3	**Western Global Airlines**	49%
4	**Cargolux**	42%
5	**Horizon Air**	36%
6	**Cargojet Airways**	36%
7	**Air Arabia**	35%
8	**Nordic Regional Airlines**	33%
9	**EVA Airways**	32%
10	**Air Incheon**	31%
11	**China Airlines**	30%
12	**Korean Air**	30%
13	**Kalitta Air**	29%
14	**Volaris**	27%
15	**Asiana Airlines**	27%
16	**Grupo VivaAerobus**	26%
17	**Turkish Airlines**	25%
18	**Air Wisconsin**	24%
19	**Pegasus Airlines**	18%
20	**SunExpress**	18%
21	**Xiamen Airlines**	17%
22	**VietJet Air**	17%
23	**Republic Airways**	16%
24	**Air Astana**	16%
25	**Juneyao Airlines**	16%
26	**Mesa Air Group**	16%
27	**Air Greenland**	15%
28	**SkyWest**	15%
29	**Emirates**	15%
30	**SpiceJet**	14%
31	**China Southern Airlines**	13%
32	**PAL Holdings**	12%
33	**Hainan Airlines**	12%
34	**Spring Airlines**	11%
35	**Allegiant**	11%
36	**Kenya Airways**	11%
37	**Cathay Pacific**	10%
38	**Air New Zealand**	9%
39	**LOT**	9%
40	**Vietnam Airlines**	9%
41	**Qantas Airways**	8%
42	**Air China**	8%
43	**GoJet Airlines**	8%
44	**Shenzhen Airlines**	8%
45	**PIA**	7%
46	**Shandong Airlines**	5%
47	**China Eastern Airlines**	5%
48	**Aeroflot**	5%
49	**Ural Airlines**	4%
50	**Sun Country Airlines**	3%
51	**Wideroe**	2%
52	**Grupo Aeromexico**	1%
53	**IndiGo**	-1%
54	**Aerolineas Argentinas**	-2%
55	**Copa Holdings**	-3%
56	**Skymark Airlines**	-5%
57	**Avianca Holdings**	-6%
58	**KLM**	-6%
59	**SIA Group**	-8%
60	**Spirit Airlines**	-9%
61	**Royal Jordanian Airlines**	-9%
62	**PSA Airlines**	-10%
63	**Envoy Air**	-10%
64	**Atlantic Airways**	-12%
65	**ANA Holdings**	-12%
66	**Enter Air**	-12%
67	**DAT**	-13%
68	**Aegean Airlines**	-13%
69	**Air Serbia**	-14%
70	**Wizz Air**	-17%
71	**Air France-KLM**	-18%
72	**T'way Airlines**	-18%
73	**Frontier Airlines**	-19%
74	**Ryanair**	-20%
75	**GOL**	-21%
76	**Solaseed Air**	-21%
77	**Iberia**	-22%
78	**Lufthansa Group**	-22%
79	**Alaska Air Group**	-24%
80	**Bangkok Airways**	-24%
81	**LATAM Airlines Group**	-24%
82	**Azul S.A.**	-24%
83	**Icelandair**	-24%
84	**StarFlyer**	-25%
85	**SAS**	-25%
86	**Air France**	-25%
87	**EL AL Israel Airlines**	-26%
88	**TAP Group**	-27%
89	**Delta Air Lines**	-27%
90	**Southwest Airlines**	-27%
91	**Sunclass Airlines**	-28%
92	**Japan Airlines**	-28%
93	**Virgin Atlantic Airways**	-34%
94	**Regional Express**	-34%
95	**American Airlines Group**	-35%
96	**Garuda Indonesia**	-35%
97	**United Airlines Holdings**	-38%
98	**AirAsia X**	-39%
99	**jetBlue**	-40%
100	**Croatia Airlines**	-40%

Source: *Airfinance Journal's The Airline Analyst*
LTM = Latest Twelve Months

Top 100 by liquidity

Our normal measure of liquidity is unrestricted cash as a percentage of LTM 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 have generated liquidity 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. There is no doubt that liquidity is at an all-time-high for the industry.

However, scaling it to most recent LTM revenues as shown in the "Unadjusted" column in the table results in an over-statement. We therefore also show the "Adjusted" column which scales current liquidity to the prior year's revenues, which gives a better measure of liquidity compared to the underlying size of the business.

On this measure, 49 airlines and airline groups had in excess of 25% of prior year revenues as unrestricted cash, with two airlines, Hawaiian and Southwest, exceeding 100%. There then follows a series of well protected carriers before we cross the 25% threshold. Note that some of the carriers below the 25% line enjoy very strong government support.

These include Lufthansa Group, Emirates, China Southern, TAP Group, SAS and Air New Zealand. Some of the private airlines with low levels of liquidity should be considered vulnerable. Note there are another 27 airlines ranked from number 101 to number 108 that also deserve scrutiny.

		Liquidiity as percent of revenues	
Rank	Airline	Unadjusted	Adjusted
1	Hawaiian Airlines	266.5%	104.8%
2	Southwest Airlines	171.0%	101.6%
3	Allegiant	98.9%	82.3%
4	Air Arabia	154.1%	82.0%
5	Grupo VivaAerobus	61.4%	72.8%
6	Pegasus Airlines	111.9%	69.9%
7	Spirit Airlines	88.7%	68.6%
8	Wizz Air	170.8%	67.0%
9	Spring Airlines	97.6%	66.3%
10	Ryanair	213.8%	63.8%
11	jetBlue	110.0%	62.9%
12	Alaska Air Group	103.1%	59.2%
13	Copa Holdings	173.6%	59.1%
14	Cargolux	41.0%	57.7%
15	ANA Holdings	112.4%	56.8%
16	American Airlines Group	96.1%	53.8%
17	Kalitta Air	34.1%	51.6%
18	SIA Group	211.6%	50.5%
19	Azul S.A.	81.3%	45.7%
20	Delta Air Lines	83.2%	44.7%
21	Sun Country Airlines	80.7%	41.1%
22	IAG	161.2%	40.8%
23	SkyWest	42.7%	37.0%
24	StarFlyer	64.8%	36.9%
25	Volaris	34.0%	36.5%
26	easyJet	262.3%	36.2%
27	Air Canada	161.7%	35.9%
28	Finnair	179.1%	35.9%
29	Croatia Airlines	91.7%	33.9%
30	Grupo Aeromexico	61.6%	33.8%
31	Aegean Airlines	133.2%	33.5%
32	Japan Airlines	66.4%	32.1%
33	Atlantic Airways	61.1%	31.6%
34	Republic Airways	49.9%	31.1%
35	EVA Airways	51.5%	30.1%
36	Air France-KLM	62.1%	29.8%
37	IndiGo	47.7%	29.4%
38	airBaltic	104.0%	29.1%
39	Cathay Pacific	65.8%	29.1%
40	Avianca Holdings	76.7%	29.1%
41	Solaseed Air	59.8%	28.9%
42	Mesa Air Group	37.5%	28.9%
43	Tigerair Taiwan	437.7%	28.6%
44	Cebu Pacific	145.8%	28.4%
45	Shandong Airlines	50.4%	27.9%
46	Western Global Airlines	14.8%	27.3%
47	Lufthansa Parent	98.8%	26.9%
48	Korean Air	45.5%	26.5%
49	Air France	66.5%	25.7%
50	Jazeera Airways	67.4%	24.5%
51	Vueling Airlines	95.8%	23.9%
52	Lufthansa Group	58.0%	23.8%
53	Air Wisconsin	37.4%	23.4%
54	Air Astana	61.9%	22.7%
55	China Airlines	27.5%	21.7%
56	SunExpress	62.9%	21.6%
57	Turkish Airlines	31.6%	21.6%
58	Austrian Airlines	65.6%	19.3%
59	Qantas Airways	48.4%	18.9%
60	Royal Jordanian Airlines	48.9%	18.7%
61	LOT	40.6%	18.5%
62	LATAM Airlines Group	51.2%	18.3%
63	British Airways	77.6%	17.3%
64	Frontier Airlines	43.9%	17.1%
65	Icelandair	66.0%	16.8%
66	Emirates	48.9%	16.5%
67	China Southern Airlines	27.5%	16.5%
68	TAP Group	49.4%	16.0%
69	Jin Air	57.0%	15.8%
70	Enter Air	69.4%	14.8%
71	Skymark Airlines	39.0%	14.7%
72	Air Incheon	16.2%	14.5%
73	Air Greenland	16.9%	13.6%
74	Iberia	30.8%	12.6%
75	Juneyao Airlines	13.1%	12.0%
76	GoJet Airlines	27.5%	11.9%
77	Aeroflot	30.8%	11.8%
78	EL AL Israel Airlines	38.3%	11.5%
79	Air Serbia	28.8%	11.4%
80	SAS	45.3%	10.7%
81	Aer Lingus	48.2%	10.6%
82	Aerolineas Argentinas	29.1%	9.8%
83	DAT A/S	23.1%	9.6%
84	T'way Airlines	44.0%	9.5%
85	VietJet Air	23.4%	9.1%
86	Shenzhen Airlines	16.8%	9.1%
87	Luxair Group	20.5%	8.6%
88	Jeju Air	52.6%	8.2%
89	Air New Zealand	14.3%	7.5%
90	Air Busan	31.8%	7.4%
91	GOL	14.1%	7.1%
92	Bangkok Airways	27.7%	6.5%
93	China Eastern Airlines	13.0%	6.3%
94	Kenya Airways	14.6%	6.1%
95	Norwegian Air Shuttle	79.5%	5.8%
96	KLM	11.6%	5.4%
97	Asiana Airlines	9.9%	5.2%
98	AirAsia	46.3%	5.2%
99	Hainan Airlines	9.0%	4.5%
100	Air Seoul	14.1%	4.4%

Source: *Airfinance Journal's The Airline Analyst*
LTM = Latest Twelve Months

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. The best capitalised airlines on this measure are Kalitta Air, Regional Express and Luxair Group.

Then follow Japan Airlines, China's normally very profitable Spring Airlines and SIA Group. Ryanair rates highly as does Cathay Pacific thanks to its government-supported recapitalisation.

A total of 16 airlines in the study have negative equity, at least partly attributed to Covid generated losses. Other under-capitalised airlines according to the equity ratio include Air Canada, IAG and the Lufthansa Group. The next measure – fixed charge cover – will help assess the seriousness of the capital problems.

Rank	Airline	Book Equity/ Total Assets
1	**Kalitta Air**	71%
2	**Regional Express**	69%
3	**Luxair Group**	69%
4	**Japan Airlines**	47%
5	**Cargolux**	46%
6	**Spring Airlines**	44%
7	**SIA Group**	43%
8	**Air Greenland**	43%
9	**Envoy Air**	42%
10	**Bangkok Airways**	39%
11	**Ryanair**	38%
12	**Cathay Pacific**	36%
13	**Air Arabia**	36%
14	**Juneyao Airlines**	34%
15	**Copa Holdings**	33%
16	**VietJet Air**	33%
17	**Xiamen Airlines**	33%
18	**Atlantic Airways**	32%
19	**ANA Holdings**	32%
20	**Republic Airways**	31%
21	**SkyWest**	31%
22	**Mesa Air Group**	31%
23	**Air China**	30%
24	**jetBlue**	30%
25	**Horizon Air**	29%
26	**Sun Country Airlines**	27%
27	**Spirit Airlines**	27%
28	**China Southern Airlines**	26%
29	**Tigerair Taiwan**	26%
30	**Southwest Airlines**	26%
31	**Finnair**	25%
32	**Lufthansa Parent**	24%
33	**Wideroe**	24%
34	**EVA Airways**	23%
35	**Icelandair**	23%
36	**easyJet**	22%
37	**Allegiant**	22%
38	**China Airlines**	21%
39	**Alaska Air Group**	21%
40	**Turkish Airlines**	21%
41	**China Eastern Airlines**	21%
42	**StarFlyer**	19%
43	**Wizz Air**	19%
44	**Jeju Air**	19%
45	**Pegasus Airlines**	19%
46	**SAS**	18%
47	**Cebu Pacific**	18%
48	**Jin Air**	18%
49	**Air New Zealand**	18%
50	**T'way Airlines**	16%

Rank	Airline	Book Equity/ Total Assets
51	**Hawaiian Airlines**	15%
52	**Cargojet Airways**	14%
53	**Solaseed Air**	14%
54	**Emirates**	13%
55	**Croatia Airlines**	13%
56	**Korean Air**	13%
57	**LOT**	13%
58	**Skymark Airlines**	12%
59	**Enter Air**	12%
60	**Shandong Airlines**	12%
61	**Air Busan**	11%
62	**United Airlines Holdings**	10%
63	**Vietnam Airlines**	10%
64	**British Airways**	10%
65	**Frontier Airlines**	10%
66	**Shenzhen Airlines**	10%
67	**Ural Airlines**	9%
68	**Asiana Airlines**	8%
69	**Qantas Airways**	8%
70	**SunExpress**	8%
71	**Jazeera Airways**	7%
72	**Air Wisconsin**	7%
73	**Air Canada**	6%
74	**Polar Air Cargo**	6%
75	**Aegean Airlines**	5%
76	**IAG**	4%
77	**Volaris**	4%
78	**Lufthansa Group**	4%
79	**Delta Air Lines**	2%
80	**Air Astana**	2%
81	**airBaltic**	2%
82	**Nordic Regional Airlines**	2%
83	**Grupo VivaAerobus**	1%
84	**IndiGo**	0%
85	**KLM**	-1%
86	**Royal Jordanian Airlines**	-1%
87	**Iberia**	-2%
88	**Aer Lingus**	-5%
89	**Austrian Airlines**	-5%
90	**DAT**	-6%
91	**Virgin Atlantic Airways**	-7%
92	**Thai AirAsia**	-8%
93	**EL AL Israel Airlines**	-9%
94	**American Airlines Group**	-11%
95	**Aeroflot**	-11%
96	**Air Serbia**	-12%
97	**Norwegian Air Shuttle**	-13%
98	**Hainan Airlines**	-14%
99	**AirAsia X**	-14%
100	**TAM**	-15%

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 8 x rent to balance sheet interest bearing debt and dividing by EBITDAR

LTM = Latest Twelve Months

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 13 airlines had fixed charge cover above 2x in the most recent LTM period and only 25 had levels in excess of 1x. Below 1x indicates insufficient cash flow to pay interest and rents other than by selling assets or 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	LTM Fixed Charge Cover: EBITDAR/ Net Interest plus Rent (x)
1	Kalitta Air	16.3
2	Cargolux	15.1
3	Air Greenland	12.5
4	Air Arabia	8.1
5	Western Global Airlines	6.4
6	Air Incheon	6.0
7	Horizon Air	5.1
8	Nippon Cargo Airlines	4.9
9	Cargojet Airways	4.6
10	Korean Air	2.7
11	Turkish Airlines	2.5
12	China Airlines	2.3
13	Air Wisconsin	2.2
14	Allegiant	1.7
15	Republic Airways	1.6
16	Xiamen Airlines	1.5
17	EVA Airways	1.4
18	SkyWest	1.2
19	Juneyao Airlines	1.1
20	Qantas Airways	1.1
21	Air New Zealand	1.1
22	Grupo VivaAerobus	1.0
23	Mesa Air Group	1.0
24	Polar Air Cargo	1.0
25	Nordic Regional Airlines	1.0
26	Asiana Airlines	0.9
27	Volaris	0.9
28	Wideroe	0.9
29	SunExpress	0.9
30	China Southern Airlines	0.8
31	Pegasus Airlines	0.7
32	Spring Airlines	0.7
33	Air China	0.6
34	VietJet Air	0.4
35	Shenzhen Airlines	0.4
36	Cathay Pacific	0.4
37	LOT	0.4
38	Air Astana	0.4
39	Ural Airlines	0.3
40	SpiceJet	0.3
41	China Eastern Airlines	0.3
42	Emirates	0.3
43	Vietnam Airlines	0.2
44	Kenya Airways	0.2
45	PAL Holdings	0.2
46	Hainan Airlines	0.2
47	Shandong Airlines	0.2
48	Sun Country Airlines	0.2
49	GoJet Airlines	0.2
50	PIA	0.1

Rank	Airline	LTM Fixed Charge Cover: EBITDAR/ Net Interest plus Rent (x)
51	Aeroflot	0.1
52	Grupo Aeromexico	0.0
53	IndiGo	0.0
54	Avianca Holdings	-0.1
55	Skymark Airlines	-0.1
56	T'way Airlines	-0.1
57	Aegean Airlines	-0.2
58	PSA Airlines	-0.2
59	Royal Jordanian Airlines	-0.2
60	Copa Holdings	-0.2
61	Azul S.A.	-0.2
62	Enter Air	-0.2
63	Aerolineas Argentinas	-0.2
64	Envoy Air	-0.3
65	Garuda Indonesia	-0.3
66	AirAsia X	-0.3
67	airBaltic	-0.4
68	Wizz Air	-0.4
69	TAP Group	-0.4
70	Frontier Airlines	-0.4
71	GOL	-0.4
72	Bangkok Airways	-0.4
73	Air Serbia	-0.4
74	Norwegian Air Shuttle	-0.5
75	Spirit Airlines	-0.5
76	KLM	-0.5
77	SIA Group	-0.5
78	SAS	-0.5
79	Thai Airways	-0.5
80	Thai AirAsia	-0.5
81	Air Busan	-0.5
82	Jazeera Airways	-0.6
83	LATAM Airlines Group	-0.6
84	Solaseed Air	-0.7
85	Air Seoul	-0.7
86	AirAsia	-0.8
87	Virgin Atlantic Airways	-0.8
88	EL AL Israel Airlines	-0.8
89	DAT	-0.8
90	Atlantic Airways	-0.8
91	ANA Holdings	-0.8
92	Jin Air	-0.8
93	Tigerair Taiwan	-0.9
94	PT AirAsia Indonesia	-1.0
95	Air France-KLM	-1.0
96	TAM	-1.2
97	Cebu Pacific	-1.2
98	Jeju Air	-1.2
99	Brussels Airlines	-1.3
100	Vueling Airlines	-1.3

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

LTM = Latest Twelve Months

Top listed airlines by market capitalisation

The table adjacent shows the 89 listed airlines by market capitalisation as of 21 August 2021. Added to the list this year are Frontier Group, Sun Country Airlines, Harbor Diversified (Air Wisconsin) and Flyr. The aggregate value is $336 billion, up from $228 billion last year. Southwest Airlines has retained the number one position, and Delta holds second spot. The standout gainer from the US is American Airlines which doubled from $6.2 billion to $13.5 billion.

Among Europeans, IAG has more than doubled, Air France-KLM has bounced back from an extremely low valuation last year and Lufthansa Group is flat. Ryanair has gained more than a third and Wizz Air 48%.

The Chinese airlines are relatively flat to last year's valuations.

Some airlines with substantial cargo operations have also shown significant growth. For example, Korean Air has grown three-fold, buoyed by its huge cargo operation and China Airlines is up more than two times.

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 $221 million, AirAsia X at $89 million and Hainan Airlines at $5.9 billion! The jury is out on Norwegian Air Shuttle's ability to justify its current market capitalisation of $912 million. The survivability of the slew of Korean LCCs that still have positive equity market capitalisation is also in question. The future of Comair Limited and Air Mauritius is also in doubt as all are in administration or restructuring.

In Latin America, Volaris is up an incredible 330% and LATAM and Copa are up more than 50%, while GOL is flat.

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

Rank	Airline	Market Cap ($m)
1	**Southwest Airlines**	29,959
2	**Delta Air Lines**	25,463
3	**Ryanair**	22,000
4	**Air China**	16,069
5	**United Airlines Holdings**	14,569
6	**American Airlines Group**	13,446
7	**IAG**	11,439
8	**China Southern Airlines**	11,377
9	**ANA Holdings**	11,040
10	**SIA Group**	10,696
11	**China Eastern Airlines**	9,516
12	**IndiGo**	8,688
13	**Japan Airlines**	8,678
14	**Korean Air**	8,316
15	**Alaska Air Group**	7,157
16	**Spring Airlines**	6,717
17	**Air Canada**	6,645
18	**Lufthansa Group**	6,577
19	**Qantas Airways**	6,271
20	**Wizz Air**	5,999
21	**Hainan Airlines**	5,940
22	**easyJet**	5,303
23	**Cathay Pacific**	5,129
24	**Juneyao Airlines**	4,952
25	**jetBlue**	4,819
26	**Frontier Group**	3,385
27	**EVA Airways**	3,267
28	**China Airlines**	3,211
29	**Copa Holdings**	3,204
30	**Allegiant Travel Company**	3,143
31	**Air France-KLM**	3,086
32	**Cargojet Airways**	2,654
33	**Azul S.A.**	2,647
34	**Volaris**	2,610
35	**Spirit Airlines**	2,418
36	**Sun Country Airlines**	2,257
37	**China Express**	2,233
38	**Aeroflot**	2,207
39	**Atlas Air Worldwide**	2,108
40	**Turkish Airlines**	2,104
41	**SkyWest**	2,070
42	**SAS**	1,793
43	**Air Arabia**	1,766
44	**Air Transport Services Group**	1,629
45	**LATAM Airlines Group**	1,449

Rank	Airline	Market Cap ($m)
46	**PAL Holdings**	1,402
47	**Air New Zealand**	1,263
48	**Finnair**	1,126
49	**Asiana Airlines**	1,097
50	**GOL**	1,069
51	**Norwegian Air Shuttle**	912
52	**Jeju Air**	901
53	**Jin Air**	899
54	**Hawaiian Airlines**	876
55	**Pegasus Airlines**	844
56	**AirAsia**	766
57	**SpiceJet**	607
58	**Bangkok Airways**	575
59	**Chorus Aviation Inc.**	565
60	**EL AL Israel Airlines**	545
61	**Cebu Pacific**	527
62	**Jazeera Airways**	494
63	**Aegean Airlines**	453
64	**SpiceJet**	404
65	**Garuda Indonesia**	399
66	**UTair**	355
67	**T'way Airlines**	292
68	**Icelandair**	284
69	**Mesa Air Group**	262
70	**Air Busan**	250
71	**Shandong Airlines**	226
72	**Nok Air**	221
73	**Thai Airways**	221
74	**Kenya Airways**	198
75	**Grupo Aeromexico**	194
76	**PIA**	194
77	**Transat A.T.**	187
78	**Enter Air**	161
79	**Norse Atlantic**	137
80	**Croatia Airlines**	131
81	**Harbor Diversified (Air Wisconsin)**	115
82	**Regional Express Holdings**	101
83	**Royal Jordanian Airlines**	101
84	**AirAsia X**	89
85	**Flyr**	73
86	**StarFlyer**	72
87	**Avianca Holdings**	62
88	**Comair Limited**	31
89	**Air Mauritius**	14

Source: Bloomberg and *Airfinance Journal's The Airline Analyst*
Values as of close on 21 August, 2021

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**.


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