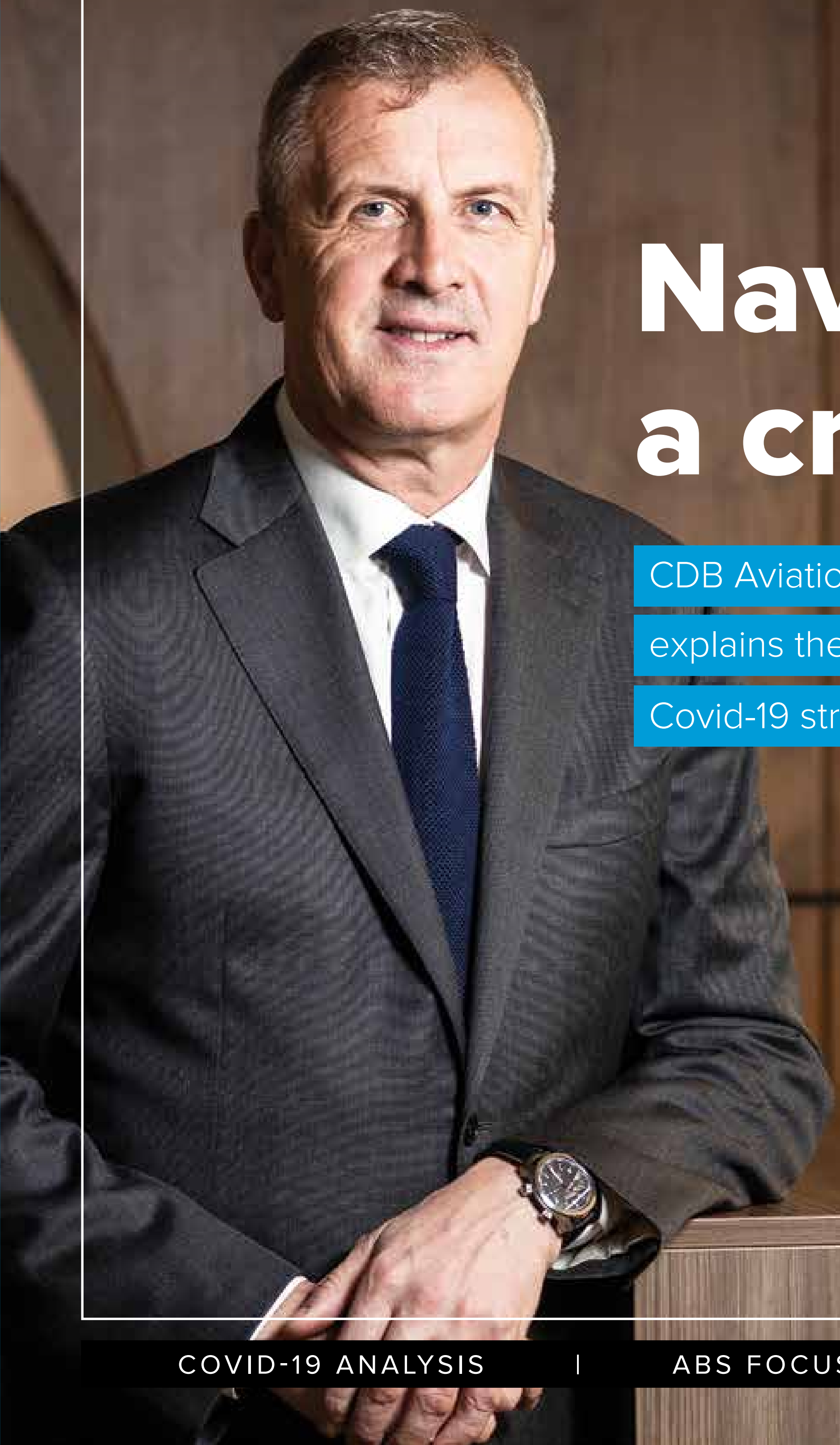
May/June 2020

AIRFINANCE JOURNAL

YOUR ESSENTIAL INTELLIGENCE RESOURCE FOR AVIATION FINANCE



Navigating a crisis

CDB Aviation's Patrick Hannigan explains the lessor's Covid-19 strategy

COVID-19 ANALYSIS | ABS FOCUS | MRO REVIEW

A new **reality**

Amid what is arguably the greatest challenge it has ever faced, the aviation industry is adapting and preparing for an uncertain future.

Well before Covid-19 struck the aviation sector had a reputation for adaptability and versatility.

The near perfect safety record that the global aviation industry has built up over many decades as a result of rigorous analysis, adaptation of technologies and work practices, is a source of inspiration.

It has been emulated by the UK's National Health Service's patient safety body, the Healthcare Safety Investigation Branch, led by Keith Conradi, a former chief inspector of the UK's Air Accidents Investigation Branch.

The Covid-19 crisis is having a profound impact on the aviation industry and once again the sector is showing its versatility.

In an April research note, Fitch Ratings said that Covid-19 will hurt airlines beyond 2021, with the recovery of the aviation industry lagging behind that of the broader economy.

The very existence of some airlines is now at stake and there has been talk about the virus accelerating the trend of consolidation in the sector.

With national lockdowns in place and social-distancing relaxation scenarios uncertain, Fitch assumes air travel restrictions, especially on international flights, to remain in place well beyond second half of 2020. This will in turn, coupled with economic weakness, affect the propensity to travel beyond 2021, says Fitch.

Airlines have grounded their fleets and apart from repatriation and cargo flights, the skies are empty. We know aircraft are versatile assets versus other asset classes. But few had imagined rows of empty seats being filled with medical supplies at the start of this year.

The move comes as a response to a rapidly changing situation in the market and some passenger aircraft are being turned into cargo to carry medical supply/equipment, humanitarian aid, food and equipment of various kinds in the fight against Covid-19.

Pictures of aircraft ferrying personal protective equipment rather than passengers has become one of the defining images of the impact of the Covid-19 crisis on aviation.

Some companies are making the best of an extremely challenging situation by adapting their business models to react to the new norms.

ACMI passenger operator Avion Express has announced plans to re-enter the airfreight market saying cargo-carrying flights are in huge demand. Avion Express has offered freight capabilities of up to 17 tonnes of cargo with Airbus A320 aircraft, and up to 24 tonnes with A321 in the cargo compartment as well as in the cabin.

Some have gone the extra mile.

Air Canada has reconfigured the cabins of three of its Boeing 777-300ER aircraft to provide additional cargo capacity.

The first aircraft conversion was complete mid-April and the remaining two were expected shortly after. The carrier says the transformation of the 777-300ERs doubles the capacity of each flight and will enable more goods to move more quickly.

Avianor converted the three aircraft at its Montreal-Mirabel facility. The aircraft maintenance and cabin integration specialist, developed a specific engineering solution to remove 422 passenger seats and designate cargo loading zones for light weight boxes containing medical equipment and restrained with cargo nets. The modification was developed, produced and implemented within six days.

A group of medical, technology and aviation experts have developed a project to rapidly increase the number of intensive care units (ICU) and hospital beds available for treatment of Covid-19 through the conversion of widebody passenger aircraft and airport terminals.

The group, who have named the project Caircraft, estimate that the aircraft could be converted in seven to 10 days. These could be transformed to provide 40,000 ICU beds and save an estimated 250,000 lives.

The industry has found new ways to deliver aircraft during the crisis. Airbus has been able to deliver new aircraft to customers using an "e-delivery" virtual process, guaranteeing the continuation of its delivery stream, while integrating the required health and safety requirements during the ongoing Covid-19 pandemic.

This new e-delivery process comprises three main stages: technical acceptance completion tasks delegated to Airbus (or to a local third party appointed by the airline); electronic transfer-of-title; and ferry-flight and subsequent reception of the aircraft at the customer's base.

We are now beginning to see the more fundamental impact of the virus on the sector.

The Embraer-Boeing joint venture has been terminated, with no little acrimony being generated in the process, marking an abrupt end to the consolidation of the major OEMs into two major blocs. The death of the joint venture will have a profound impact on both parties. Boeing's global reach and product range will be hampered, plans for New Midsize Airplane could be delayed or shelved, as could a smaller aircraft to compete with the A220. The future role of the 737 Max in any recovery, once recertified, still looks uncertain.

The 2020s could be Boeing's lost decade. Airlines freely admit they will shrink post Covid-19, either by stripping out older models, slashing capital expenditure or forgoing wetlease contracts.

The era of cheap liquidity may have come to an end, aircraft values look set to be impacted, and with it the cheap lease rates that carriers have enjoyed for years. The aviation sector will need to dig deep into its reserves of innovation and versatility to cope with the new reality.

OLIVER CLARK
Editor
Airfinance Journal
oliver.clark@airfinancejournal.com

Editor
Oliver Clark
Tel: +44 (0)207 779 8597
oliver.clark@airfinancejournal.com

Asia finance editor
Dominic Lalk
Tel: +852 2842 6941
dominic.lalk@airfinancejournal.com

Greater China reporter
管沁雨 (GUAN Qinyu); Elsie Guan
Tel: +852 2842 6918
elsie.guan@airfinancejournal.com

Consulting editor
Geoff Hearn

Managing director
Laura Mueller
Tel: +44 (0)207 779 8278
laura.mueller@airfinancejournal.com

Managing editor
Olivier Bonnassies
Tel: +44 (0)207 779 8062
olivier.bonnassies@airfinancejournal.com

Group sub editor
Peter Styles Wilson

Managing director, The Airline Analyst
Mike Duff
Tel: +44 (0)207 779 8058
mduff@theairlineanalyst.com

Advertisement manager
Chris Gardner
Tel: +44 (0)207 779 8231
chris.gardner@euromoneyplc.com

Head of subscription sales
George Wiliams
Tel: +44 (0)207 779 8274
george.wiliams@airfinancejournal.com

Head of Asia subscriptions
Harry Sakhrani
Tel: +65 6422 1482
hsakhrani@theairlineanalyst.com

Business development executive
Jack Pilcher
Tel: +44 207 7797 380
jack.pilcher@airfinancejournal.com

Senior marketing executive
Alyssa Yang
Tel: +44 (0)207 779 8542
alyssa.yang@euromoneyplc.com

Production editor
Tim Huxford

CEO, Financial & Professional Services Division, Euromoney Institutional Investor PLC: Jeffrey Davis

CEO of NextGen Publishing, Financial & Professional Services Division:
Isaac Showman

Euromoney Institutional Investor PLC
8 Bouverie Street, London, EC4Y 8AX, UK
Tel: +44 (0)207 779 8888
Fax: +44 (0)207 779 7329

Subscription hotline:
Tom Johnson
Tel: +44 (0)207 779 8569
accountmanager@airfinancejournal.com

Customer Services: Tel: +44 (0)207 779 8610

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

CLIFFORD CHANCE

A MARKET-LEADING AVIATION TEAM

Our aviation clients around the globe benefit from the forward-thinking advice delivered by our pre-eminent industry specialists across Asia Pacific, Europe, the Middle East and the Americas. We work alongside our clients on their most significant, cross-border, 'first of a kind' deals involving multiple parties and high-value assets while also efficiently counselling them on strategic transaction management.

CDB Aviation bolsters Americas team

CDB Aviation is boosting its Americas commercial team with the additions of Jorge Garcia as senior vice-president and Alan Mangels as vice-president, based in the lessor's Fort Lauderdale offices.

Garcia has almost two decades of experience in aviation and aircraft finance and joins from Aercap where he was a vice-president of leasing.

Mangels joins from Rolls-Royce, where he was vice-president of sales and marketing for business aviation. Previously, he worked at Airbus. Peter Goodman, CDB Aviation's chief marketing officer, says the lessor sees "continued potential for aviation markets within the Americas in terms of future growth".

CDB Aviation Americas head of commercial, Luis da Silva, adds: "Jorge and Alan's deep knowledge of both aircraft financing and aviation sectors, as well as their extensive airline relationships, will bolster our position as a top-tier lessor in the region".


Jorge Garcia


Alan Mangels

SMBC AC appoints Tanaka as chairman

Tomoyuki Tanaka has been appointed as chairman of SMBC Aviation Capital (SMBC AC). He replaces Shinichi Hayashida, who has served as chairman since May 2012. Tanaka was deputy head of the transportation business unit for SMBC AC shareholder Sumitomo Mitsui Finance and Leasing in Tokyo.

He has previously held a series of senior roles within various parts of SMBC AC, including joint general manager in the aviation capital department in London, and general manager and country head in Sydney.

Peter Barrett, chief executive officer of SMBC AC, says: "His appointment highlights the ongoing, close and supportive relationship we have with our shareholders, which is crucial at this time."

Lufthansa Group CFO resigns

Lufthansa will not seek to appoint a successor for chief financial officer Ulrik Svensson for now, and will instead split his role among other departments.

The German airline group said it was "not the right moment" to recruit a new CFO to replace Svensson, who resigned for health reasons in April.

Instead the executive board is being reduced from seven to six members.

Svensson was appointed to his post on 1 January 2017 and had his contract extended in March 2019 until 31 December 2022. His previous roles include CFO of Lufthansa Group airline Swiss.

In December 2019, Lufthansa appointed Patrick Staudacher as the chief financial officer of Lufthansa Airlines as part of a restructuring of the unit.

Cevher Conti joins **Hogan Lovells**

Mehtap Cevher Conti has joined law firm Hogan Lovells as a partner in its New York office. Before joining Hogan Lovells, Cevher Conti was a partner at Arnold & Porter for two years.

Previously, she was in private practice, where she focused on global transportation finance.

Cevher Conti has more than 15 years' experience in finance, particularly in aviation finance. Her broad range of experience includes secured debt and export credit agency-supported transactions, revolving credit facilities, leveraged leases, operating leases, portfolio acquisitions, and asset-backed structured financings and securitisations for commercial and investment banks, insurance companies, financial institutions, aircraft operating lessors and airlines.

Cevher Conti's work in the commercial airline space includes secured debt, export credit agency-supported transactions, sale and leaseback transactions, and aircraft portfolio acquisitions.

Chile's **Sky** names finance chief

Sky Airline has appointed Werner Geissbuhler as its new chief financial officer after its former finance chief, Jose Ignacio Dougnac, was promoted to become the carrier's chief executive officer.

Geissbuhler was formerly the Chilean carrier's head of planning, Dougnac tells *Airfinance Journal*.

Geissbuhler previously worked at Sky for more than three years. Previously, he held financial roles at LATAM and Lan Airlines.


Werner Geissbuhler

Could the ECAs return **in force**?

Olivier Bonnassies reports on whether the Covid-19 crisis will lead to a resurgence in export credit agency guaranteed financing.

Export credit agencies (ECA) act as a complementary source of financing and augment the capacity available in the commercial markets. They may also take on challenging transactions that are not attractive to market participants.

The Covid-19 crisis is different from SARS, 9/11 and the global financial crisis in many respects. In recent years and until the crisis, airlines had never had it so good, says one financier. These years featured aggressive pricing and a wide appetite for financings from traditional banks, new participants and banks that re-entered the sector after long absences.

Furthermore, new asset financing structures were developed over the past five years, notably the emergence of insurance-backed supported structures that benefited from the withdrawal of the ECAs as well as an abundance of liquidity. At the same time, a growing list of carriers succeeded in tapping the US capital markets for the first time.

But the ECAs may become the go-to source of funding over the next 24 months.

"We were very active in the 2008-09 global financial crisis, although this was a liquidity crisis, not an insolvency crisis," points out one representative of an ECA.

At the time, the European ECAs stepped in to finance up to one-third of annual Airbus deliveries while the Export-Import Bank of the United States (Ex-Im Bank) supported about 20% of Boeing deliveries.

The overall level of ECA-guaranteed loans was still in the 30% range in 2012, but activity fell in 2013 to 23%.

There were two reasons for the drop: more liquidity started to emerge in the marketplace, and enforced premium increases for export credit guarantees, implemented under the new Aircraft Sector Understanding 2011 (ASU), pushed up pricing on ECA-supported deals and became more aligned with market rates.

In 2014 and 2015, ECA support dropped to less than 10% of Airbus deliveries but still represented more than 10% on the Boeing side. The UK ECA stopped accepting applications from Airbus in April 2016 after the European manufacturer reported "inaccuracies" in some of its applications to assist the sale of aircraft.

After UK Export Finance (UKEF) launched an inquiry into the matter, other European ECAs, including Euler Hermes and Coface (now Bpifrance), also halted support for financing new aircraft. In 2018, about 1% of Airbus deliveries were funded via the ECAs. *Airfinance Journal* understands that European ECAs supported six Airbus A380 deliveries last year for Emirates Airline and some Boeing 787 transactions.

The ECA capacity used by borrowers over the past few years has been minimal but one banker expects the ECAs to come back because this is the "purpose" they are "designed for".

Another financier is more sceptical. "Like in 2008, everyone is perhaps hoping that the ECAs could support sales financing for the OEMs [original equipment manufacturers]. But after a decade where their commitment has gradually reduced to almost nothing, either because the Ex-Im Bank was practically closed or simply because there was no need to expect that suddenly the agencies will be ready, on short notice, to deliver tens of billions of commitments is an illusion," he says.

He points out that the ECAs are now requesting a thorough and very detailed review of all aspects of a potential deal that makes the process not as flexible as before.

"None of their government packages have hinged on that so far (in the USA and Germany) but this will evolve quickly in the coming weeks," says another banker.

But the ECAs could start becoming active in the latter part of this year and definitely in 2021, says another bank source.

"Most of the deliveries planned for the second and third quarters are committed, although there is a question mark on whether the aircraft will deliver," he says, adding that, in the final quarter and 2021, the market will probably see the ECAs stepping in financing new deliveries.

In his opinion, the ECAs could back about $15 billion to $20 billion of deliveries. His bank would participate in transactions as the ECAs provide guarantees to make good any specific losses incurred by the funding bank in case of an airline default. Even though the credit risk for banks does not directly lie with airlines but with the sovereign risk of the ECA giving the collateral, the banker says that credit risk will be more scrutinised.

"At the moment, the Ex-Im Bank is authorised to do deals, but it has not. The European ECAs returned to the market last year and apart from some A380 transactions for Emirates, their activity was limited to some 787 deliveries, notably with SACE and UKEF."

There are rumours that some aviation banks have paused their lending activities and the banking market may shrink. However, the participation of the banks is expected to increase under ECA-support options, according to one banker.

This will also signal a return to the ECA market of the banks that have aircraft financing in their DNA, he adds. The banker also anticipates an increase in OEM financing.

Boeing was hopeful that the Ex-Im Bank would return last year after it built a full quorum for the first time since 2015. In its last Current Aircraft Finance Market Outlook, published in 2019, Boeing Capital anticipated a need for $143 billion to fund growth, compared with $126 billion in 2018.

The OEM expected the ECAs to represent 7% of the deliveries, up from the previous year's 4% when the funding requirements totalled $126 billion.

The aircraft finance market has been extraordinarily healthy over the past five years, but two years ago BCC president, Tim Myers, told *Airfinance Journal* that export credit remained a necessary tool in a downturn. "This is a competitive issue for Boeing and a practical one for our international customers who depend on the Ex-Im Bank," he said.

In a recent interview with *Airfinance Journal*, Dan da Silva, Boeing Capital's vice-president of strategic regulatory policy, welcomed the return of the Ex-Im Bank, describing the agency as a "critical component in the aviation finance eco-system".

In the absence of Ex-Im, Boeing has over recent years struck up cooperation from other national agencies such as SACE and UKEF. The OEM has also secured cooperation with other national ECAs, including a deal struck in late 2018 with Export Finance Australia.

In 2020, Emirates is planning to finance new A380 deliveries in the ECA market, says sources. The ECA representative says this time it will be different. "It depends on the volume of deliveries from Airbus and Boeing as production has reduced."

After a record year of 868 deliveries at Airbus, the number of deliveries is set to plunge in 2020. As for Boeing, the number of deliveries this year is heavily dependent on whether they include Max aircraft or not.

The other question is whether airlines will take delivery of committed aircraft. "Airlines are discussing with the OEMs about deferring aircraft," he says.

If mass deferrals do happen, the ECA source asks: "How will the private and commercial market react?"

Airline market caps stage **dramatic recovery**

After suffering large falls in their share prices in March, airlines around the world experienced a significant recovery in their market capitalisation values in the first weeks of April, *Airfinance Journal* analysis shows.

The exposure of airlines to the impact of the coronoavirus pandemic was laid bare in March when 90 global airlines surveyed by *Airfinance Journal* shed a combined $106 billion in market capitalisation.

On average, the 90 listed airlines surveyed lost 38% of their market values during the month but there were wide variations, with worst performer Avianca losing a whopping 74% while the best performer, China Express Airlines, actually gained 3% in March.

Arguably, the most noteworthy four decliners were all from South America, with Avianca shedding 74% of its market capitalisation, leaving it at just $111 million, followed by Azul falling 71% to $1.74 billion, LATAM by 67% to $1.38 billion and Gol by 65% to $667 million.

US heavyweight United Airlines was the fifth-worst decliner in March, losing 64% for a new market capitalisation of $5.68 billion as of 31 March, 2020. American Airlines and Delta Air Lines both lost 61% in March trading, resulting in updated market capitalisation of $4 billion and $14.5 billion, respectively.

The US airlines least affected were pure cargo operators: aviation holding company Air Transport Services Group's market capitalisation was -3% down at $1.03 billion, Atlas Air (-24%; $524 million) and low-cost pioneer Southwest Airlines (-34%; $15.8 billion).

International Airlines Group's (IAG) market capitalisation fell 59% between 28 February and 3 April, making it the worst-hit European carrier after Polish charter specialist Enter Air (down 63%) and one of the most impacted of all publicly listed airlines.

Despite much of the world heading into or remaining in lockdown in March and April, aviation traffic falling by some 70% according to IATA and the USA becoming the epicentre of the Covid-19 crisis, airline shares staged a dramatic recovery in the first two weeks of April.

While trends are difficult to gauge as the range from smallest to biggest changes is so wide, the total market capitalisation gain was $23 billion.

The most dramatic gains were the 93% and 90% improvements of Thai Airways and Turkish Airlines.

Air New Zealand and LATAM also made significant recoveries of 57% and 63%, after being two of the biggest fallers in March.

The largest falls during the first half of April were 34% for Norwegian Air Shuttle, 25% for Kenya Airways, 13% for Icelandair and 11% for Comair.

Norwegian continues to be a source of concern for investors, sources tell *Airfinance Journal*, with a controversial debt to equity plan set to be put before shareholders at an extraordinary general meeting in May.

The Scandinavian carrier's ability to secure much needed government guaranteed financing hangs on its ability to secure support from its creditors for the equity plan.

Perhaps surprising, Virgin Australia gained 19% despite the ongoing publicity about their financial solvency culminating in their voluntary administration on 20 April.

> *“On average, the 90 listed airlines surveyed lost 38% of their market values during the month but there were wide variations, with worst performer Avianca losing a whopping 74%.”*

Other Australian carriers also experienced a market capital value upswing in the first two weeks of April, with Regional Express Airlines up 34% and flag carrier Qantas Airways stock rising 29%.

Spicejet rose 19% during the period. The Indian airline received a $16 million equity boost in early April when HDFC Trustee Company, a subsidiary of Mumbai-based Housing Development Finance Corporation Limited, acquired 34 million shares, representing an approximately 5.5% stake budget carrier.

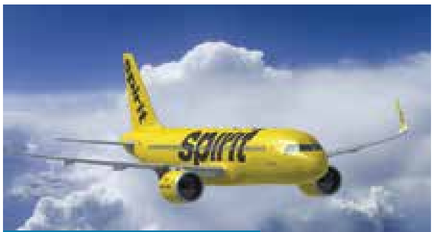
US carriers Mesa Air and Spirit Airlines staged impressive recoveries. After shedding 63% in March for new market caps of $70 million and $719 million, respectively, Mesa recovered 56% while Spirit's stock value rose 27%.

Other noteworthy recoveries include Nok Air, (55%), Enter Air (54%), Pegasus Airlines (51%) and Copa Holdings (42%).

Avianca lost 74% of its market cap in March

United was the fifth-worst decliner in March

Thai gained 93% market cap in early April



Spirit recovered 27% in the first two weeks of April

Easyjet's market capitalisation, which had diminished by 57% in March, experienced a 37% recovery in the first weeks of April.

The UK carrier secured more than £1 billion ($1.2 billion) of debt after drawing down on its $500 million revolving credit facility and a short-term bridging facility through the UK government's Covid-19 business support scheme.

It has also said it will raise between £400 million ($490 million) and £550 million through the sale and leaseback (SLB) transactions of part of its owned fleet.

The US majors, which have now outlined the payroll assistance they are seeking under the USA government's Coronavirus Aid, Recovery, and Economic Security (CARES) plan, also staged a market capitalisation recovery.

United's market capitalisation rose 27%, American by 23% and Delta Air Lines by 8%. Other US carriers also experienced gains, with Jetblue Airways up 20%, Alaska Air Group, 21% and Atlas Air 23%. Regional carrier Skywest's market capitalisation rose 29%.

Avianca, which had experienced one of the biggest drops in March, recovered 36% over the period.

Asian budget carriers Bangkok Airways and South Korea's T'way Air were up 32% and 31%, respectively.

Air Canada rose 26%, while Wizz and Gol were both up 29%.

A number of airlines experienced only very modest improvements or flat market capitalisation values during the period.

Royal Jordanian Airlines' value did not move, Southwest, Croatia Airlines and Aeromexico saw improvements of just 2%.

Some large carrier groups with significant liquidity or access to it, also experienced only very modest improvements, with China Southern Airlines up 3%, Air China up 4%, Lufthansa and China Eastern Airlines up 4%.

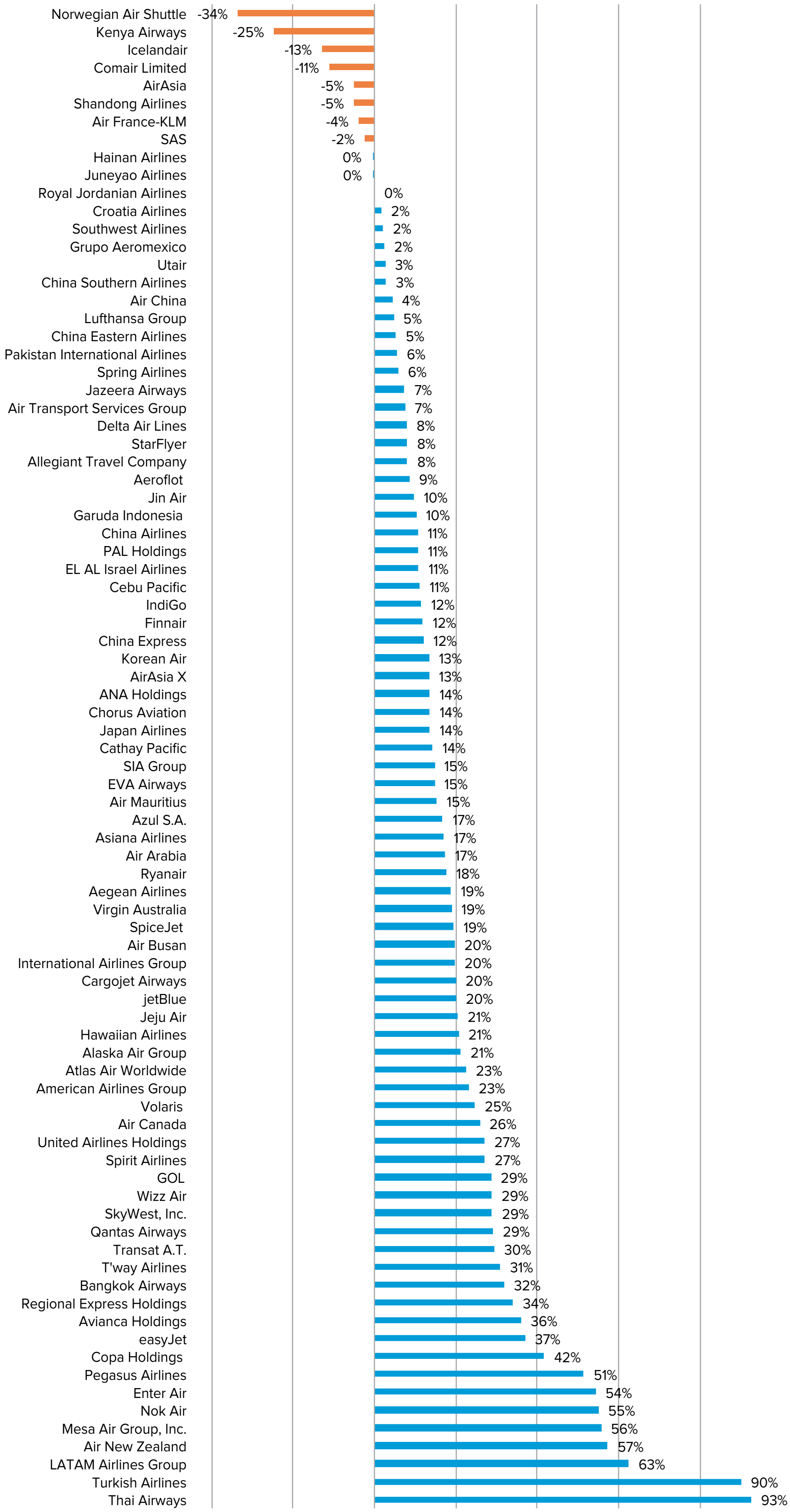
SAS fell a modest 2%, Air France-KLM was down 4% and Air Asia shares fell 5%.

Cargo carriers performed well as their access to revenues were less dramatically curtailed than airlines that are reliant on passenger traffic.

Canada's Cargojet lost just 2% of its value during March and rose 20% in the first two weeks of April.

American cargo specialist ATSG had fallen 3% in March, but recovered and rose 7% in first two weeks of April.

Airline equity market capitalisation change 3-17 April, 2020



Source: *Airfinance Journal* analysis based on airlines' share prices

Airbus and **Boeing** shore up liquidity amid coronacrisis

OEMs have tapped numerous sources to bolster their financial positions to weather the impact of Covid-19. **Laura Mueller** and **Olivier Bonnassies** report.

Since the coronavirus began blighting the global airline industry in the first months of the year, Boeing and Airbus have sought to secure additional liquidity to see them through the peak of the crisis.

Boeing has requested $60 billion in government aid to support the broader US aerospace manufacturing sector, which has ground to a near standstill as Covid-19 continues to spread.

"Boeing supports a minimum of $60 billion in access to public and private liquidity, including loan guarantees, for the aerospace manufacturing industry," the Chicago-based company said in a 17 March statement. "This will be one of the most important ways for airlines, airports, suppliers and manufacturers to bridge to recovery."

The aircraft manufacturer said the hefty bailout would protect more than 2.5 million jobs. On the evening of 17 March, US President Donald Trump said he would support a bailout for Boeing and the wider US aviation industry.

Earlier in the day, S&P Global Ratings downgraded Boeing's issuer credit and unsecured debt ratings to BBB from A-, saying the OEM's cash flow and credit ratios would be weaker than expected for the next two years.

The ratings, which remain on CreditWatch with negative implications, reflect the agency's new expectation that Boeing will post a cash outflow of $11 billion to $12 billion in 2020 and an inflow of $13 billion to $14 billion the year after, compared with previously expected inflows of $2 billion and $22 billion for those years.

The lower forecast is mainly due to the continued grounding of Boeing's troubled 737 Max programme as well as 787 production rate cuts and delayed entry into service of the 777X series.

The rating agency also warned that the impact of Covid-19 on global air travel could lead to significant deferrals in aircraft deliveries from 2020, further pressuring Boeing's cash flows. The pandemic could also complicate the return to service of the 737 Max, depending on how long air travel remains subdued.

S&P affirmed Boeing's short-term ratings at A-2 and placed them alongside the long-term ratings on CreditWatch with negative implications, indicating that a downgrade could come over the next 12 to 24 months if the agency perceived that Boeing's cash flow was even weaker than expected due to the 737 Max groundings and Covid-19 effects.

On 17 March *Airfinance Journal* reported that Boeing could be walking toward a $20 billion convertible loan play with Berkshire Hathaway on the back of news that the OEM was in talks with senior White House officials about short-term assistance following the global collapse in air travel. Berkshire Hathaway is very familiar with the aviation sector, with exposure to Boeing's supply chain and stakes in four major airlines.


Boeing says a bailout would protect more than 2.5 million jobs

> *"Boeing supports a minimum of $60 billion in access to public and private liquidity, including loan guarantees, for the aerospace manufacturing industry."*

Boeing has already drawn down a $13.8 billion loan and taken measures to preserve cash including a hiring freeze.

The US manufacturer has now begun restoring operations at some sites where work had been suspended. This includes its Puget Sound and in Heath, Ohio facilities, but its South Carolina production site remained closed at the time *Airfinance Journal* went to press.

Boeing has said that it is opposed to the US Treasury taking up a stake in the OEM as part of conditions for the $60 billion bailout it is seeking.

"I don't have a need for an equity stake," Boeing chief executive officer David Calhoun told *Fox Business*. "If they force it, we will look at all the other options, and we've got plenty of them."

Boeing has said it would use any liquidity support to make payments to suppliers to maintain the health of its supply chain until the market recovers.

Calhoun also said he expects the 737 Max to receive US FAA approval to return to service in early summer.

The OEM said the suspension of operations at both facilities was taken in light of the company's "continuing focus on the health and safety of employees, current assessment of the spread of Covid-19 in Washington state, the reliability of the supply chain and additional recommendations from government health authorities," Boeing says.

An added benefit of the extended halt is that it will also help ease Boeing's cash burn rate, say market sources. According to Jefferies, the OEM burns through $4.3 billion of cash a month with a complete suspension of deliveries.

Boeing's Calhoun told *CNBC* last month that the company has $15 billion in liquidity and can survive in the short term.

"The delay will also give Boeing more time to assess the shape of the recovery," a market observer adds.

Airbus

In late March, Airbus secured a new credit facility amounting to €15 billion ($16.1 billion) in addition to an existing €3 billion revolving credit facility.

At the time the OEM said this meant it would have "significant liquidity" available to cope with additional cash requirements related to the coronavirus.

Liquidity resources previously stood at approximately €20 billion, comprising around €12 billion in financial assets at hand and around €8 billion in undrawn credit lines.

An existing €5 billion credit line was drawn into the new €15 billion facility to give it €30 billion in total liquidity.

To further reduce the impact of Covid-19, the European OEM has withdrawn its 2019 dividend proposal of €1.80 a share, with an overall cash value of approximately €1.4 billion, in addition to the suspension of its voluntary top-up pension funding.

The OEM followed its financing efforts with a three-tranche €2.5 billion bond transaction was oversubscribed by more than 4.5 times, with an estimated €5.7 billion worth of orders placed for the longest tenor bond.

Airbus priced its multi-tranche €2.5 billion unsecured bonds well below its initial price talk.

The European manufacturer achieved a 40 basis points (bps) pricing on each of the three tranches landing the five-year at 195 bps, the eight-year at 215 bps and the 12-year at 240 bps.

Leads opened books on a five-year bond at swaps plus 235 bps area. The eight-year bond opened at plus 255 bps and a 12-year at swaps plus 280 bps. The 12-year was also the biggest tranche, coming in at €1 billion, priced at 2.375% coupon.

The five-year and eight-year tranches were both sized at €750 million, and received orders of more than €3 billion and €2.7 billion, respectively. The five-year fixed coupon rate priced at 1.625%, while the eight-year fixed coupon rate priced at 2%.

French banks BNP Paribas, Credit Agricole-CIB and Societe Generale-CIB as well as HSBC Bank and JP Morgan are the global coordinators of the bond issuance. The same banks were mandated lead arrangers of the European manufacturer's earlier €15 billion credit facility.

Unicredit Bank, Banco Santander and Natixis are active bookrunners in the transaction.

Other bookrunners on the first tranche include Bank of America, Goldman Sachs and Natwest Markets.

On the eight-year fixed coupon rate Commerzbank, Deutsche Bank and SMBC are bookruners while Banco Bilbao Vizcaya Argentaria, Mizuho and Royal Bank of Canada are also bookrunners on the 12-year tranche.

In mid-April, Airbus chief executive officer Guillaume Faury has been quoted in an interview with *Der Siegel* as stating that the company does not want to apply for state aid during the coronavirus pandemic, but he is not ruling it out either.

The aircraft manufacturer has withdrawn full year guidance for 2020.

In a video address on 17 April, Faury said that the proceeds of the OEM's new €2.5 billion bond would be available from the second quarter of 2020. In addition to raising new liquidity the OEM had launched a number of "cash containment measures", while at the same time addressing long-term cost structure of the company.

In view of the fact that air travel has "collapsed" and airlines have reduced their capacity and revisited their capital expenditure plans, Airbus is reducing production by approximately a third compared to pre-Covid 19 levels.

Airbus admitted that it is hurting from the collapse of the global economy amid Covid-19, as deliveries have been delayed because of the pandemic and corresponding travel bans. The silver lining, however, is that China has started accepting deliveries again, albeit slowly.

Airbus resumed production at its French and Spanish assembly sites after a momentary pause in March. The European OEM has however revised down its production rates to adapt to the new Coronavirus market environment.

The new average production rates going forward have been set as 40 A320 family aircraft a month, two A330s a month and six A350s a month.

No indication of A220 production rates were provided, but in the first quarter the manufacturer delivered three A220-100s and five A320-300s.

The OEM has temporarily halted production at its Mobile, Alabama assembly line until the end of the month, and at its Bremen plant until 27 April.

In March, Moody's Investors Service downgraded its outlook for the global aerospace and defence industry to negative from stable as the uncertain duration and spread of the coronavirus outbreak has led to deep capacity cuts and financial stress for passenger airlines.

"Contagion from the coronavirus crisis will slow the long-running commercial aerospace upcycle, and the relatively stable defence business is no longer sufficient to mitigate the downturn," says Russell Solomon, a Moody's associate managing director.

The ratings agency writes in a report that it expects airlines and aircraft lessors to delay deliveries of commercial aircraft to lessen the strain on their balance sheets. There is also the potential for weaker passenger demand following the crisis, it adds.

Production at the Airbus Alabama assembly line remained suspended until the end of April

Turbulence in the **corporate bond market**

The onset of the coronavirus pandemic led to a blow out in the yields on lessors' bonds in March. Could the era of cheap borrowing now be over? **Oliver Clark** reports.

The corporate bond market has been an important source of cheap capital for the world's aircraft lessors in recent years.

The extremely attractive long-term financing environment of low rates offered by the bond market helped to fuel the growth of Aercap, Air Lease and Avolon, among others.

Airfinance Journal analysis shows that the total public debt outstanding among major lessors is in excess of $51 billion and the weighted average coupon of the outstanding fixed-rate debt is 4.2%.

This excludes private placements such as the record $858 million transaction closed by Nordic Aviation Capital in February 2020. There are also two floating-rate note issues outstanding.

But as the spread of coronavirus (Covid-19) has wreaked havoc in the aviation sector, yields on the lessors' bonds have blown out as investors baulk at the prospect of multiple airline defaults and bankruptcies leading to a glut of aircraft coming onto the market.

Data shows that yields on 2024/25 public bond maturities have reached 8-10%. If such debt cost becomes reality for future issuance, lease yield factors would need to increase by 0.33-0.50% per month to preserve lessor spreads and return on equity.

The data reveals the amazing resilience of BOC Aviation, while Fly Leasing and China Aircraft Leasing (CALC) remain the outliers on the high side. A number of lessors have seen their yields tighten significantly since blowing out in late March.

A saving grace is that 2020 bond maturities are modest. Assuming no prior covenant breaches, the crunch comes in 2022 and 2023.

But will the bond or bank markets be open for refinancing or will the lessors have to use existing cash or sell aircraft to meet bond maturities? How many buyers of aircraft portfolios will there be? Will they be able to get financing?

In an interview with *Airfinance Journal*, CDB Aviation chief executive officer Patrick Hannigan said he expected the Covid-19 crisis to push up credit spread and lease rates as the industry moves into a more "disciplined" phase of activity following years of ample cheap liquidity.

"Credit spreads are widening considerably for a lot of lessors, particularly the publicly traded platforms. The smart lessors got in as soon as they could and accessed whatever capital was available in the last few weeks, drawing down on their revolving credit facilities (RCFs) and large facilities, but it's getting more expensive," he says.

> *"Credit spreads are widening considerably for a lot of lessors, particularly the publicly traded platforms."*
>
> **Patrick Hannigan**, chief executive officer, CDB Aviation

"Some of these operators are not going to be able to borrow at near the same levels they could a matter of weeks ago, so the market could change considerably later in the year. Access to liquidity will be key.

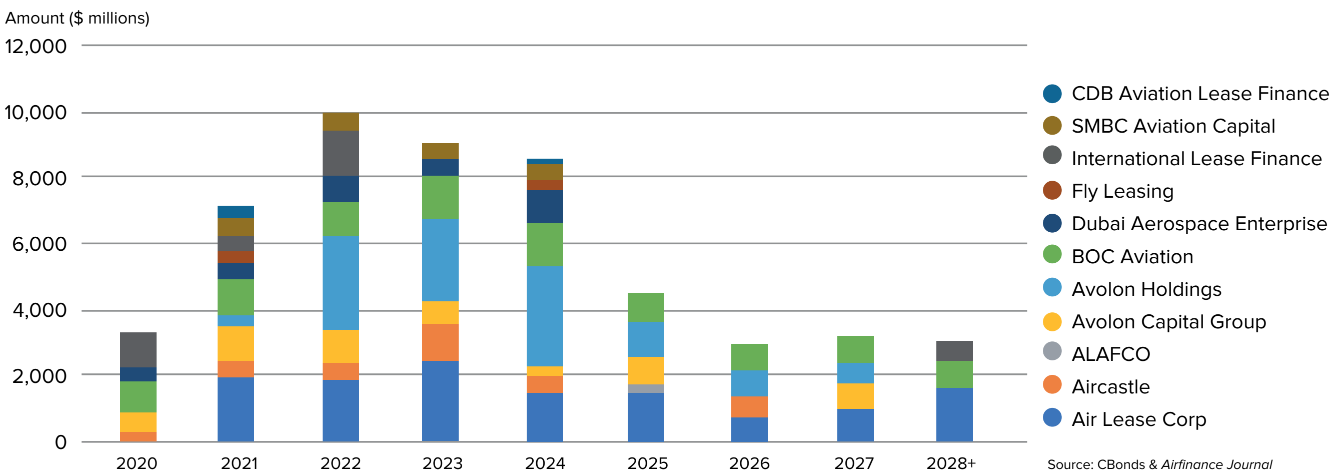
"I expect lease factors to go up, it's as simple as that," he added.

So have the days of cheap finance for lessors in the bond market ended?

"I think the financing markets should settle in the coming weeks and be open at a price for the larger lessors," says a financier.

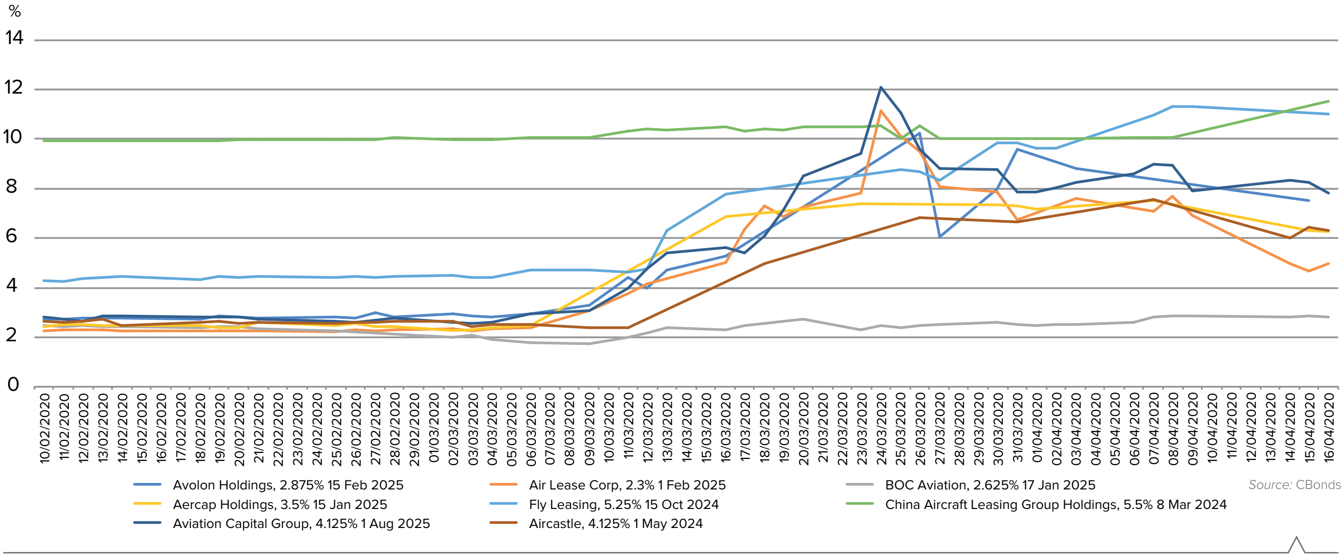
"Pricing had got silly so a gentle re-base was probably required but importantly I don't see any of the larger lessors having a need to do anything immediately. I don't see them doing any portfolio sales – as the

Lessor public bonds and FRNs maturities as of March 2020



Source: CBonds & *Airfinance Journal*

Lessors' Unsecured Bonds Indicative Yields



smaller guys won't perhaps be able to raise finance to complete a purchase.

"But equally I don't see any of the larger guys being inclined to buy assets from the smaller lessors, even at knock down prices, as I don't see why you'd help out a lesser competitor...rather, if the larger players have firepower then I would expect them to use that with airlines and manufacturers to cut deals within deals to get through this period. The time for critical mass to flex its muscle is now," he says.

Another banking source says the turbulence is such that deals priced on one day can be more 100 basis points out 24 hrs later. They said lessors could face a major challenge raising capital to fund their existing orderbook, and dwindling demand for their existing fleet.

Another industry source points out that lessor bonds have been trading "fairly thinly" in the secondary market and yields suggest "some distress" at present.

Outside the aviation sector, there was record volume of new issuances in late March from investment-grade entities, where in some cases new issue premiums were negative. This indicates the corporate bond market is "generally pretty healthy" with good investor demand, the source says.

Should the Covid-19 crisis be prolonged, the lessors' steady progress towards ever greater use of unsecured debt may slow or even go into reverse.

"It will be very slow to come back because I think people are very concerned," Marjan Riggi, head of aviation, transportation and commercial finance at the Kroll Bond Rating Agency (KBRA), tells *Airfinance Journal*.

"We are going to be in a very new environment. Is it easy to predict? No, I think it's a given that you are going to have a post-Covid-19 world and we don't know what shape it will take but it will likely be a risk-averse world.

"You can do short-term deals to get you over this crisis and try to refinance or pay off those high priced debt later, but most large lessors have liquid balance sheets and won't need to use the capital markets at least in the short term.

"Leasing companies' profitability in particular a spread game between what you earn on leases and what you pay for your financing and now that spread has really widened, and it's unlikely that it will go back to the very tight levels we saw before the crisis."

Strong fundamentals

To ascertain the significance of Covid-19 to corporate bond financing there are many moving parts that need to be considered.

The larger lessors that typically tap this market with multi-billion issuances generally go into this crisis in a robust business state, with strong balance sheets, ample liquidity in various forms and significant unencumbered assets.

This gives them some flexibility when it comes to financing, allowing them to switch to sale and leaseback transactions, private financing or relying on credit lines to sustain their capital requirements in any period of prolonged turbulence in the bond market.

"Most lessors have good liquidity. They have high levels of unencumbered assets and have been moving toward unsecured balance sheets. We note also that most don't have bullet maturities due in the next few months and if they do, they have liquidity to cover them," says Riggi.

"Why would they go to market now if they don't need to with the spreads widening significantly in the market – it makes no sense," she adds.

Another factor to take into account is lessors' capital expenditure plans (Capex), and whether these are impacted by the Covid-19 crisis.

A number of factors could dampen demand for new deliveries: the financial impact of Covid-19 on airline balance sheets; a significant number of airline failures and a global recession in the wake of the virus; or a disruption to aircraft production.

"You have to readjust it and they are doing that. Everyone is in negotiations as we speak and I think, especially with the fact that some of the manufacturing plants are closed - whatever delivery window you had before Covid it's reasonable to think this has to be moved to a later date," says Riggi.

A bank source tells *Airfinance Journal* that there is an impression in the market that many financiers have paused for business and to a large extent are focusing their attention on managing exposure and supporting existing clients.

"No lessor will be immune from the existing crisis, although some may be affected more than others. The largest leasing companies may be better able to cope with the current situation because of their stronger liquidity position, which would allow them to support customers not only by accepting deferral but also by opportunistically doing new sale and lease backs," the source says.

"Lessors that have strong investor backing look well placed to weather any turbulence in the bond market at least in the short term. State-owned or state bank-owned lessors can rely on the support of their parent and enjoy an enhanced credit rating through their association."

Riggi also flags lessors' differing support. "There is a difference among the lessors and their ownership structures, some of them are owned by deep pocketed sovereigns or private equity firms. There are others that are not – they are publicly listed, some have big order books, some don't."

ABS market set for pause after flurry of deals

The aircraft asset-backed securities market risks stalling amid virus uncertainty, reports **Olivier Bonnassies**.

There was a vague air of optimism in mid-January, when the commercial aircraft asset-backed securities (ABS) market was predicted to surpass 2019 volumes.

"There should be a good level of ABS activity in 2020. The first quarter seems to be booming with deals that will be announced over the next few weeks," said Milbank's Drew Fine at the *Airfinance Journal* Dublin 2020 conference.

Indeed, in the first two months of the year, ABS transactions across five issuances totalled $2.26 billion – a quarter of last year's total. This compared with one issuance, MAPS 2019-1, over the same period in 2019.

However, the initial momentum has stalled because of the coronavirus pandemic, and there are now doubts whether this year will match the ABS volumes of 2019.

"There are about 10 ABS in the first-half-of-2020 pipeline. However, all but four of them are 'pencils down' subject to evaluating the market due to the coronavirus," said a source at the end of the first quarter.

"There are four ABS where work is continuing, but at a slower pace. The idea is to have these deals ready to go when the market opens up," said another source at the time.

Another source tells *Airfinance Journal* that three ABS deals in the pipeline were pulled in March, mainly because of a lack of equity note (E-note) liquidity. The pricing of the A and B tranches was also an issue.

"Recent, highly structured tradable E-notes have not gained traction and without them being saleable then issuers don't get sales treatment," says the source.

"ABS will only deliver the debt part of the transaction as the equity market is closed," says another source.

Some experts think that the next ABS will only include debt issuance because E-notes, given their first-loss status, are the hardest to sell.

The capital markets are still open for certain issuers and products, remarks one source. On 5 March, Delta Air Lines priced a dual-tranche enhanced equipment trust certificates (EETC) transaction totalling $1 billion to finance a portfolio of 27 narrowbodies (five Airbus A321s, 22 Boeing 737-900ERs) and six A330-300s that were delivered new between August 2014 and April 2017.

The $795.9 million class-AA pass-through certificates, series 2020-1, priced at 2%. The initial loan-to-value on the senior tranche is 54%. Weighted initial average life is 6.2 years.

The $204.1 million class-A pass-through certificates, series 2020-1, priced at 2.5%. The initial loan-to-value is 67.8%. Weighted initial average life is 5.4 years.

Initial momentum

The aircraft ABS market picked up in the second quarter of last year with $4.45 billion of issuances and, in October, when another $3.9 billion of deals were issued.

Airfinance Journal recorded 17 transactions worth $8.8 billion last year, up from $7.3 billion the previous year.

This year's activity included some issuances that were in the pipeline since the end of last year but could not close because of market conditions.

There has also been diversity in asset classes, with two transactions including engines only.

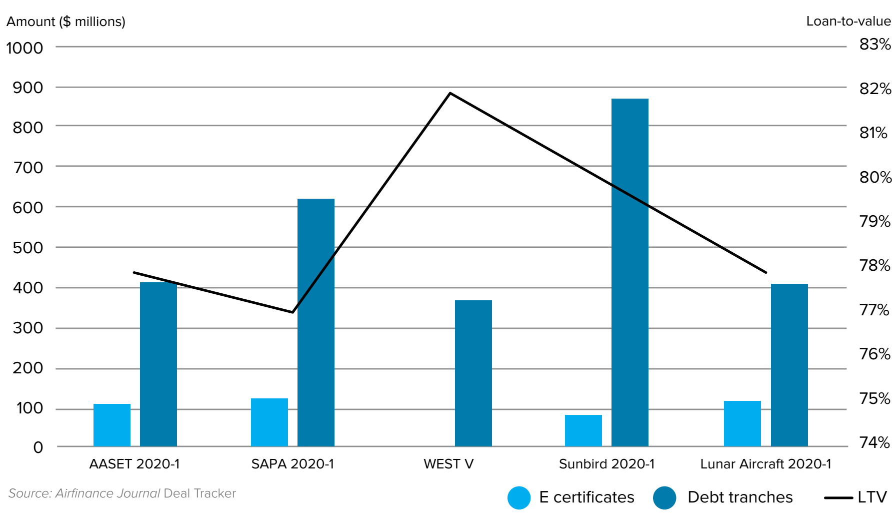
Total Engine Asset Management (TEAM), the joint venture between ST Engineering and Marubeni, launched its inaugural securitisation, Sunbird 2020-1, in February. The proceeds from the three-tranche $257 million transaction will acquire 30 commercial jet engines. The deal closed early in March and $81.3 million of equity notes were issued in the market.

Also in February, Willis Lease Finance (WLFC) issued, via special purpose vehicles (SPVs), its fifth ABS. Willis Engine Structured Trust V (WEST V) was also its third issuance since August 2017. WLFC, seller of the assets to West V along with several WLFC affiliates, retained a position as an E-certificate holder, consistent with similar investments made by the lessor in previous WEST transactions.

Other transactions included a return to the ABS market for DVB Bank. It issued and closed Lunar Aircraft 2020-1, a $409 million three-tranche deal including $325.5 million of A notes at a 3.37% coupon. The $53.6 million B notes priced at 4.33%, while the coupon on the C notes was 6.41%.

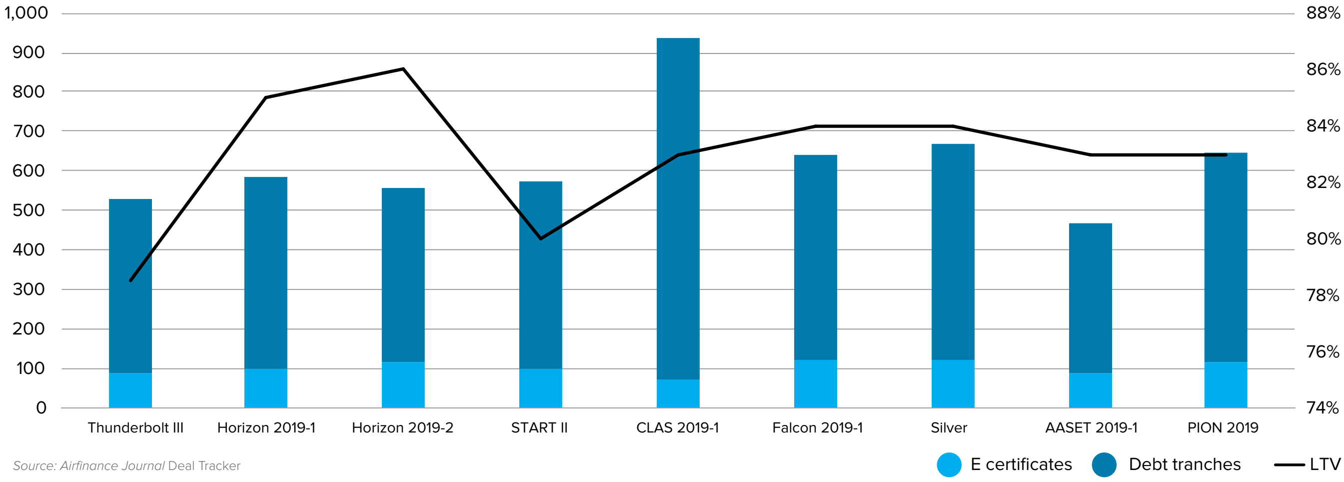
Lunar Aircraft 2020-1 included $117 million of equity notes and Stake Bay Recovery, an affiliate of Sculptor Capital, purchased the equity certificates. The transaction is subject to a lock-up

Aircraft ABS issuances in 2020 (AFJ Deal Tracker, 9 March 2020)



Source: *Airfinance Journal* Deal Tracker

Aircraft ABS issuances featuring E-notes in 2019



Source: *Airfinance Journal* Deal Tracker

agreement that requires it to hold 51% of such equity certificates through the two-year anniversary of the closing date and at least 25% of the equity certificates through the four-year anniversary of the closing date (27 February 2020).

Marketing for DVB's other ABS deal, the $629.8 million KDAC 2020-1, was announced in late January but has not proceeded to issuance.

"KDAC already closed several years ago and KDAC 2020-1 is a refinancing, so they have the luxury to wait until the market is better," says a source.

Carlyle Aviation Partners was first in the market in late January with an ABS that issued E-notes. Certain entities affiliated with Carlyle were to acquire collectively a minority portion (5%) of the equity.

Secondary market

In Dublin, Mark Streeter, managing director of airline/aircraft credit research for JP Morgan, pointed to the relatively low appetite for secondary trading in the aircraft ABS market.

"In terms of liquidity in the secondary market for ABS aircraft versus credit cards, you get a sense some of the ABS aviation sector is lagging," he said in January. "Even if triggering-in activity is up, turnover is still less than any other sector."

Kristine Liwag, vice-president, Bank of America Merrill Lynch Global Research, agreed that the industry would be looking at secondary trading volumes.

"There is appetite for issuances, but investors are also looking at how they can trade in the secondary market. Will there be enough liquidity beyond the initial issuances?" she asked at the time. "In 2019, there was an increase in the number in terms of volume and an increased number of investors. Secondary trading is something the market will be keeping an eye on."

In 2019, the aircraft ABS market further evolved. One ABS transaction featured Japanese leases while there were a couple of issuances matching ABS with equity.

Milbank's Fine has predicted further efforts to mix and match various products going forward.

"There will also be a desire to put more flexibility into ABS transactions and maybe move stuff in and out. There will be loans and leases mixed together," he said in Dublin. However, the commercial aircraft ABS market may take pause as a result of Covid-19 and investment appetite.

Black Monday and access to capital markets

The impact of Covid-19 on airline networks, schedules and on global growth is fundamental and investors in aviation now face a short-term threat to yields.

Yields on government bonds have declined significantly over the past few years and aircraft investors have turned to alternative asset classes, which offer comparatively attractive levels of risk-adjusted returns.

The bond market has been flashing various warning signs over the past 18 months. The yield curve began to invert in late 2018. The spread between the 10-year treasury yield and the three-month treasury yield was first inverted in March 2019 while the spread between the 10-year rate and the two-year rate inverted last summer.

Last September, the five-year Eurozone government AAA-rated bond yield reached -0.85%, compared with -0.26% in March 2019.

Despite the relief caused by supporting measures from the US Congress, risk sentiment has remained negative. On the back of the Federal Reserve slashing interest rates by half a percentage point in early March, the first such emergency cut since the 2008-09 financial crisis, investors took refuge in US government bonds on 9 March amid the growing coronavirus threat and signs of a sudden price war between oil producers.

The surging demand led to an increase in the price of US treasuries, dragging down yields to record lows. This sent the entire US treasury yield curve below the 1% mark for the first time. The yield on the benchmark 10-year treasury touched a record low of less than 0.4% before ending the day at 0.64%. The 30-year treasury yield broke the psychological level of 1% – an unprecedented event – before ending the day at 1.2%.

This raises the question of whether capital markets could dry up as a funding source. That is a "definite scenario", according to one source.

"I would suggest it is already there given how badly the aviation sector has been hit. Other products, trading at a discount, are also attracting capital away," he says.

There is also the possibility of a significant decline in aircraft ABS issuances this year.

"Investors will see an industry in turmoil and there will be some casualties and some consolidation. Therefore, they will want clarity on these issues before turning on the spigot again. There will be a need to watch airline credits," adds the source.

Another source says: "If the current interruptions last only for a few months, the ABS market has shown that it can rebound quickly. After the turbulent markets in the first quarter of 2019, which resulted in only one ABS in that quarter, nine aircraft ABS closed in the second quarter."

Liquidity **‘not a problem’** for CALC

The Covid-19 pandemic is disrupting the industry, but China Aircraft Leasing (CALC) continues at full speed ahead as its founder and chief executive officer Mike Poon explains to **Dominic Lalk**.

China Aircraft Leasing (CALC) chief executive officer Mike Poon is using a steady hand to guide the Hong Kong-based lessor through the Covid-19 pandemic – or “World War Three” – as he describes it.

The leasing executive is convinced that some of the smaller lessor players will fold over the coming months but he tells *Airfinance Journal* that CALC won’t be among the casualties.

Chinese airlines comprised approximately 65% of CALC’s fleet of 139 aircraft (self-owned and managed) as at 31 March 2020, the majority of which are state-owned carriers with strong liquidity. These shield CALC from disruption in international traffic given the strong domestic rebound in China.

“Our portfolio is in really good shape but of course the biggest concern is that no one knows what will happen, when this virus is going to end. There’s a lot of unpredictability. For airlines in China it is fine because they have a huge domestic network but for airlines outside China it is a lot more uncertain,” says Poon.

He notes that the majority of the lessor’s non-Chinese clients are flag carriers or backed by strong shareholders which greatly lowers the associated risks.

“Unexpectedly, quite a number of our lessees haven’t asked us for any rental/lease concessions at all. We have always been very selective when choosing our airline partners and I think this is paying off now because seriously not that many airlines have been asking us for help,” says Poon.

CALC also benefits from a number of other factors that provide it with a relative advantage compared to some of its Asia-Pacific-based lessor peers.

More than 93% of CALC’s portfolio comprises narrowbody aircraft, which despite the Covid-19 crisis remain a comparatively liquid asset class, and which are projected to remain in good demand once domestic and regional services resume. It also helps that CALC has few aircraft that need to be remarketed in the coming years.

"The majority of our aircraft still have long remaining lease tenors. We only have three aircraft that are coming off their lease terms this year and that need to be remarketed so that's a relative advantage for us. We are now in the process of signing lease extensions for these three units," says Poon.

CALC was expecting to take delivery of 19 narrowbody aircraft in 2020 – three Boeing 737 Maxs and 16 Airbus A320neo-family aircraft. Poon thinks that the deliveries of the 16 Airbus units will go ahead as planned but he is less certain of the Max aircraft.

"We were scheduled to receive only three 737 Max aircraft this year and the Chinese lessee is waiting for the aircraft, but of course we cannot say what will happen to the deliveries, it might not even be this year, no one knows, it all depends on the FAA [Federal Aviation Administration] and other regulators," says Poon, noting that the "Chinese lessee still wants the aircraft".

While lessor peers Avolon, GECAS and CDB Aviation cancelled or restructured their 737 Max orderbooks in April, CALC says it is not in a hurry to do so because the majority of its Max deliveries aren't scheduled within the next 12 months, allowing it time for pause, reflection and market observation before making a final decision.

CALC had placed firm orders for 100 737 Maxs but converted eight of them into two 787-9 widebodies delivered and leased to Bamboo Airways in 2019, leaving it with 92 remaining 737 Max commitments.

"Are we concerned with low 737 Max lease rates, sure, everybody is. I'm not bearish on 737 Max lease rates at all to be honest but this doesn't actually apply to the Max only. Lease rates of new aircraft models are generally very low if compared to historical figures, especially on the second leases," says Poon.

"One thing is certain: This year a number of players will be forced to exit the sector and hopefully that will stabilise rates going forward," he adds. Poon thinks that CALC's 16 A320neo-family deliveries in 2020 will go ahead as planned.

"For now, I expect that they can all be delivered by the end of this year but it could really become subject to change. We need to really wait at least until June to see where the market is and if the supply side can pick up again, i.e. the OEMs actually building and delivering aircraft.

"Right now we can't even travel to take deliveries and local authorities cannot grant certificates. If the authorities are open minded and flexible and accept e-deliveries then of course we can do it, but not all authorities allow it," he says addressing Airbus' recent remote deliveries.

"One thing is certain: This year a number of players will be forced to exit the sector and hopefully that will stabilise rates going forward."

Mike Poon, founder and chief executive officer, China Aircraft Leasing

Poon confirms that sale and leaseback (SLB) demand has been "through the roof" these past couple months but says CALC will continue drinking its kool-aid when evaluating SLB proposals from airlines because it can.

"Everyone is asking for SLBs but we are very selective. We want the best brand names and the best assets. In this kind of market we can afford ourselves the luxury of being selective. We will not jump the gun. Rather we will continue to observe the market and pounce on SLBs when we think they are good. So far over the past three months we didn't sign any new SLB deals," he says.

Poon notes that liquidity is not a limiting factor for CALC. "We have a solid high quality balance sheet with strong liquidity. Our financiers are also open to opening fresh financing for us so there is no immediate limit in that sense for SLB opportunities. We are open to them as long as a strong lessee credit and good asset class are behind it," says Poon.

Yet, as with most things in life, Poon cautions moderation: "We could take 10-20 aircraft at one time, no problem, but we need to meet those two criteria mentioned before.

"We would prefer to do any such bigger transactions in several tranches, for example five-six aircraft in the first tranche, then more in a second and third tranche because who knows the market could decline even further and the rates six months from now could be even lower, who knows, so it's better to spread them out. [You] don't put your eggs all in one basket," the CALC boss opines, adding that this will "also benefit our airline partners because what they actually need is a lot of short term liquidity to get through this crisis".

CALC has developed a diversity of funding sources both in China and offshore, including pre-delivery payment syndicated loans, aircraft project loans, US dollar bonds, renminbi medium-term notes, corporate bonds and others.

In March 2020, CALC secured a RMB1 billion ($141 million) borrowing in China priced at only 3.65%. The lessor had cash and bank balances totaling HK$3.8 billion ($487 million) and undrawn borrowing facilities of HK$4.3 billion as of 31 March 2020.

In March, CALC set a new industry benchmark when it became the first leasing company to acquire a significant shareholding in a commercial airline with a 35.68% equity investment in Indonesian airline Transnusa through a $28 million subscription agreement with Aviation Synergy.

Transnusa currently operates 30 domestic routes in 24 cities, plus one international route between Indonesia and Timor Leste, and provides "last-mile" air connectivity services between destinations within Indonesia and international hubs.

The Kupang-based airline currently leases 10 ATRs from Nordic Aviation Capital but in the longer term we can expect CALC to become the carrier's leading asset supplier.

"We've been looking at Transnusa for a few years already. We think that the airline has good regional potential for flights across Southeast Asia and in domestic Indonesia, one of the biggest growth markets in the world," Poon reveals.

"This acquisition can be viewed as part of our full-value chain, or part of the larger aviation ecosystem that we are building.

"It makes sense for us to also be part of the very last link in that chain, the end customer or airline, and it also gives us more strength and power with the OEMs," he says.

Poon states that the airline will continue to be "independently managed" and that they are currently working on "a new and completely revamped business plan".

Poon says Transnusa's new business model going forward will be "quite different from what they used to do" and that its fleet will be "expanded by adding narrowbodies and more regional aircraft"

Transnusa's shareholders are local Indonesian investors, says Poon, and a lot of them have backgrounds in aviation. One major shareholder, he says, is the chairman of a prominent Indonesian airline association.

Indonesia was the world's ninth-largest aviation market in 2019 and is expected to become the fourth-largest by 2030.

Dragon Aviation goes the 'boutique' route

Dragon Aviation Leasing chief executive officer Gang Li updates **Elsie Guan** on the lessor's transformation a year and a half after he took the helm.

Beijing-based Dragon Aviation Leasing has had brisk business over the past few months, Covid-19 or not, transacting several Airbus A320neo aircraft. In March, it placed an A320neo with Indigo as part of a sale and leaseback (SLB) transaction comprising three A320neos and two A321neos.

Dragon chief executive officer Gang Li tells *Airfinance Journal* (AFJ) that the two parties signed a letter of intent (LoI) confirming the SLB in April last year but that the deal only kicked off this January, marking the inaugural transaction between the lessor and the Indian LCC.

Dragon says it chooses its customers based on: financial health, reputable management, asset type and variant suitability for its portfolio, as well as the customer's growth potential.

India, having the second largest population in the world, has high economic growth prospects, including strong opportunties in the aviation market. Dragon has always paid close attention to the Indian market, says Li.

Indigo has recently entered into several SLBs with various lessors including AVIC Leasing and Dynam Aviation.

"SLB transactions support Indigo's success, as the aircraft leasing business model has for many other successful airlines," says Li.

Li cites Emirates Airline as an example. Leased aircraft account for the majority of Emirates' fleet, allowing flexibility in fleet management. "Aircraft leasing maximises utilisation of aircraft, and significantly increases flexibilities for airlines," says Li, noting that financing costs of a leasing company are usually lower than those of an airline.

He adds that for many investors aircraft are relatively long-term and flexible assets. In 2019, Dragon adjusted its existing A320 portfolio. Apart from Indigo, the Chinese lessor introduced another new airline customer – Ryanair subsidiary Laudamotion, after an A320 aircraft was subleased and re-delivered to the Austria based LCC.

Dragon also agreed to extend the operating leases of six A320s in 2019, comprising four Sichuan Airlines aircraft and two Freebird Airlines units.

Airfinance Journal understands that the lease terms of the 2009- and 2010-vintage A320s operated by the Turkish carrier were renewed for another six to eight years.

In 2015, Dragon Leasing acquired the 2009-built unit, which has been on lease to Freebird since. The 2010-vintage aircraft has been part of the lessor's portfolio since new and has been operated by Freebird, Vietjet Air, Bamboo Airways and again for Freebird since May this year.

At the end of March, Dragon had 33 aircraft owned, managed and on order. "Dragon has a relatively small fleet size, so we can be more agile in new business development and selective in new business partners. In a way, Dragon acts more like a "boutique" than a "department store" in the aircraft leasing market," says Li.

Dragon has its sights set on new technology aircraft such as the A320neo family. "We will be opportunistic while remaining disciplined. At this stage, Dragon is focusing on new technology narrowbody aircraft, but we will not exclude widebody aircraft if there's an opportunity," says Li.

Dragon was the first operating lessor established in China. In 2006, one of its founders, Chinese state-owned company, China Aviation Supplies (CAS), saw a gap in the market as China did not have a local operating lessor at that time. CAS owns 50% of Dragon, while Aercap, Credit Agricole-CIB Airfinance and East Epoch, each own 16.667%.

The company includes subsidiary AerDragon Aviation Partners, based in Shannon, Ireland, and Dragon Aviation Leasing, based in Beijing, China.

Last November, AerDragon Aviation Partners entered into a six-year $220 million senior secured commercial facility to refinance a 10-aircraft portfolio.

In the portfolio refinancing transaction, Credit Agricole CIB (CA-CIB) and DVB Bank's Singapore branch acted as mandated lead arrangers. Korea Development Bank, Landesbank Hessen-Thuringen Girozentrale, Norddeutsche Landesbank Girozentrale Singapore branch acted as arrangers of the facility. CA-CIB also acted as agent, account bank and security agent in the transaction. Although the lessor continues to work with the European banks, it has also sourced financing certain business operations from the Export-Import Bank of China.

"Dragon's financing management is relatively conservative, thus we have a lower than average leverage. In addition, we do mostly long-term financings and there is not much near-term repayment pressure," says Li. He says that as a capital-intensive industry, bad asset management will make a company lose money, but poor liability management could bankrupt a business.

Due to the outbreak and spread of Covid-19, the aviation industry has been impacted financially.

GECAS has cancelled 69 Boeing 737 Max aircraft in a move which it says will "better align" its fleet with customer needs. CDB Aviation has reduced its 737 Max programme backlog to 70 aircraft from 99, after cancelling the purchase and delivery of 29 undelivered aircraft. Furthermore, Avolon cancelled orders for 75 unplaced 737 Max aircraft it was scheduled to take from 2020-23, with a further 16 of the type rescheduled from the same timeframe to 2024 "or thereafter".

Dragon says it is in "a relatively favourable position" because at this point it has only committed to "a few" Neo purchase and leaseback transactions going forward and doesn't have a 737 Max orderboook."

Li thinks that Airbus and Boeing have been accommodating airlines. "In a difficult situation like now, I believe Airbus and Boeing will support airlines that ask for deferred deliveries or even cancellations. In fact, we are seeing these activities already, more with Boeing than Airbus," says Li.

When last speaking to AFJ, in 2018, Li hoped that Dragon would continue its organic growth while producing steady returns. "Going forward, we aim to grow the business, not at any cost, but the company is determined to grow." Li is on his way to lead Dragon to the next round of growth.

AIRFINANCE
JOURNAL

Airfinance Journal events give you the opportunity to immerse yourself in networking, deal-making and discussions focused on overcoming the biggest hurdles facing the aviation market today. Rethink and align your strategies to overcome turbulent times ahead.

Airbus builds on trust with remote deliveries

Airbus has begun delivering aircraft remotely through the e-channel. Airbus EVP and CCO Christian Scherer tells **Dominic Lalk** that about 50% of its customers with upcoming deliveries have expressed a desire to accept their aircraft without being physically present.

Airbus has used the e-Transfer-of-Title (e-ToT) tool for around 50 deliveries since summer 2019, following a successful pilot phase with American Airlines in Mobile, Alabama, but the combination of e-TOT and Technical Acceptance Completion (TAC) – the first ever 100% remote delivery – took place only following the outbreak of the Covid-19 pandemic and was first applied to an Airbus A321neo delivery for Turkey's Pegasus Airlines.

The European manufacturer was driven into this new practice to ensure business continuity amid the Covid-19 pandemic but some lessors tell *Airfinance Journal* (AFJ) that remote deliveries could become the norm going forward as they save on flight tickets, hotel fees and offer more flexibility.

Airbus executive vice president (EVP) and chief commercial officer (CCO) Christian Scherer agrees: "We have had a very good response since we started this already last year before the crisis. Since mid-March this year, 50% of our deliveries have been done through this process of 'e-delivery'," he tells AFJ in an exclusive interview.

"We have also made arrangements to host customer representatives, including privatized hotels, fully sanitized offices, transportations and catering services for our customers who wish to send people or delegate to third parties the handling of deliveries. Airbus is held by EASA to the strictest standards via its Design Organisational Approval and Production Organisational Approval, so that an Airbus led acceptance reflects by definition these standards," Scherer said in late April.

The revamped process allows airlines and lessors to take delivery of an aircraft remotely via an e-tool, but this requires significant trust between the parties, as the buyers give up some control.

Scherer tells AFJ: "The e-delivery process is extremely well prepared and structured and is based on mutual agreement. We are proud to see a high level of trust between Airbus and our customers. Airbus' main objective is to deliver a safe, on time and on quality aircraft in accordance with our customers' expectations and if there is an issue it is covered by normal terms and conditions of warranties. We also have an Airbus field representative at each airline home base. They are the local Airbus to support the airlines at home."

The new approach comprises three main stages: (a) the TAC; (b) the e-ToT; and (c) the remote "e-Delivery" – the ferry flight and subsequent reception of the aircraft at the customer's base performed either by Airbus or customer crew.

For the TAC stage, the lessor or airline customer can now delegate Airbus or an independent third party to perform on its behalf all necessary actions, including ground check, acceptance test flight, acceptance manuals and procedures.

Then the airline proceeds to payment via bank transfer.

For the ToT completion, Airbus and the customer teams work on a new secured collaborative platform - 'e-SalesContracts' - a real-time virtual environment designed to simplify all contractual transactions, from online paperless drafting and negotiating of the delivery documents to a remote e-ToT or e-SalesContracts digital signature.

The e-TOT takes place remotely on a collaborative platform between the Airbus delivery team and the customer, both of which can exchange documents and contracts and sign them, making it less time-consuming and eliminating paperwork.

The subsequent ferry flight is performed by the airline's pilots and crew, although Airbus, on a case-by-case basis, may find other solutions for the ferry flight using its own crew. This was done on an April delivery to an Asian customer where Airbus crew delivered the aircraft to the operator's base and imediately returned on an Airbus executive jet that had been on standby.

Scherer adds: "This is an outcoming trend we would like to develop further. We estimate that a third of all our deliveries worldwide could be done using the e-delivery system now and going forward we could further grow it depending on the willingness of our customers. With the robust system we have now put in place, basically all deliveries could be done using this system. Ultimately, it is up to the customer to decide."


Christian Scherer Airbus' EVP and CCO

Health and safety rules in place at Airbus stipulate that only 12 workers can work per shift, one early and one late shift. The morning team does a handover by phone and email to maintain delivery continuity and avoid physical contact. As such resources for each delivery have doubled, Airbus admits.

The OEM confirms that remote deliveries are available at its Toulouse and Finkenwerder facilities and can be done throughout all Airbus final assembly lines worldwide in the future.

The first ever aircraft delivered from the production line fully remotely was an A321neo to Pegasus on 9 April.

The Turkish carrier financed that delivery under a Japanese operating lease with call option (Jolco) facility funded with Aviation Capital Group-guaranteed debt, structured and funded by Bank of China, which also acted as facility agent. ABL Aviation acted as global equity and debt arranger for the first ever Jolco funded with ACG guaranteed debt.

AFJ understands that a second aircraft under the mandate will be delivered later this year.

Pegasus senior vice president of finance and fleet management Tamer Yuzuak said: "Airbus have confirmed that this was the first ever aircraft to be delivered from the production line fully remotely." Airbus says the Turkish carrier adopted the remote end-to-end process on three brand new 'e-delivered' A320neo Family aircraft in a short period last month.

More customers remote deliveries are planned in the coming weeks and months, says Airbus. US manufacturer Boeing confirms to AFJ that it has not done any remote deliveries to date.

Crisis **management**

CDB Aviation is facing one of the greatest challenges in its history, but new CEO Patrick Hannigan is confident it can weather the storm, writes **Oliver Clark**.

The coronavirus crisis maybe the toughest situation he has experienced in his professional career, yet CDB Aviation chief executive officer (CEO) Patrick Hannigan says he is able to sleep soundly at night.

This is not meant as a flippant remark, but is rather a reflection of his faith in the management team as the lessor navigates its way through what may be the greatest challenge it is facing.

"It's easy enough to deploy capital. It's very hard to manage a multi-locational platform with assets and customers all over the world through the cycle and we are seeing that now. This is as tough as I have seen it, but I can sleep at night because I have quality people here that have been doing this for decades," he tells *Airfinance Journal*.

Hannigan had been at the helm of CDB Aviation for just a month when the virus began its inexorable spread through China in January 2020, followed by Asia and then across the rest of the world.

But he was no stranger to the business, having worked closely with former CEO Peter Chang for the previous three years, first as chief operating officer and then as president, to jointly work through remodelling CDB Aviation's C-suite and move its headquarters from Hong Kong to Dublin.

"Peter and I probably started around the same week actually, not far apart from each other, so we were very close to each other in the early days".

"We have developed strategies. We are both quite like-minded, we shared a lot of ideas," he says.

"It was very much based around building a high-calibre team and building a full suite of products for our airline customers."

Hannigan says it was necessary to centralise the team from its previous "fragmented" state, where a seven-hour time difference between Ireland and China makes it "hard" to manage the business effectively.

The transition was not without its challenges. The move saw the departure of CDB Aviation chief financial officer Will Gramolt, who left the lessor rather than relocate.

Hannigan is pleased with the team he has now in place, which he has faith in to deal with the current crisis and beyond.

"The market is changing all the time. I found that in my old position when I tried to manage both the assets and the new money/trading sides. I wasn't giving it the focus it required. Now we are in a much better position to do that."

"In Dublin we split the commercial function into placement of assets, which is our new aircraft from the manufacture, and transitioning of our old aircraft reporting to Peter Goodman who has decades of experience of doing exactly that and the new money investment/trading platform being run by Craig Segor."

Hannigan himself brings a wealth of experience to the role, having worked for some of the top lessors in the business.

Prior to CDB Aviation, he was head of Europe Middle East and Africa (EMEA) for Avolon and was a founding shareholder of the lessor in 2010.

Before that he served as senior vice president, marketing, for RBS Aviation Capital (now SMBC Aviation Capital), where he was responsible for managing airline relationships within the EMEA region and aircraft and engine manufacturer relationships. He also held the role of vice president marketing at GECAS.

Coronacrisis

The crisis that now grips the world is one which will have a deep, wide-ranging and long impact on the OEM, airline and leasing sectors, Hannigan predicts.

Lease rates will rise, aircraft trading conditions will become more challenging and the asset-backed securitisations (ABS) market will be "frozen" for some time, as a result of the coronavirus (Covid-19) pandemic, he believes.

For one thing, the crisis is likely to herald a period of much more "disciplined" period in leasing conditions, after several years of ample cheap liquidity that marked a time when lessors and financiers had "not been pricing credit properly".

"Credit spreads are widening considerably for a lot of lessors, particularly the publicly traded platforms. The smart lessors got in as soon as they could and accessed whatever capital was available in the last few weeks, drawing down on their RCFs [revolving credit facilities] and large facilities, but it's getting more expensive," he says.

Hannigan says that there is now a question mark as to whether the lessors, which historically bid on sale and leaseback (SLB) transactions at "very tight lease rate factors", when there was ample liquidity around, will still be in this market for the rest of 2020.

"Some of these operators are not going to be able to borrow at near the same levels they could a matter of a few weeks' ago, so the market could change considerably later in the year. Access to liquidity will be key."

"Some of these operators are not going to be able to borrow at near the same levels they could a matter of a few weeks' ago, so the market could change considerably later in the year. Access to liquidity will be key."

Patrick Hannigan, chief executive officer, CDB Aviation

"I expect lease rate factors to go up, it's as simple as that."

While the stimulus enacted by the US Federal Reserve may help to "steady the ship and might bring T [treasury] rates down", Hannigan believes it won't bring credit spread down.

His main fear is that some airlines will not survive the current crisis, with many having been on "thin" levels of capital even before the virus hit.

The OEMs face the cancellation of orders and falling demand, not to mention the physical disruption to their production and delivery processes. He says this is "really serious stuff" and represents a huge disruption.

While CDB Aviation does not need to tap the capital markets now, Hannigan says that if the Chinese lessor has to do so, it would probably get a "fairly unpleasant surprise" as regards credit margins.

Hannigan believes that, even for strong rated lessor platforms, margins have moved "quite a bit" over the past couple of weeks.

While he expects trading conditions to be "challenging", Hannigan feels there will "definitely" be further sale and leaseback transactions mandated this year.

"When you are pricing and structuring deals, you will be doing it very differently than has been done the year before."

For him CDB Aviation has been "a little bit fortunate" to have shied away from ABS deals in favour of direct trades with Chinese lessors - a strategy he plans to continue once conditions begin to normalise.

"To the extent to which the market comes back sooner, we will be able to get back to business because we have good relationships with buyers in the Chinese market that we can go back to; to do follow-on deals, which are important to us," he stresses.

CDB Aviation has focused on trading efforts with other Chinese lessors and Hannigan suggests more Chinese deals are planned for this year.

"That's probably why we haven't done an ABS deal yet, because our focus really has been on developing relationships with trading partners.

"We always have a choice to do deals with various partners depending on their appetite for the different types of assets and airline credits. We wanted to build up that list, that rolodex effectively. An ABS would have been one big deal and it just didn't suit us."

CDB Aviation has completed four aircraft trades in the last two weeks, reflecting a busy trading quarter, which Hannigan says was mainly deals set up in the latter part of last year.

In 2019, the lessor had concluded 89 aircraft transactions, including signing 54 aircraft leases, 22 aircraft sales while CDB Aviation acquired 17 aircraft.

For 2020, Hannigan does not anticipates the same level of trading, as volumes are dependent, to some extent, on how long the impact of Covid-19 on the aviation sector persists.

In terms of liquidity, he believes the business is in "pretty good shape" and possibly in better shape than other lessors.

CDB Aviation has credit lines and a revolving credit facility in place. Hannigan admits that CDB Aviation, as a dedicated leasing arm of China Development Bank, is in the "privileged position" and enjoys a "quasi sovereign rating".

Prior to the crisis, CDB Aviation had secured investment grade rating from the major agencies.

"Having said that, we take nothing for granted in the eye of this storm, because we have not seen anything like this before," he says.

Hannigan discloses that a "significant majority" of the lessor's customers will be requesting deferrals. The decision on whether to grant these does and will comes down to the airline's credit profile.

Other important considerations include whether their owners will support them or if they are deemed strategic assets by their governments.

"The basic theory says you agree to a deferral, you collect it over a period of time – normally fairly shortly thereafter, you don't try to let deferrals go on for too long, lest they end up never being repaid because something else may happen in the future," Hannigan notes.

Looking longer-term Hannigan opines that the crisis could even accelerate consolidation in the aircraft leasing market.

Some entities, especially new entrants, could be vulnerable to take over as trading conditions worsen and credit becomes more difficult to access.

"Some of the newer entrants will have underwritten a lot of deals at very low lease rate factors and are now probably suffering," he says.

Reacting to historic commentary from some European and US lessors that new-entrant Chinese platforms would be among the first targets Hannigan says he does not believe that consolidation will be a "China-specific point".

"In fact, if anything, some of the Chinese lessors have been backed by some very strong financial institutions," he says.

Max challenge

An existing challenge, which has been further complicated by Covid-19 is CDB Aviation's Boeing 737 Max orderbook.

The lessor had two aircraft in service, at the time of the grounding in March 2019. Its orderbook stood at 101 Max firm orders, with deliveries due through 2025. It has now reduced its commitment to 70 aircraft.

Hannigan says the lessor has to be "practical" regarding the need to balance current demand with supply.

He is still awaiting clarification from the US manufacturer regarding the recertification of the aircraft following deadly crashes in 2018 and 2019.

Future expansion

Since its founding in 2006 CDB Aviation's core business has naturally focused on China.

Airfinance Journal's Fleet Tracker shows that the lessor has 223 owned aircraft and another four units under management. Of these, 106 aircraft or more than 47% of the total placements, are with Chinese airlines. Europe is the next largest market, with 33 aircraft placed with operators in the region, followed by South Asia, Latin America and the CIS.

China Southern Airlines is its biggest customer, with 26 aircraft on lease to the Guangzhou-based carrier, followed by Loong Airlines with 18 units and Indigo with 12. Chinese-based airlines make up seven of CDB Aviation's top 10 customers.

Hannigan says China is and will remain a "very important" part of the business noting that "ultimately our DNA is Chinese".

However, the lessor has expanded its remit over recent years for a number of reasons.

A lot of CDB Aviation's early leases were with Chinese carriers and the lessor knew that ultimately those aircraft would come back off-lease and will need to be placed in other regions, Hannigan notes.

The second argument was that there was only so much growth coming out of the Chinese market.

"If we wanted to put capital to work, we needed to deploy our capital outside China. Pretty much all of the deals in the last three years have been outside China.

"We have a number of customers in Latin America, such as Gol, Avianca, and Jetsmart. But we intend to have more, frankly. If I like the airline credit and the asset type, I can definitely take a more significant exposure in the Americas.

"We like doing large deals where we put our balance sheet to work, because we have got a trading function in the business that we can manage down that exposure over time," he says.

One region CDB Aviation is targeting is the USA. The lessor has a Fort Lauderdale office and recently bolstered the team based there with the addition of Jorge Garcia as senior vice-president and Alan Mangels as vice-president.

> *"We like doing large deals where we put our balance sheet to work, because we have got a trading function in the business that we can manage down that exposure over time."*
>
> **Patrick Hannigan**, chief executive officer, CDB Aviation

Hannigan says there are no structural issues preventing the lessor expanding its business in this market.

In terms of fleet expansion plans, CDB Aviation has commitments for 50 Airbus A320neos, 31 A321neos, 70 Max aircraft and two 737-800s. This includes SLBs, direct OEM orders and aircraft subject to purchase from other lessors.

On the widebody front, the lessor only has commitments for three A330-900s.

Hannigan says that the lessor's strategy in terms of widebodies is sale and leaseback transactions, where an investment decision can be made "there and then".

Despite the current challenges, Hannigan believes CDB Aviation has built a business that can be scaled and predicts the lessor is well placed to expand further over the coming years.

South Korea's airlines face major debt challenges

South Korean aviation is in trouble. Not only does the country have two full-service carriers in Asiana Airlines and Korean Air, but there are also eight low-cost carriers competing for a population of only 52 million. Now is the time for action and consolidation because if not the liquidation of some airlines will become unavoidable, **Dominic Lalk** investigates.

South Korea's two largest airlines – flag carrier Korean Air (KAL) and Asiana Airlines – are facing unprecedented financing challenges as their debt levels continue to swell amid the ongoing Covid-19 pandemic.

On 24 April, state-owned lenders The Korea Development Bank (KDB) and the Korea Ex-Im agreed to extend KRW1.2 trillion ($975 million) of new financing to KAL. This is split between KRW200 billion in loans, KRW700 billion by acquiring asset-backed securities and KRW300 billion in bonds without maturity. Earlier in April, KAL closed KRW600 billion of new notes backed by future ticket sales and underwritten by 15 lenders and managers, including KDB.

The unusually high number is seen as a way to diversify risk, while some analysts are suggesting that KDB's involvement may signal that Seoul will not let KAL fail. According to the prospectus for the notes, KAL ticket sales slumped 27% year-on-year from 1 March to 12 March.

Yield premiums on KAL notes have risen faster than other South Korean corporate debt, widening 53 basis points (bps) this year versus an average of 18 bps for other corporate debt.

Airfinance Journal research shows that KAL faces higher liquidity risks this year than its Asia-Pacific airline peers, with more than $400 million in domestic bonds maturing in 2020, comprising $196 million in the ongoing second quarter, another $152 million in the third quarter, and $57 million in the last quarter of the year.

The $400 million in domestic bonds due in 2020 are significant, but they pale in comparison with a Moody's estimate that KAL has some $4.3 billion in overall global debt maturing this year.

Next year, the South Korean carrier has maturing domestic bonds totalling $396 million, followed by another $645 million in 2022. The average coupon of the $1.45 billion domestic total is 3.37% with an average duration of 2.5 years.

Cho Won-tae, chairman, Hanjin-KAL

KAL lost more than KRW1.7 trillion ($1.4 billion) in the six years through 2019, while its debt-to-equity ratio has ballooned to 862%.

In March, Cho Won-tae was reconfirmed as chairman of Korean Air parent Hanjin-KAL following a crucial boardroom vote that shut down a bid by older sister Cho Hyun-ah and its largest single shareholder, activist fund Korea Corporate Governance Improvement (KCGI), to replace him.

Airfinance Journal data shows that KAL owns 155 aircraft, representing some $9.3 billion in asset values pre-coronavirus, although it already has approximately $8 billion of debt and finance leases secured on them. The situation at competing Asiana Airlines isn't any better. Asiana has KRW474 billion in short-term borrowings maturing in 2020.

South Korea's second-largest airline is the company with the highest debt ratio on Korea's KOSPI index. In the 12 months to 31 December 2019, the airline's debt ratio skyrocketed 980% year-on-year to 1,795%, or 1,387% on a consolidated basis. HDC Hyundai Development is requesting support from KDB and Export-Import Bank of Korea for its delayed acquisition of a controlling 31% stake in Asiana Airlines in conjunction with Mirae Asset.

Specifically, the developer wants KDB and Korea Ex-Im to convert KRW500 billion of HDC's perpetual bonds held between them into revolving loans - or to delay repayment of HDC's borrowings from creditor banks.

In late April, KDB and Korea Ex-Im extended another KRW1.7 trillion of financing to Asiana. This follows a 2019 injection of KRW1.6 trillion which was split between loan facilities, perpetual bonds and standby letters.

These extra lines of credit did little to improve Asiana's bottom line. In 2019, Asiana incurred a record full-year net loss before taxation of $878 million, from a $203 million loss in 2018. Its operating loss was $388 million.

The airline's balance sheet showed further signs of deterioration in 2019: as of 31 December, Asiana had access to $93 million in cash and equivalents, down from $193 million in the previous year.

HDC and Mirae have agreed to acquire a 31% stake in Asiana from Kumho Industrial for KRW2.5 trillion with HDC paying KRW2.01 trillion for the buyout and Mirae absorbing the remainder.

When the HDC-Mirae consortium first announced plans to invest in Asiana, it expected the capital injection would help to lower the airline's debt-to-equity ratio to 300% from 660% in 2018.

Asiana subsidiary Air Busan is also facing severe financing difficulties after its debt ratio jumped in 2019 to 812%.

In April, the International Air Transport Association (IATA) forecast a 40% decline in passenger demand in South Korea for 2020 but that figure might have to be adjusted further as the Covid-19 pandemic continues to wreak havoc.

Low-cost **disrupted**?

Will coronavirus kill off the low-cost start-ups planning to enter the North American market, or provide them with greater opportunities? **Oliver Clark** finds out.

At the start of 2020 a slew of new low-cost carriers (LCC) looked set to enter the North American market.

David Neeleman's new US venture – Breeze Airways – was beginning to take shape after it emerged that he had picked Salt Lake City as the corporate headquarters for the new company.

Breeze, previously known as Moxy Airways, plans to serve secondary airports from 2021, using a fleet of 30 Embraer 195 jets, all sub-leased from Brazillian carrier Azul, until the first of its 60 A220-300s on order began to arrive. The airline had initially looked to start flights in 2020, but this has now been postponed until 2021.

Breeze is probably the most well-known of the new start-ups planned but it is not the only one. Former United Airlines chief financial officer Andrew Levy has raised $125 million via the sale of equity, options and warrants in his company, Houston Air Holdings, the corporate name of a new LCC.

In February, he said that 124 investors have committed funds to the start-up, which plans to begin operations in the second half of 2020 with Boeing 737-800 aircraft leased from GECAS.

The new carrier aims to offer non-stop flights from US secondary airports and will be built on top of charter carrier Xtra Airways, which Levy purchased in 2018.

Another US start-up called Avatar Airlines wants to order 30 747-8s for domestic, low-cost operations.

The Florida-based company has submitted a letter of intent to the US manufacturer for the 30 aircraft to be delivered within three to five years.

Avatar plans to finance its fleet using the proceeds from an initial public offering.

The aspiring US carrier said the order could help to keep the 747-8 programme "alive".

"Rather than zeroing in on long-haul luxury, we believe Boeing should rethink the aircraft on a cost per available seat mile, which would result in more people that fly with less airplanes in the sky," it said.

Avatar said it is currently looking to acquire 14 used 747-400s to begin initial service but considers the 747-8 to be the "ideal aircraft" to replace the older -400s at the "proper time".

Carlos Ozores, principal aviation consultant at ICF, says that the highly profitable nature of the US airline sector of recent years and the opportunities afforded for new entrants from consolidation in the market, makes it ripe territory for new LCC challengers.

"When you see an industry sector with outsized profits, consistently, the next expectation is someone is going to want to enter that space, and so that's what we had in the case of Breeze and Xtra," he tells *Airfinance Journal*.

Ozores is particularly impressed with the business model of Breeze, where he believes the use of A220s could prove a game changer.

"The A220 is a revolutionary product from a unit cost perspective, because it has comparable seat costs to the lower end of the A320 family and the 737 family and considerably lower than the E-Jets and the E2, so it's in a class of its own," he says.

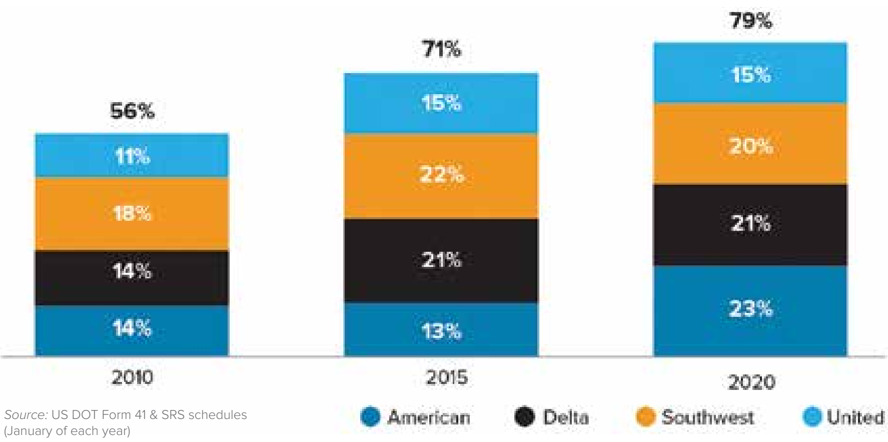
The aircraft will allow the airline to serve medium to "longish" haul markets that could previously only be possible to serve with a high yield market segment.

Ozores says ICF analysis suggests there are "hundreds" of possible city-pairs across North America where the model could work.

He expects Breeze to fly under the radar by serving secondary airports, thereby by-passing hub airports used by its bigger competitors.

"What is Breeze trying to do? It is recognising that as a result of the growing power of these four airlines. You have many communities or fringes of

Top four airline share of domestic US seat capacity



Source: US DOT Form 41 & SRS schedules (January of each year) metropolitan areas that effectively lack direct, non-stop service and historically there hasn't been an aircraft that has been suited to flying the thin mid-haul routes.

"It is technology that has allowed airlines to operate smaller aircraft with comparable seat costs to the larger aircraft. So the success of 787 allowed hundreds of city pairs to be served at a cost per seat significantly less than 767 and on par with 777 allowing competitive seat cost," he adds.

Ozores believes that if Breeze can weather the current crisis and conserve its cash, its opportunities may be even greater post Covid-19.

"If this crisis pushes some airlines out of the North American market that are burdened with their legacy costs it may very well create a space for a new entrant," Ozores believes.

He is less sure of the outlook for Xtra, which he says is "not really unique" and is "trying to do something like what Breeze is doing, but with the same aircraft that everybody else has".

That aircraft, the 737, is "just too big" to offer direct service in most of these secondary markets, he believes.

Canada

In Canada, plans for a new start-up LCC called Canada Jetlines have already come to an end after the airline failed to launch as planned in December after struggling to secure the necessary financing from potential backers.

After haemorrhaging staff, including its chief executive officer, Canada Jetlines agreed to merge with US start-up charter carrier Globalx, to form a combined business which will be renamed Global Crossing Airlines Group.

However, another airline called Enerjet still intends to disrupt the Air Canada/ Westjet duopoly in Canada.

The charter carrier led by former Westjet co-founder Tim Morgan, is backed by Canadian private equity and Indigo Partners, a US private equity firm that has stakes in Frontier Airlines, Chile's Jetsmart, Volaris and Wizz Air.

Morgan, who is the CEO of the new venture, tells *Airfinance Journal* that the impact of coronavirus throws the airline's launch plans into doubt, with the end of 2021 the earliest likely start date for operations.

"The world is changing around us pretty quickly and I don't know where the merry go round is going to stop, we are going to have to see how it falls out," he says.

"We are planning to launch an ultra-low-cost carrier and nothing has changed in that regard and we will. Our investors are solidly behind it, our people are solidly behind it, but what's the time going to be? How long is a piece of string?" Morgan explains.

"The world is changing around us pretty quickly and I don't know where the merry go round is going to stop, we are going to have to see how it falls out."

Tim Morgan, chief executive officer, Enerjet

Enerjet will operate a fleet of Boeing 737s, although the exact type and number of aircraft has not been decided due to the crisis and the production issues affecting the US OEM manufacturer, Morgan notes.

He describes the business model as low-cost rather than low fares.

The airline will seek to keep costs low through initiatives such as high aircraft utilisation and operating in a one-class configuration. Optional extras such as food and beverage and extra leg room will be offered as a paid add on.

Morgan notes that Canada does not have a lot of secondary airports an ultra LCC would normally serve.

Where they do exist such as Abbotsford, Windsor, Hamilton, Kitchener and London, Enerjet will seek to use them. Elsewhere it will use primary airports.

The airline will seek to operate domestic services initially, but Morgan points out that it could "fairly quickly" move into other markets, such as the USA, especially if Covid-19 creates new opportunities.

Enerjet, which is to be renamed ahead of launch, will seek to serve the visiting friends and relatives marker, leisure traffic and what Morgan calls "blue collar business".

Morgan says that Canada lacks a true low-cost carrier, with Westjet's Swoop and Air Canada Rouge failing to fully embrace the LCC model.

"Rouge is no way an ultra-low-cost carrier, you might consider them a lower cost, but it is Air Canada.

"They've got some older equipment they are utilising, they are paying the pilots less than the mainline carrier, but they are not an ultra-low-cost for sure. It's an airline in an airline no matter which way you look at it.

"If you look at Swoop and Westjet, it's the same thing, it's a low fare airline, but not a low-cost airline because it's part of Westjet."

Morgan says Westjet has done "extremely well", but have graduated into a different type of airline than even they were 10 years ago.

"They are all into the connecting international traffic and that's where they think their direction should be. Maybe that's exactly what they should be doing. It is not what I would be doing but that's just me". Morgan says the "new economy" that he expects to emerge after Covid-19 may benefit the low-cost model, with consumers more price sensitive than they were before the crisis.

"Maybe this bump in the road will help some of those airlines to reduce their costs but it will help us reduce ours further too," he adds.

Ozores says that there has been a duopoly in Canada for the last 15 years, making it ripe for LCC penetration.

"You have Air Canada and you initially had an LCC in Westjet and while they maintained many of their LCC traits, they increased the complexity of the business, adding widebody flying, adding regional flying, expanding alliances, codeshares and so on and so they are not an ultra LCC by any means.

"The fare landscape in Canada is quite expensive, as you would expect in a duopoly, so it creates a space for a new entrant that will compete with a low-cost product that is what has been driving the push for Canada Jetlines and Enerjet," Ozores notes.

Post Covid-19

"The only thing we know for pretty much for certain is that traffic will recover, it would be an anomaly if it didn't because it always has in previous major events, such as SARs and 9/11.

"If you look back at 2001, look at all the airlines that prospered after the economic recession that occurred in 2001, that's really when Westjet took off, that's when Ryanair took off, that's when Gol took off, that's when Virgin Australia took off.

"So many airlines really blossomed after that crisis," Ozores believes.

Cash burn and **liquidity** – saving the airline industry

IATA has predicted a cash burn for the global airline industry of $61 billion in the second quarter of 2020. *The Airline Analyst* asks "How is it going to be funded?"

In this article *The Airline Analyst* asks the questions "where is the funding to cover the cash burn going to come from?" and "in what shape will this leave the global airline industry?" The article provides a preview of a detailed Cash Burn and Liquidity Report that will be available to *The Airline Analyst* subscribers. Alternatively, contact your account manager.

New funding

Some airlines, especially the US airlines, have been extremely active in tapping commercial markets in recent weeks. *Airfinance Journal*'s Deal Tracker reveals that a total of more than $30 billion of new commercial financings have been put in place since 1 February. These include one-year term loans secured by a whole range of assets, secured and unsecured bond issues, equity and sale and leasebacks.

Government support

The governments' response to supporting their airlines through this crisis has been varied. The USA has offered the largest and most comprehensive support package with a $50 billion programme of grants and between five and 10-year unsecured and secured loans. The top 11 US airlines have signed up for the $25 billion Payroll Support Program (PSP), a grant/unsecured loan offering. Some appear reluctant to use the $25 billion Secured Loan Program, concerned that it might come with burdensome conditions in addition to equity warrants. Crucially, the type of collateral that will be required by the US Treasury for the Secured Loan Program has not yet been revealed but some airlines are applying to preserve the option of pursuing it later in the summer.

The UK government has stated that it will not offer any industry wide support programmes for the airline industry but rather bespoke solutions. France and The Netherlands have offered loan support to Air France-KLM and the Lufthansa Group has most recently stated its confidence that Germany, Switzerland, Austria and Belgium will offer support.

Details of other governments' support programmes and status of disbursements will be included in the Cash Burn and Liquidity Report.

Liquidity overview

The Airline Analyst has assembled the following high-level numbers for the industry as a whole, based on a sample of 78 airline groups who have released their 2019 financial statements. Aggregate unrestricted cash balances were $88 billion at 31 December, 2019. Against this, as liabilities, were current maturities of debt of $63 billion and unearned revenue of $73 billion. The obligation to refund revenues relating to cancelled flights was downplayed initially but, after playing a delaying game, the major airlines are starting to process refunds for cancelled flights.

Next, we show IATA's second quarter 2020 cash burn forecast of $61 billion and *Airfinance Journal*'s capital expenditure (capex) estimate of $90 billion (value of airline OEM capex less pre-delivery payments already paid). However, this is undoubtedly over-stated in light of airlines' intentions to defer deliveries and reduce capex.

Potential sources of funding

Then we turn to potential sources of funding. Borrowing on an unsecured basis is almost impossible in the current environment. Therefore, we evaluate the capacity to raise financing from property, plant and equipment (PP&E). Other assets such as gates, routes and slots have been used by a number of airlines as collateral for financing but are beyond the scope of this article.

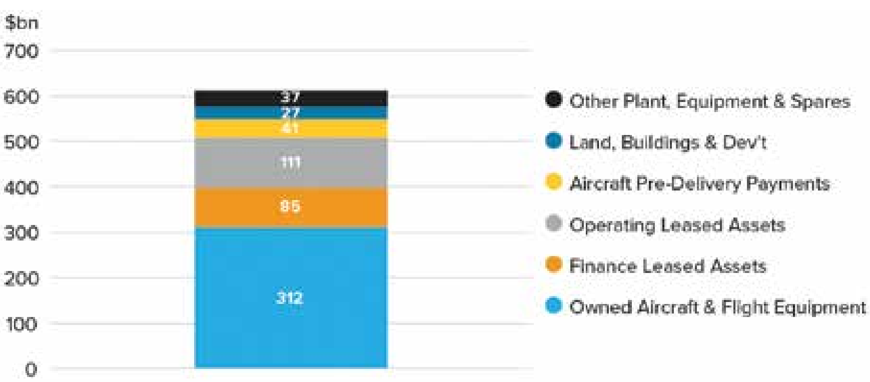
PP&E includes aircraft, spare engines, spare parts, real estate and facilities like cargo and passenger terminals and hangars and maintenance facilities. Since the adoption of the new IFRS 16/ASC 842 lease accounting standards on 1 January, 2019, this includes operating lease assets but these are already financed so cannot generate any new funds.

Key Industry[1] Figures

	$ billion	Date
Cash balances	$88	31/12/19
Current debt maturity	$63	31/12/19
Unearned revenue liability	$73	31/12/19
Forecast cash burn per IATA	$61	Q2 2020
Capex commitment	~$90	31/12/19

[1] 78 airline groups that have released 2019 financials
Sources: The Airline Analyst and IATA

Airline Industry* aggregate PP&E 31 December 2019



Source: The Airline Analyst

*78 airline groups that have released 2019 financials

Based on *The Airline Analyst* data, the chart shows the breakdown of PP&E as of 31 December, 2019 for the group of 78 airlines.

Global Airline Industry[1] Funding Capacity[2]

Values & debt	$bn	Source/Comments
Net book value of aircraft	$397	The Airline Analyst
FMV of owned aircraft[3]	$380	AFJ Fleet Tracker and Avitas BlueBook values
Secured debt	$166	The Airline Analyst (assumes 80% of secured debt is secured on aircraft)
Funding capacity		
Assumed SLB at FMV	$214	Fair market value (FMV) minus secured debt
Assumed max LTV of 70%	$100	70% of FMV minus secured debt

[1] 78 airline groups that have released 2019 financials [2] based on 31 December 2019 data – does not include recent transactions
[3] Avitas first half 2020 BlueBook values

Funding capacity

PP&E for the group of airlines totals $613 billion and owned and finance leased aircraft amount to $397 billion. Based on Avitas data, first half 2020 (pre-Covid-19) fair market values (FMV) of the owned and finance leased fleet was approximately $380 billion, suggesting some impairment. As we do not have a value for secured debt on aircraft specifically, we have assumed that 80% of the total balance sheet secured debt is secured on aircraft.

The calculated potential funding capacity on a secured debt basis with LTV of 70% is $100 billion. On a sale and leaseback basis, this rises to as much as $214 billion. That said, some assets might be un-financeable or attract lower loan-to-value ratios or be owned by un-bankable airlines so the actual amount financeable will be lower. The impact of Covid-19 on aircraft values will also be a factor that will reduce the funding capacity in practice. Another key question is serviceability by the airlines of the additional debt and lease obligations (see below).

This assumes that banks are lending and lessors are contemplating sale and leasebacks. In early April the Lufthansa Group communicated to the market that it had €17 billion of unencumbered aircraft that could potentially raise €10 billion.

On 23 April, Lufthansa issued a statement saying it "does not expect to be able to cover the resulting capital requirements with further borrowings on the market" and will instead pursue government support.

The Lufthansa datapoint suggests that sale and leaseback transactions may be a more successful strategy for raising liquidity than secured debt financings. There have been four large sale and leaseback transactions announced since early March: one for Delta Air Lines for $1.2 billion and three involving lessor BOC Aviation. The first BOC Aviation deal was for American Airlines for 22 787s, followed by Cathay Pacific for six 777-300ERs and the third was for United Airlines for six 787-9s and 16 737 Max 9s. Among the major lessors BOC Aviation's share price and bond pricing has been by far the most stable, protecting their debt market access and funding cost. Capacity for other large sale and leaseback opportunities may be impacted by capital and liquidity constraints amongst some of the global leasing companies.

Industry financials

Some crystal ball gazing about the financial stability of the global airline industry follows. The airlines in the sample generated $615 billion of revenue in 2019 with EBITDAR of $116 billion and EBITDAR margin of 18.9%. Leverage was 3.2x and fixed charge cover was 2.5x. Liquidity (excluding standby facilities) was the weakest of the four measures at 14.4 % of revenues, well below the historic rule-of-thumb minimum prudent level of 25%. We have assumed the quarterly cash burns for 2020 shown in the table. The total cash burn for 2020 of $121 billion is assumed to be 100% debt funded. Some of it might be funded as equity (e.g. SIA Group and United Airlines), by government grants or by releasing equity via sale and leasebacks. To that extent, the numbers may prove better than shown in the table. This will be addressed in the Cash Burn and Liquidity Report.

For 2021, if the industry experiences a decline of 30% in revenues over 2019 and a decline in EBITDAR margin to 15%, global EBITDAR (used as a proxy for operating cash flow) in 2021 will fall 44% from 2019's level to $65 billion. Despite assuming zero cash burn for 2021 (assuming limited capex, secured debt and operating lease markets open, no dividends), leverage would reach an uncomfortable 8.3x EBITDAR and Fixed Charge Cover could fall to 1.0x. The key metrics will be just about sustainable for 2021 but with little room for de-levering, putting maturing unsecured bond issues at risk. Of course, these are aggregate numbers and the industry performance will again be the aggregate of the individual airlines, the surviving ones, that is.

Global Airline[1] Industry Key Financials

Based on sample of 78 airlines that have reported their 2019 financial results

$ billion	31 December 2019	Q1 31 Mar 20	Q2 30 Jun 20	Q3 30 Sep 20	Q4 31 Dec 20	2021 Pro-forma annualised[2]
Total revenue	615					431
EBITDAR	116					65
EBITDAR margin	**18.9%**					**15%**
Cash burn	(6)	10	61	30	20	0
Balance sheet debt	267	277	338	368	388	388
Operating lease debt	107					150
Adjusted debt/EBITDAR	**3.2x**					**8.3x**
Average debt cost	5.1%	5.1%	6.0%	6.0%	6.0%	6.0%
Interest	14					23
Cash rents	32					44
Fixed Charge Cover (EBITDAR/ interest + rents)	**2.5x**					**1.0x**
Liquidity	88					88
Liquidity/total revenue	**14.4%**					**20.9%**

[1] 78 airline groups that have released 2019 financials [2] Assuming industry shrinks to 70% of 2019 size with lower EBITDAR margin *Source: The Airline Analyst*

Airfinance Journal Awards shortlists

AIRFINANCE JOURNAL AWARDS2019

More than 322 submissions were received for the *Airfinance Journal* Awards 2019, covering more than 110 unique deals.

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

Airfinance Journal has again revamped its global awards judging and categories to ensure our winners are the most deserving in the sector. Unlike other awards, which rely exclusively on their hosts' views, *Airfinance Journal* works with the collective voice of the global industry.

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

- **Ben Dijkhuizen**, former head of aviation research, ING Bank;
- **Richard Forsberg**, former head of strategy, Avolon;
- **Michel Dembinski**, former head of aviation EMEA, MUFG Bank;
- **Bertrand Grabowski**, independent advisor, ex-board member of DVB Bank's aviation and rail businesses;
- **Brian Jeffery**, chief commercial officer, Stratos, former chief financial officer, Nok Air and former SVP & group treasurer Emirates;
- **Christian McCormick**, former managing director, global head finance, CALC

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

After the AFJ editorial team has selected three short-listed deals for each award category, the judges will, completely independently, select the winners from your submissions.

There are 31 categories considered in this year's *Airfinance Journal* Awards.

Africa Deal of the Year
- Air Austral commercial loan for 5xA/c
- Royal Air Maroc $290m French tax lease with AFIC financing for 2x787-9s
- Ethiopian Airlines French tax lease for 2xA350-900s

Asia-Pacific Deal of the Year
- Avation commercial loan for 3xATR72-600s
- Ortus Aircraft Leasing II $300m aviation fund
- Castlelake $598m commercial loan for 24xA/c

Europe Deal of the Year
- Norwegian Air Shuttle $340m amendment to commercial bonds
- Avolon $2.5bn bond issuance
- Nordic Aviation Capital $786m private placement

Latin America Deal of the Year
- Avianca $4.5bn lease and debt re-profiling programme for 53xA/c
- Gol equity issuance
- LATAM $224m Jolco for 8xA320s

Middle East Deal of the Year
- El Al $150m AFIC covered Jolco for 1x787-9
- Dara Aviation $500m Islamic finance for 19xA/c
- IAFC Islamic finance for 5xA330s

North America Deal of the Year
- Hawaiian Airlines commercial loan for 6xA/c
- Titan Aviation $400m aviation fund
- Altavair $750m portfolio finance

Bank Loan Deal of the Year
- PK Air $3.6bn commercial loan
- Dara Aviation $500m Islamic finance for 19xA/c
- Avation commercial loan for 3xATR72-600s

Guaranteed Financing Deal of the Year
- El Al $150m AFIC covered Jolco for 1x787-9
- Air Tahiti Nui $250m AFIC French tax lease for 2x787-9s
- Turkish Airlines $290m French tax lease for 5xA320s

Operating Lease Deal of the Year
- VietJet Air Sale leaseback for 10xA/c
- JOL Air $554m ABS for 15xA/c

Sale and Leaseback Deal of the Year
- VietJet Air Sale leaseback for 10xA/c
- Etihad Airways $94m Islamic financing/Istisna' structure
- Air Europa $215m sale leaseback and PDP financing for 3x787-9s

Used Aircraft Deal of the Year
- Dara Aviation $500m Islamic finance for 19xA/c
- Sunclass Airlines Lease restructuring for 3xA321s
- Castlelake $598m commercial loan for 24xA/c

Tax Lease Deal of the Year
- TAP Portugal $200m French tax lease for 2xA330-900neos
- ICBC Leasing $680m French tax lease for 15xA/c
- Cargolux Airlines Jolco for 2x747Fs

Structured Lease Deal of the Year
- Crianza Aviation commercial loan for 1x787-9
- Etihad Airways $94m Islamic financing/Istisna' structure
- VietJet Air $37.5m commercial loan for 1xA321neo

Equity Deal of the Year
- Titan Aviation $400m aviation fund
- Bain Capital $179m convertible loan for 4xA/c
- M&G Investments $300m aviation fund

M&A Deal of the Year
- MUFG/DVB Bank €4bn M&A
- Apollo Global Management/ Athene $3.5bn M&A
- Mizuho Leasing/Ping An Leasing Aviation M&A

Lessor Unsecured Bond Deal of the Year
- Nordic Aviation Capital $786m private placement
- ICBC Leasing $600m bond issuance
- Avolon $2.5bn bond issuance

Airline Unsecured Bond Deal of the Year
- Norwegian Air Shuttle $340m amendment to commercial bonds
- IAG €500m bond issuance
- TAP Portugal €375m bond issuance

EETC Deal of the Year
- American Airlines 2019-1 $650m engine private placement
- United Airlines 2019-2 $1.22bn EETC for 19xA/c
- JetBlue Airways 2019-1 $772m EETC for 25xA321s

ABS Equity Deal of the Year
- Horizon 2019-2 $602m for 18xA/c
- Raptor 2019-1 $726m ABS for 19xA/c
- CLAS 2019-1 $867m ABS for 28xA/c

ABS Deal of the Year
- Horizon 2019-2 $602m ABS for 18xA/c
- JOL Air $554m ABS for 15xA/c
- CLAS 2019-1 $867m ABS for 28xA/c

Innovative Deal of the Year
- JOL Air $554m ABS for 15xA/c
- Avation commercial loan for 3xATR72-600s
- Etihad Airways $94m Islamic financing/Istisna' structure

Overall Capital Markets Deal of the Year
- Norwegian Air Shuttle $340m amendment to commercial bonds
- ICBC Leasing $600m bond issuance
- Avolon $2.5bn bond issuance

Overall Deal of the Year
- Avolon $2.5bn bond issuance
- MUFG/DVB Bank €4bn M&A
- Apollo Global Management/ Athene $3.5bn M&A

Editor's Deal of the Year
Presented by the *Airfinance Journal* editorial team

News Event of the Year
Presented by the *Airfinance Journal* editorial team

TEAM SHORTLISTS

Aviation Finance House of the Year
- BNP Paribas
- Goldman Sachs
- Citi
- Deutsche Bank

Lessor of the Year
- Avolon
- CALC
- Tokyo Century-Aircastle

Lessor Treasury Team of the Year
- Avolon
- BOC Aviation
- Air Lease

INDIVIDUAL AWARD WINNERS

Aviation Woman of the Year
To be announced at the event

Aviation Finance Person of the Year
To be announced at the event

Lifetime Achievement Award
To be announced at the event

Get it right **with growth**

CFOs and their teams must be ready to support a broad range of portfolio enhancing transactions to capitalise on evolving market opportunities and prep platforms for post-pandemic re-restart and re-acceleration of growth.

Accretive portfolio acquisition and fleet value-enhancing trading opportunities are becoming increasing nascent for lessors in the midst of the pandemic-induced, fast-evolving market conditions. To capitalise on these emerging opportunities, lessors must 'get it right with growth,' by establishing a truly world-class finance organisation that will support their efficient post-pandemic re-restart of operations and advance their ambitious growth agenda.

There is an increasing need for chief financial officers (CFOs) and their finance organisations to take on a broader scope of transaction processing and decision support-related responsibilities. Through our work with global leasing platforms of all sizes, the Zeevo Group ("Zeevo") team has amassed deep insights into an array of finance transformation challenges facing CFOs and their finance organisations – and proven strategies to tackle them.

"Understanding the challenges and adopting leading practices will increase the finance function's ability to fulfill their expanded role at the executive table, especially now when the C-suites are focused on weathering the pandemic-related impacts on business and poised to chart the best path forward while taking advantage of emergent growth opportunities," posits Zeevo chief executive officer Joey Johnsen.

Finance transformation is not one size fits all

Each lessors' finance organisation has a different set of priorities and is facing distinct pain points. Value-added finance transformation doesn't need to be a complete overhaul; rather it can be deployed through either a *performance restoration* or *initiative by initiative approach*.

Johnsen underlines that finance transformation does not follow a "one-size-fit-all" approach, because "for one lessor, transformation may mean redefining its target operating model for finance by adding heads in other timezones, while for another, it may mean relying more heavily on estimates to close the books more timely. For yet another, it may mean enhancing usage of lease and asset management systems or implementing a new treasury management system. For other lessors, the goal might be to revamp the entirety of its finance operation."

"Understanding the challenges and adopting leading practices will increase the finance function's ability to fulfill their expanded role at the executive table."

Joey Johnsen, chief executive officer, Zeevo

Finance is a service delivery business and finance organisations grow as the businesses they serve expand. Leading lessors' finance organisations are in need of a common and consistent approach to finance that standardises both transactional and business support services across geographies and business units.

To strategically support platform growth, lessor CFOs must recalibrate facets of their finance operations, including those related to organisational effectiveness, information quality, timeliness and consistency, talent management, internal controls and corporate governance, business performance management, among others.

For more than a decade, Johnsen and her team have collaborated with finance chiefs across industries in carrying out finance transformation initiatives that were targeted to fast-track the growth of their evolving enterprises, from start-up through Fortune 500-sized operations. The following are the key considerations CFOs need to take into account when undertaking efforts to transform their finance organisations:

- Identify the most suitable finance operating model;
- Standardise, integrate, and automate processes;
- Improve decision support;
- Manage risk;
- Enhance cash and treasury management.

Finance operating model

It is common for lessors to have different finance operating models for various regions and lines of business. In particular, companies undergoing growth through M&A activities face certain operational misalignments that may result in increased costs and duplicative activities.

Johnsen points out that "prior to the Aercap acquisition of ILFC, the ILFC finance team was hyperfocused on 'follow the sun' support as it related to finance delivering for and partnering with the rest of the business."

Lessors may benefit from designing an operating model where finance conducts the appropriate activities and delivers the right mix of services based on cost, location, in-house staffing, and outsourcing resources. Johnsen adds that "leading organisations leverage a global talent pool, going offshore as appropriate both for commodity services and to fill leadership and management roles."

CFOs can successfully identify an effective operating model for their finance function by establishing centers of excellence and shared service centres. "To build an effective target operating model, we have provided our clients with a detailed analysis of various factors, such as: locations, technologies, and the skills, knowledge, and abilities of team members," underscores Johnsen.

Standardised, integrated, and automated processes

The key to reaching across siloed systems and unifying business processes, as well as automating an extremely manual process is to develop comprehensive, well-designed workflows.

Whether it's small, departmental processes that handle document approvals, or complex processes, such as new aircraft deliveries, security deposit refunds, or managing reserve claims, Johnsen contends that "it is intelligent workflows will take your operations to a new level."

"We have assisted clients, with portfolios as small as 20 aircraft, to automate their business processes, departmental to organisation-wide, and from a single office location to those that connect to content and systems throughout your global enterprise," she indicates.

Improved decision support

Insufficient access to data, be it fleet, financial, or customer-related, may hinder a lessor's ability to identify and deliver the right information at the right time to the C-suite.

Johnsen poses a number of questions CFOs should ask their teams to determine their level of preparedness to supply critical intelligence to their C-suites. "The data you need already exists in your systems, but that only matters if you can access and present it in a way that is meaningful to your users."

CFOs should ask: "Is our data current, but kept in multiple systems, making it difficult to bring together in one simple report? Is the ability to make fast, reliable decisions based on accurate and usable information essential to your business?

Operational and management reporting, as well as business analytics, can enable the finance team to predict what will likely happen by combining current and historical asset data with information from other internal and external sources, among them:

- contractual obligations;
- reserve balances;
- cashflow and payment history;
- operator-specific maintenance programmes;
- maintenance, reconfiguration and asset return/delivery costs;
- operator fleet profiles and credit assessments; and
- new aircraft specification costs.

In past engagements, Johnsen recalls, "the core focus has been on how to ensure the information the finance team extracts from their systems is consistently classified and clearly presented across the organisation."

Below is a selection of ways in which the finance team can ensure the reliability and solidity of the presented information:

- Maintenance events, costs, and intervals are tracked and classified properly for forecasting and reserve rate benchmark purposes;
- Utilisation and reserve balances are accurate with visibility into all related maintenance reserve claims;
- Specification data is standardised and current;
- Aircraft and engine lease agreements are managed according to the lessor's rights and responsibilities;
- Lessor and lessee commitments and contributions, component swaps/exchanges, escalations and reconciliations are clearly visible and concisely executed at the asset, lease, and maintenance reserve fund levels;
- New aircraft/engine specification costs are captured effectively;
- Project budgets are aligning with outgoing purchase orders and incoming invoices;
- Project tracking consistency (e.g., estimated dates, repossession classification details, project notes, assigned resources) across all projects; and
- Deal tracking or market and global intelligence is captured consistently across all customers.

Risk management

"Managing risk has never been more critical—and more challenging—for lessors, especially in the global market environment pummeled by the pandemic," stresses Johnsen.

Johnsen postulates that the effective management of credit, market, environmental, social, and governance (ESG) and climate risks, as well as operational risks, is already "a matter of survival for lessors and will continue that way in the near future, particularly post the pandemic."

Sweeping regulatory mandates and enhanced focus on ESG complicate matters by adding to the complexity already created by industry-specific and country-specific regulations.

"For finance teams to seek external support from management professionals, who are well versed in regulatory oversight and stay on top of developments, is key to helping their organisations comply with regulations, respond to events of non-compliance, and improve processes around information systems that support GRC (governance, risk, and compliance)."

Cash and treasury management

With fast-emerging growth opportunities requiring immediate reaction, lessors are pressured to accelerate their growth rapidly, lagging on carrying out even the most fundamental treasury functions, such as cash management, banking, debt and funding, investments, and risk management for currencies and interest rates.

"Such shortcomings are only amplified as lessors expand into new markets, often lacking an operating model and infrastructure to support their activities, portfolios, and risks," warns Zeevo Senior advisor Paul McDowell.

> *"Knowing cash positions and debt management is at the core of good balance sheet management and that requires a system that can track all of your treasury related needs in one solution."*
>
> **Paul McDowell**, senior advisor, Zeevo

Driving free cash flow predictably is fundamental to building corporate value, but aircraft and engine lessors are challenged by manual processes, disparate systems, and lack of automation.

"Precise funding and liquidity management requires a clear understanding of projected in-and-out flows from the business today and in times of stress," explains McDowell. "Knowing cash positions and debt management is at the core of good balance sheet management and that requires a system that can track all of your treasury related needs in one solution."

McDowell reflects on Zeevo's past engagements, saying: "we have walked in lessors' shoes," because the team has directly supported transforming forecasting and treasury through improved process design and technology enablement.

"To build a truly world-class finance organisation, you need in-depth knowledge of treasury management systems and processes, as well as broad exposure to selecting, implementing, and using various treasury management systems," concludes McDowell.

Zeevo can assist

Zeevo is a proven provider of end-to-end finance transformation solutions covering finance strategy and vision, finance organisation and talent strategies, finance process redesign and adoption, as well as finance systems changes.

With the industry-leading expertise and bench strength of our team, well versed in the full spectrum of finance transformation and M&A activities, Zeevo will make sure your business has effective processes that enhance control, create value, and drive performance improvement, among the many other aspects of building your platform's world-class finance function.

Maintenance providers face **uncertain future**

Geoff Hearn looks at the commercial aircraft maintenance repair and overhaul market.

Financiers have not always well understood the maintenance repair and overhaul (MRO) of aircraft. However, losses resulting from poor maintenance have focused minds and good maintenance providers are increasingly important partners of the leasing industry, which has a vested interest in a healthy and competitive supply side of the MRO market.

The health and outlook for the MRO industry are, of course, at the mercy of the economic impact of the Covid-19 virus.

Uncertain future

Forecasting was difficult in the world before the Covid-19 outbreak – it is now virtually impossible in the midst of the current crisis.

The health of the MRO market is dependent on the wider commercial aviation sector, which is facing unprecedented and arguably existential threats. Even before the current crisis, the management consultancy firm Oliver Wyman believed that the next decade was going to be more challenging for the industry than the one just passed.

The consultancy cited several threats, including: slower economic expansion, increased congestion, trade-related issues and pressure on the industry to address climate change more actively. Despite these concerns, the firm believed the worldwide fleet would grow to more than 39,000 aircraft by the beginning of 2030.

The fleet growth was in turn forecast to increase demand for MRO services to about $130 billion by 2030 from its current level of $91 billion. However, the previous concerns are dwarfed by the impact of Covid-19 and, Oliver Wyman, as of the end of March, expected between $17 billion and $35 billion of its original $91 billion 2020 forecast to be wiped out.

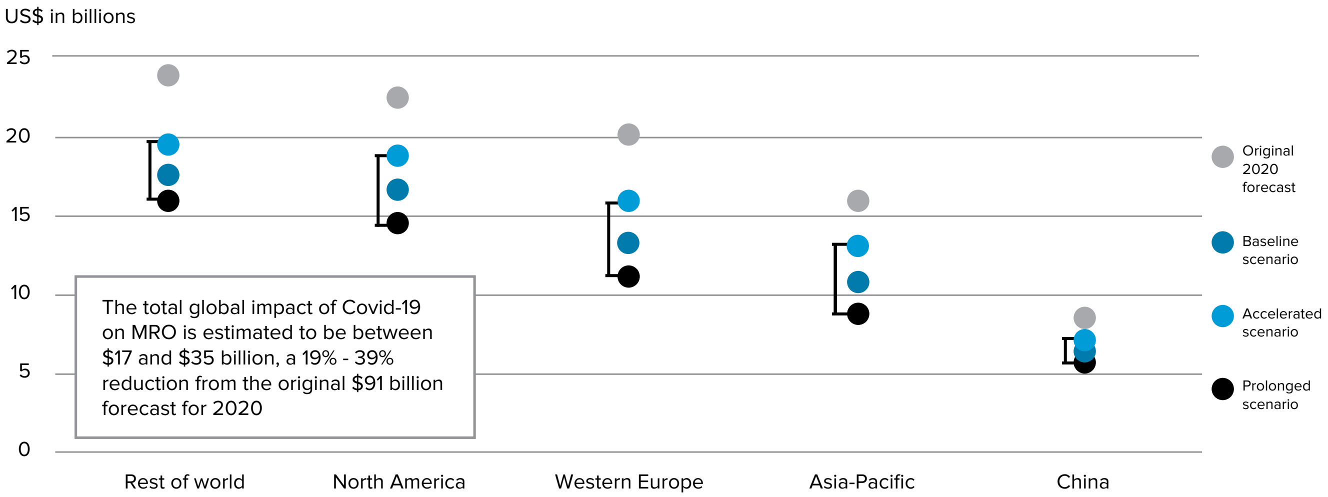
In an interview with *Airfinance Journal*, Oliver Wyman partner David Stewart says that this would be a U-shaped recession not a V-shaped one, implying that recovery will take place over an extended period.

Airlines are in cash-conservation mode and are therefore likely to postpone or stop spending on third-party MRO services. Even when travel demand resumes, the need for MRO services will be reduced because in-service fleets will be smaller.

The problem will be compounded, because airlines will continue to minimise cash spending by deferring maintenance as long as possible and looking to source parts from parted-out aircraft that have retired earlier than anticipated because of the crisis.

Stewart says that line-maintenance has been the first sector to be impacted as airlines ground swathes of their fleets. His understanding is that many engine shops had a large backlog of work as the virus struck, which will shield them for maybe two to three months.

Oliver Wyman forecast of MRO demand in 2020



Source: Oliver Wyman Analysis; 3/23/20 Outlook

Longer-term trends

The $130 billion market by 2030 is clearly in doubt, but as the industry recovers, some trends are likely to remain unchanged. For example, engine-overhaul accounts for nearly half the total value of the MRO market and is set to retain this level of importance.

Before Covid-19, the Boeing 737 Max grounding was one of the major factors in the prospects for the MRO industry. The impact of the grounding and corresponding production pause has a complex impact on MRO demand. The absence of a production ramp-up of Boeing's latest-generation narrowbody will be first felt as the first round of heavy maintenance becomes due.

How the current emergency will impact the 737 Max's return is another open question. The lack of 737 Max work would perhaps have been offset to some extent by airlines continuing to operate older models such as 737NGs and previous-generation Airbus A320s, which require more maintenance than their newer replacements. Whether this remains the case is a function of the recovery.

Independents retain role in airframe maintenance

The airframe MRO market, which accounts for just below 20% of all MRO spending, continues to be the domain of suppliers that are independent of the manufacturers, although Boeing and Airbus have tried to gain footholds in the market segment. Surveys differ as to which of the independent suppliers is the market leader, but ST Engineering of Singapore and the Hong-Kong based HAECO Group appear to be the top two in terms of airframe workhours expended, while Lufthansa Technik tops most tables in terms of total revenues, with a turnover exceeding $5 billion.

A threat to the independent suppliers comes from the increasing importance of access to data. Although technically the property of operators, the original equipment manufacturers (OEMs) are increasingly able to control the handling and processing of data, which is a significant advantage when competing with independent suppliers.

The independent suppliers are also faced with an issue that maintenance requirements of new-technology aircraft are diminishing in terms of labour requirements. A 787 typically requires about one-third as many workhours for C-checks as the older technology 767. However, investment requirements are higher than for previous generation models, which tend to make it more difficult for smaller suppliers to compete.

Engine overhaul increasingly the domain of OEMs

The technology advances of the latest engines are a major driver of the improved efficiencies of the latest generation of aircraft – both narrowbodies and widebodies. However, in a world where fuel was about $3 per US gallon, reduced maintenance costs were less of a priority for designers of the latest generation of aircraft than improved fuel consumption. As a consequence, the latest generation of engines look unlikely to provide maintenance savings over the previous generation – particularly types, such as the CFM56 engine, that have been setting records for times on wing.

Even after the reliability problems that are besetting many of the new engines have been resolved (most commentators believe they will be), the latest models are likely at best to match current maintenance costs. The vast majority of operators have, to some extent, been shielded from the cost of the early in-service problems because virtually all new-technology engines are covered by manufacturer schemes that in some form or other cap costs and provide a degree of certainty in return for regular payments linked to utilisation.

These schemes have their advantages but have caused conflict over entitlement to accrued funds and obligations over liabilities. Manufacturers have tried to introduce schemes that are more suitable for leased aircraft/engines, but problems remain.

Components

The increasing adoption of manufacturer schemes is a long-standing trend for engines and one that has become increasingly prevalent in high-value rotable (repairable) components, which account for about 20% of MRO spending.

Arguably, the most complex task for rotables is the planning and holding of inventory. Operators have increasingly outsourced these operations either to OEMs or third-party specialists. With increasing demand for an efficient and cost-effective supply chain for rotables, there have been great efforts within the aviation industry to improve inventory systems and again data management plays a big role.

Lessors increasingly important

Much of the growth in the worldwide commercial aircraft fleet has been supported by the acquisition of aircraft by leasing companies, which have more than doubled their fleets over the past 10 years.

Although MRO organisations primarily interface with operators, they are increasingly aware of the interests of lessors.

Aviation consultancy IBA suggests the total maintenance obligations of leased aircraft amount to about $25 billion a year. About 50% of the spend is paid to lessors in advance of any maintenance activity via cash reserves and/or letters of credit arrangements. This source of cash flow can be a significant contributor to the finances of the lessor.

As owners of aircraft assets, leasing companies generally need to take more account of the whole lifecycle of the aircraft. The other key difference from airlines is that lessors do not want non-standard modifications introduced on their fleets, as such changes may make aircraft more difficult to place with new operators and can complicate redelivery procedures.

Given the growth of the leased fleet, the quantity of redeliveries is bound to increase. Some industry analysis suggests that leased aircraft typically change hands four times over their lifetime, although there is a view that this number may be decreasing, particularly for aircraft types other than conventional single-aisle models.

The end-of-lease process can be time-consuming and most observers suggest that preparations and planning tend to be started too close to the eventual transfer. This can be particularly problematic for interior work, because cabin parts tend to have very long lead-times, which may have a serious impact on the redelivery process. This can be expensive for operators and a source of conflict as lease contracts often stipulate that delays to redelivery will be charged to the lessee at a penalty that typically doubles the lease rental cost – although in the current crisis, it is questionable that such penalties could be collected.

“With the outbreak of the corona crisis, nothing is the same as it was just a few weeks ago. Everything depends on the duration of the crisis and how our customers will recover from it.”

Johannes Bussmann, chairman of the executive board, Lufthansa Technik

Conventional wisdom in the industry is that long-term relationships between operators and maintenance organisations are likely to provide the best results for both parties. The same logic applies to the relationship between MRO provider and lessor, but because the requirements from lessors are less predictable, such relationships are more difficult to develop.

An uncertain future

As one of the leading MRO organisations in the world, Lufthansa Technik is a barometer of the industry. The company had a successful 2019, but the prospects for 2020 are uncertain.

In its recently published results, the company said it closed 2019 with record revenue and earnings of €6.9 billion ($7.1 billion), up 13% from the previous year. While highlighting the successes of 2019, Johannes Bussmann, chairman of the executive board, also sounded a warning.

“With the outbreak of the corona crisis, nothing is the same as it was just a few weeks ago,” he says. “The maintenance industry is already suffering from the decline in air traffic. The full extent will hit us with a delay, which means a forecast is currently not possible, but first impacts are massive. Everything depends on the duration of the crisis and how our customers will recover from it.”

Mitsubishi SpaceJet – scope for improvement

The Japanese regional jet has been re-configured to conform to US pilot agreements, but other challenges remain.

SpaceJet flight-testing has been disrupted by the Covid-19 crisis

The Mitsubishi SpaceJet family consists of two twin-engine regional jet aircraft - the M90 and the M100. The two models offer seating for between 70 and 90 passengers. The SpaceJet models are the latest incarnations of the Mitsubishi Regional Jet (MRJ) programme, which has had a turbulent development history.

The aircraft's origins go back to 2003 when the Japanese government funded a development project led by Mitsubishi Heavy Industries.

The programme was formally launched in 2008 with a commitment for 25 aircraft from Japanese carrier All Nippon Airways. Entry into service was initially targeted for 2013. There have, however, been a series of delay announcements. Prior to the latest relaunch, the first deliveries were scheduled for mid-2020, but the entry into service has been pushed back again to 2021/22.

The M90 is essentially a re-named MRJ90, but Mitsubishi has added the M100, which is specifically targeted at meeting the relevant take-off weight and seating limits stipulated by the pilot contracts (scope clauses) of the major US carriers.

As part of its strategy in the regional aircraft market, Mitsubishi is acquiring Bombardier's CRJ programmes. Mitsubishi will hope to get CRJ operators to order SpaceJets as replacements for the Canadian-built regional jets as they reach retirement age.

However, a more important aspect of the acquisition is that it gives Mitsubishi access to Bombardier's expertise and infrastructure, which can be used to support the SpaceJet development and entry into service.

Mitsubishi Heavy Industries' president and chief executive officer, Seiji Izumisawa has said: "This transaction represents one of the most important steps in our strategic journey to build a strong, global aviation capability. It augments these efforts by securing a world-class and complementary set of aviation-related functions including maintenance, repair and overhaul, engineering and customer support."

A source told *Airfinance Journal* that great efforts have been made to retain Bombardier personnel and expertise as the deal goes through.

Mitsubishi announced in mid-March that it had completed the maiden flight of the first M90 in its "final, certifiable baseline configuration." Flight test vehicle 10, as it is designated by Mitsubishi, is set to join the other aircraft in the US-based flight test programme. However, activity at the company's facility in Washington State is being curtailed by the Covid-19 outbreak.

In terms of the overall impact of Covid-19 on the market prospects for the regional aircraft sector, Mitsubishi is trying to remain upbeat. A company statement posted on 16 April said "It's self-evident that this is a

Comparison of SpaceJet and E175-E2 leading characteristics

	M90	M100	E175-E2
Typical seating	88 at 32-inch pitch	84 at 31-inch pitch (76 in three-classes)	88 at 31-inch pitch (80 in three-classes)
Range (nautical miles/km)	2,040/3,770	1,910/3,540	2,000/3,700
MTOW (tonnes)	42.8	42.0	44.6
Fuel capacity (litres)	12,100	12,100	10,650
Engines	2 x PW1200G	2 x PW1919G	2xPW1715G
Thrust (kN/lbf)	78.2/17,600	78.2/17,600	67/15,000

Source: Manufacturers' published data

remarkable event in terms of the scale and impact across commercial aviation.

That said – and with the caveat that these remain the early days of a still-unfolding event – our analysis indicates that regional aviation has so far proven to be resilient relative to the overall sector, and that past disruptive events offer signs of hope and strength on the other side of a difficult period."

Competitive advantage

The SpaceJet is equipped with the latest generation engines in the guise of Pratt & Whitney's geared turbofan (GTF) design. Unlike some of its competitors it also boasts an all-new airframe design, which Mitsubishi says allowed its engineers to employ advanced aerodynamics.

Mitsubishi literature suggest the aircraft has a "double digit fuel reduction and a double digit cost reduction compared with comparable jets". Whether the design is more efficient than the Airbus A220, which is also an all-new design, remains a matter of conjecture until the manufacturer's claims are backed up by flight-testing and in-service experience. The competing Embraer E175-E2 is not an all-new design, but as well as using the GTF engine, the second generation E-Jet features a new wing design and some significant aerodynamic improvements to the airframe.

How big an operational advantage the Mitsubishi will have over its direct rival is certain to be the subject of claim and counter claim by the respective manufacturers. The view that potential customers take on this could be critical in determining the success of the aircraft, although the ability to meet the US scope clauses might be a more significant factor.

Despite being the last of Embraer's E2 family to come to market, the E175-E2 is targeting a similar timeframe to the SpaceJet for entry into service. The Brazilian aircraft made its first flight in December 2019 and Embraer expects the testing and certification programme to take two years. The second generation E175 does not have any orders as yet, but Embraer will be hoping to leverage the customer base for the first generation of the aircraft, which has a strong presence in the North American market.

Interior

Given the new name of the aircraft, it is unsurprising that Mitsubishi's marketing material makes much of the comfort levels afforded by the SpaceJet's interior, claiming to have "the widest economy seat in all of air travel". The SpaceJet's has a circular fuselage as opposed to the double-bubble structure of the E-Jet models. Mitsubishi says this provides more width at shoulder level. However, Embraer extols the virtue of the E175 cabin cross-section, insisting it maximises personal space.

Future developments

Mitsubishi Aircraft indicated at the Singapore air show in February that there was interest in developing a larger aircraft called the M200. The manufacturer claims it would carry about 100 passengers and would be ready about two years after the first deliveries of the M100 model.

Appraiser view

Olga Razzhivina, senior ISTAT appraiser, Oriel gives her views on the prospects for the "SpaceJet programme."

Like everything in the aviation industry, the recently re-named SpaceJet has been affected by the unprecedented circumstances caused by the Covid-19 pandemic. Prior to the current crisis, the first delivery of the Mitsubishi Regional Jet (MRJ), had been a moving target, and was continuously pushed back by re-design requirements and certification delays. The latest SpaceJet offerings, in the guise of the M90 and M100 variants, face an even greater challenge.

In a pre-Covid-19 world, revamping and re-sizing the MRJ programme appeared to be a logical step, given the main market for the regional jets is still governed by US Pilot agreements (scope clauses). Just a few months ago, the US majors were in such a strong financial position that it seemed impossible for the pilots to consent to any relaxation of the scope clause rules limiting the size and weight of regional aircraft.

Thus, at the time it was prudent to find ways to adjust to such limitations by creating a smaller 70-seat version of the SpaceJet. Today the world has changed so dramatically that a relaxation of the scope clauses is very much a possibility as unions are more prepared to engage with airlines to facilitate their survival. What will such a change mean for the SpaceJet? Firstly, if the permitted size of regional aircraft is increased, there might be no need for the smaller M100, as both the M90 and the E175-E2 could become scope-compliant.

However, airlines may choose to move even further up to the size of the A220/E190/E195. The persistence of social distancing limitations requiring spacing of passengers may also make regional aviation economically non-viable. Similar restrictions at the airports could result in increased travel times and the passengers switching to cars even on cross-country routes as we saw after 9/11.

In other markets, Europe is likely to see its regional aviation seriously opposed by the environmental lobby. With a developed rail network, the pre-pandemic size of the regional fleets might be significantly curtailed. Asia suffers from lack of infrastructure and may opt for larger regional jets and possibly turboprops to serve secondary airports.

Both the E175-E2 and the M90 would be susceptible to such market changes. The larger E2 variants are already certificated and have started production. Introduction of the E175 would be an easy step for Embraer.

With larger E2 aircraft already available, Embraer can postpone decision on E175-E2 until the market becomes more certain. The SpaceJet is yet to be certificated and little is known about eventual production rate capability and the rate at which it can be ramped up.

Olga Razzhivina, senior ISTAT appraiser

Even if production goes ahead, it is likely to be in small numbers at limited build-rates.

The purchase by Mitsubishi of the Bombardier CRJ programme, which is expected to close in 2020, should provide the SpaceJet programme with an experienced sales and support organisation. This move followed the planned tie-up between its competitor Embraer and Mitsubishi's long-term industrial ally Boeing - a venture that collapsed at the end of April.

The SpaceJet's ability to survive might not depend on pricing but on the much bigger question as to whether there will be a market of sufficient size in this category of aircraft to support the introduction of two new models.

A321neo versus 737 Max - on hold

With the Boeing 737 Max family still grounded, **Geoff Hearn** looks at what hope Boeing has of competing with the Airbus A321neo in its various guises and how the Covid-19 crisis might impact the outcome.

The largest members of the Boeing and Airbus competing single-aisle families increasingly hold the key to which manufacturer wins the battle for market share in the narrowbody segment. The addition of the XLR variant of the Airbus's A321neo during the grounding of the Boeing Max family would seem to further tilt the competition in the European manufacturer's favour. However, conventional thinking is thrown into doubt by the coronavirus outbreak, which is completely disrupting the operations of the respective manufacturers. Given the dire impact on their customers and their supply chains, it is not clear when airframe manufacturers will be able to return to anything near their planned production levels and delivery schedules, even after the worst of the crisis is over. How this will impact Airbus's lead in terms of fleet numbers is uncertain. Boeing's task of ending the Max grounding and recommencing deliveries is clearly made more difficult by the measures introduced to control the spread of the virus, so the US manufacturer is unlikely to be able to capitalise on any pause or decline in Airbus deliveries.

It is not clear when manufacturers will be able to return to their previous production levels

Surviving the Covid-19 crisis

The first priority of the manufacturers is to shore up their finances to survive the crisis. Whilst the prospect of either company going out of business seems unthinkable, Boeing and Airbus risk building aircraft that the market doesn't want or can't absorb, at least in the short-term. That implies that a lot of funding will be required to sustain the market.

Boeing has requested $60 billion in government aid to support the broader US aerospace manufacturing sector, which has ground to a near standstill as Covid-19 continues to spread.

The US manufacturer has already drawn down a $13.8 billion loan and taken measures to preserve cash including a hiring freeze. It is shutting down further production having already shut down its Renton plant as a result of the 737 Max grounding.

Airbus has undertaken a series of emergency measures to strengthen its finances to help it survive the crisis. The company has secured €15 billion ($16.4 billion) of new funding from lenders on top of an existing €3 billion facility. Airbus stressed to *Airfinance Journal* that this is a backup facility, adding that it has "not drawn on its credit lines since the beginning of the crisis".

The European manufacturer has announced various closures and partial closures of its manufacturing sites around the world. Airbus announced in early April that it would be cutting production rates, including reducing the target A320 family build-rate to an average of 40 per month. The company did not specify what proportion of these would be A321s.

The huge combined backlog of new generation single-aisle aircraft, which stands at over 10,000 units, provides some comfort to the manufacturers. However, it is deliveries that drive manufacturer revenues and returning to viable production rates is critical to restoring financial stability. Airbus remains in a stronger position than its rival in this regard as Boeing first has to sort out the re-certification issues of the Max family.

A321 strengthens Airbus' position

The A321 aircraft is a particular plus for Airbus, as its popularity looks likely to continue, with the Max 10's certification schedule presumably under threat, despite the commencement in March of ground trials (taxiing tests). The expanding capabilities of the A321 family, including the addition of the XLR long-range variant stand the aircraft in good stead.

There have been clear signs that the industry had an appetite for Boeing's larger models and that the Max 10 variant was

Total orders for Neo and Max families

Type	Orders	Delivered	Type	Orders	Delivered
A319neo	84	none	737 Max 7	62	none
A320neo	3,950	953	737 Max8	3,678	357
A321neo	3,338	322	737 Max200	135	none
			737 Max9	346	28
			737 Max10	524	none
Total Neo	**7,372**	**1,275**	**Total Max**	**4,745**	**385**

Source: *Airfinance Journal* Fleet Tracker 22 April, 2020.

much more competitive than the Max 9. Boeing was able to announce a flurry of orders when the Max 10 was launched and there had been some encouraging recent signs, despite the grounding.

Ryanair is reported to have offered to order the Max 10 to add to its contract for the Max 200 – a variant specifically developed to cater for the low-cost carrier's requirements.

Even before the current crisis, the order was unlikely to have been firmed up before the Max returned to service, but in the current situation it is difficult to see when airlines will return to ordering mode. Many carriers are looking to defer or even cancel orders. Easyjet, for example, is trying to get out its commitments. The airline's founder and major shareholder, Stelios Haji-Ioannou, is pressuring the board to cancel orders for over 100 Airbus aircraft, including 19 A321s. Boeing's orderbook has been resilient despite the 737 Max's problems, but the coming months are critical for the programme and over 200 firm orders were cancelled in April.

Indicative relative cash operating costs (COC)

	A321neo	737 Max9	737 Max10
Relative trip cost	Base	97%	98%
Relative seat cost	Base	103%	99%

Assumptions: 500 nautical sector, Fuel price $2 per US gallon. Fuel consumption, speed, maintenance costs and typical seating layouts are as per Air Investor 2020. Capital costs based on list prices.

Key data of large next-generation single-aisle models

Model	A321neo	737 Max 9	737 Max 10
Engine	CFM LEAP-1A or PW 1100G	CFM LEAP-1B	CFM LEAP-1B
Thrust per engine (lbf)	27,000- 33,000	27,300	27,300
Max seating	244	220	230
Typical seats single class	206	178-193	188-204
Typical range (nm/km)	3,995/7,400*	3,215/5,955	3,300/6,110
(Target) entry into service	2017	2018	(2020)

*XLR model offers additional range
Source: Manufacturers'' data

Operating costs

At the moment there are bigger factors than operating costs influencing how interested parties are viewing the respective merits of the A321neo and Max 10 families. However, once both aircraft types are back in service their relative efficiency will again come under scrutiny and will influence purchase decisions. Recent studies by *Airfinance Journal* suggest the cash-cost differential per trip between the Max 10 and the A321neo is marginally in the Boeing aircraft's favour and remains so even when the A321's seat advantage is considered.

Whether this differential will be sufficient to convince airlines and financiers to opt for an aircraft that is less operationally capable than its competitor is debatable. In reality fleet selection decisions are likely to be based on broader criteria and in particular on pricing, financing and availability.

The case for choice

Geoff Hearn talks to IBA's David Archer about the pros and cons of A320 and 737 Max engine options.

A major difference between the A320neo and 737 Max families is that the former offers a choice of engine manufacturer. The sole engine model on the 737 Max is the LEAP-1B from CFM International, whilst on the Airbus aircraft the Pratt & Whitney PW1100G geared turbofan (GTF) is offered in addition to the LEAP-1A engine.

Dual engine suppliers can be seen as a negative, because the fleet is split – potentially reducing re-marketability. In large fleets multiple engine choice should not be a problem provided all variants are delivered in substantial numbers.

Nonetheless financiers and lessors tend to favour the single-source solution and the split fleet is thought by some appraisers to have contributed to values of first generation A320s performing less well than those of the competing single engine-source 737NG models. Airlines, however, are more likely to gain from an engine supplier choice as it allows negotiation of price and maintenance deals.

David Archer, senior engine analyst at IBA, says: "The principle is that more choice is better, having competing engine families on the same aircraft forces competition and in theory drives engines to perform at their best in terms of time on wing, fuel burn and importantly maintenance cost."

In reality, beyond the narrowbody market, commercial aircraft have largely shifted to single-source engine choices and Archer adds: "Overall, in terms of appraised value we rarely see values perform better or worse because of a slightly smaller or larger market share, though you may see better liquidity from a more diverse operator base."

In terms of technical issues, it is probably the case that members of the A320neo family have experienced more engine-related problems than their 737 Max counterparts, as the GTF engine has proved the more troublesome of the powerplants.

Archer says: "Both engines entered a market with immediate high levels of demand and experienced unprecedented fleet growth-rates - inevitably teething issues were going to be found. Both engines have had issues, but it is fair to say this is more the case for the PW1100G." However, Archer believes that 2020 could be the year that sees the teething issues being outgrown.

He adds: "CFM worked hard to rectify problems and the list of issues on the GTF continues to shrink with the majority now [having] fixes in place." IBA does not see either engine having a weaker or stronger long-term value and both are expected to perform relatively well, even in the downturn from the coronavirus pandemic.

CFM has the majority of the A320neo market to date and IBA sees this continuing. Archer says: "There are a large number of undisclosed engine orders out their for the A320neo fleet, but it would be very unexpected to see a major shift from the trend of in-service engines, which has seen the LEAP take a 60% share.

"The PW1100G and LEAP-1A have both seen high demand in the lessor market and with coronavirus shifting focus to newer assets both are expected to perform well into the foreseeable future."

Rating agency unsecured ratings

Airlines

	Fitch	Moody's	S&P
Aeroflot	BB-(neg)	-	-
Air Canada	BB(neg)	Ba1(stable)	BB(watch neg)
Air New Zealand	-	Baa2(stable)	-
Alaska Air Group	BB+(neg)	-	BB(watch neg)
Allegiant Travel Company	-	Ba3(stable)	B+(watch neg)
American Airlines Group	B(watch neg)	Ba3(stable)	B(watch neg)
Avianca Holdings	C	-	CCC(watch neg)
British Airways	BB+(neg)	Baa3(pos)	BBB-(watch neg)
Delta Air Lines	BB+(neg)	Baa3(pos)	BB(watch neg)
Easyjet	-	Baa2(stable)	BBB(watch neg)
Etihad Airways	A(stable)	-	-
Grupo Aeromexico	-	B2(stable)	B+(watch neg)
GOL	B(watch neg)	B1(stable)	B-(watch neg)
Hawaiian Airlines	B+(neg)	Ba3(stable)	B(watch neg)
Jetblue	BB(neg)	Ba1(stable)	BB-(watch neg)
LATAM Airlines Group	B+(watch neg)	B1(stable)	B(watch neg)
Lufthansa Group	-	Ba1(stable)	BBB-(watch neg)
Qantas Airways	-	Baa2(stable)	-
Ryanair	BBB(neg)	-	BBB(watch neg)
SAS	-	B2(stable)	B(watch neg)
Southwest Airlines	BBB+(neg)	Baa1(stable)	BBB(watch neg)
Spirit Airlines	BB-(neg)	-	B+(watch neg)
Turkish Airlines	-	B2(neg)	B(watch neg)
United Airlines Holdings	BB-(neg)	Ba2(pos)	BB-(watch neg)
Virgin Australia	CCC-	Caa1(stable)	CCC(watch dev)
Westjet	B+(neg)	Ba3(stable)	B(watch neg)
Wizz Air	BBB-(neg)	Baa3(stable)	-

Source: Ratings Agencies - 20/04/20

Lessors

	Fitch	Moody's	S&P	Kroll Bond Ratings
AerCap	BBB-(neg)	Baa3(neg)	BBB(neg)	-
Air Lease Corp	BBB(neg)	-	BBB(neg)	A-(neg)
Aircastle	BBB(stable)	Baa3(neg)	BBB-(stable)	-
Avation PLC	B+(watch neg)	-	B(watch neg)	-
Aviation Capital Group	BBB-(neg)	Baa2(neg)	BBB-(neg)	A-(neg)
Avolon Holdings Limited	BBB-(neg)	Baa3(neg)	BBB-(neg)	BBB+(neg)
AWAS Aviation Capital Limited	-	Baa3(neg)	BB+(stable)	-
BOC Aviation	A-(stable)	-	A-(neg)	-
CDB Aviation Lease & Finance	A+(stable)	A1(stable)	A(stable)	-
Dubai Aerospace Enterprise	BBB-(neg)	-	BB+(stable)	BBB+(neg)
Fly Leasing	-	Ba3(neg)	BB(neg)	BBB(neg)
ILFC (Part of AerCap)	BBB-(neg)	Baa3(neg)	-	-
Park Aerospace Holdings	BBB-(neg)	Baa3(neg)	-	-
SMBC Aviation Capital	A-(neg)	-	A-(neg)	-
Voyager Aviation	BB-(watch neg)	B1(neg)	B(watch neg)	BB-(neg)

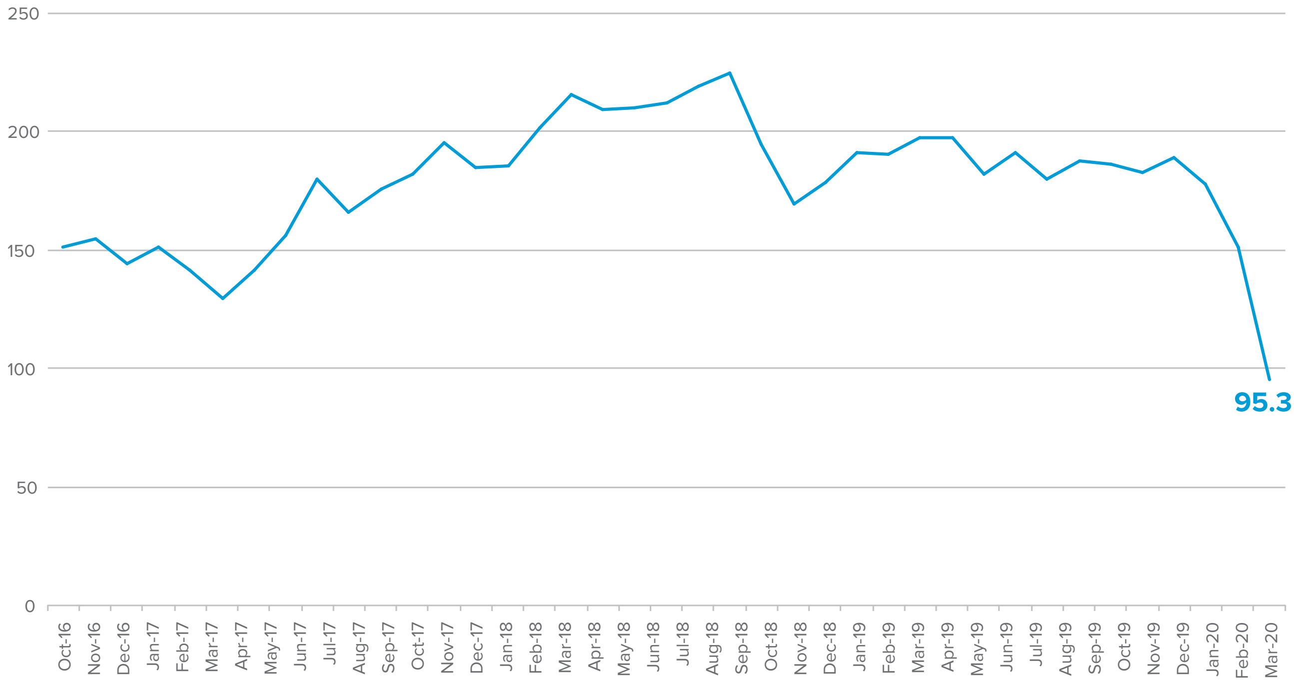
Source: Ratings Agencies - 20/04/20

Manufacturers

	Fitch	Moody's	S&P
Airbus Group	A-(neg)	A2(neg)	A+(watch neg)
Boeing	BBB(neg)	Baa2(neg)	BBB(watch neg)
Bombardier	CCC	Caa2(neg)	CCC+(neg)
Embraer	BBB-(watch neg)	Ba1(stable)	BBB-(watch neg)
Rolls-Royce plc	BBB+(neg)	Baa3(neg)	BBB-(watch neg)
United Technologies	-	Baa1(stable)	A-(stable)

Source: Ratings Agencies - 20/04/20

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



Source: US Energy Information Administration

Recent commercial aircraft orders (March-April 2020)

Customer	Country	Quantity/Type
Aercap	Ireland	25 A320neo
Aercap	Ireland	25 A321neo
Undisclosed	-	10 A350-900
All Nippon Airways	Japan	1 787-9, 11 787-10

Aercap has ordered more Airbus A320neo family aircraft

Based on *Airfinance Journal* research up to 20/04/20

New aircraft values ($ million)

Model	Values of new production aircraft*
Airbus	
A220-100	33.2
A220-300	37.8
A319	34.3
A319neo	37.2
A320	43.7
A320neo	49.3
A321	51.8
A321neo	57.1
A330-200	85.9
A330-200 Freighter	94.4
A330-300	98.2
A330-900 (neo)	110.4
A350-900	149.4
A350-1000	169
A380	219.2
Boeing	
737-800	46.3
737-900ER	48.6
737 Max 8	51.3
737 Max 9	52.5
747-8I	155.6
747-8F	183
777-300ER	153.9
787-8	118.5
787-9	143.6
787-10	150.5
ATR	
ATR42-600	16.2
ATR72-600	20.2
Bombardier	
CRJ700	24.1
CRJ900	26.2
CRJ1000	28.2
De Havilland Aircraft of Canada	
Dash8-400	20.7
Embraer	
E175	28.5
E190	32.1
E190-E2	34.5
E195	33.9
Sukhoi	
SSJ100	23.3

*Based on ISTAT appraiser inputs for Air Investor 2020

New aircraft lease rates ($'000 per month)

Model	Low	High	Average
Airbus			
A220-100	204	262	233
A220-300	276	303	289.5
A319	230	283	256.5
A319neo	266	293	279.5
A320	295	353	324
A320neo	340	383	361.5
A321	350	424	387
A321neo	380	444	412
A330-200	640	745	692.5
A330-200 Freighter	657	715	686
A330-300	690	833	761.5
A330-900 (neo)	801	872	836.5
A350-900	1,050	1,195	1,122.5
A350-1000	1,233	1,342	1,287.5
A380	1,503	1,950	1,726.5
Boeing			
737-800	310	364	337
737-900ER	330	394	362
737 Max 8	350	394	372
737 Max 9	368	404	386
747-8I	990	1,264	1,127
747-8F	1,178	1,570	1,374
777-300ER	1,050	1,300	1,175
787-8	815	931	873
787-9	950	1,200	1,075
787-10	1,053	1,146	1,099.5
ATR			
ATR42-600	117	153	135
ATR72-600	144	185	164.5
Bombardier			
CRJ700	153	220	186.5
CRJ900	170	235	202.5
CRJ1000	182	255	218.5
De Havilland Aircraft of Canada			
Dash8-400	140	200	170
Embraer			
E175	205	240	222.5
E190	230	275	252.5
E190-E2	239	263	251
E195	211	280	245.5
Sukhoi			
SSJ100	153	205	179

Commercial aircraft orders by manufacturer

	Gross orders 2020	Cancellations 2020	Net orders 2020	Net orders 2019
Airbus (30 March)	356	66	290	768
Boeing (30 March)	31	338	-307	54
Bombardier	0	0	0	15
De Havilland of Canada	0	0	0	10
Embraer	20	0	20	55
ATR	5	0	5	43

Based on Airfinance Journal research and manufacturer announcements until 20/04/20

Aviation will **never be the same again**

The present aviation catastrophe makes all the previous "once-in-a-lifetime" disasters look like a walk in the park, says Adam Pilarski, senior vice-president at Avitas. But even though we could see a loss of four years of growth, a new, brighter era could emerge for the industry.

A few months ago life was much simpler. My consistent and negative forecasts might have seemed extreme to some but they involved pretty simple realities about a bubble in aircraft deliveries brewing for more than a decade.

It was easy to pinpoint the reasons for the bubble and analyse various possible scenarios that were about to evolve. We could see factors why the bubble was not as dramatic as could have been predicted, such as manufacturers being unable to complete and deliver all the aircraft ordered.

All this was fairly straightforward and I have been charting the journey of aviation through the turbulence of the bubble environment, writing numerous articles about these developments. I assumed the role of Jeremiah non-stop and, while being negative, I did not foresee the calamity that unfolded because of the Covid-19 pandemic.

The present reality is unfortunately much more grim, complicated and dangerous than my boldest and dire predictions. We have, over the years, faced many significant troubles. Each of these we called a "once-in-a-lifetime" event. As one example, the crisis in the early part of this century involved an economic downturn, high oil prices and a terrorism attack that was specifically directed against aviation, followed a short time later by the SARS epidemic.

All this hurt our industry tremendously and was assumed never to be duplicated in the future. Terms such as "a perfect storm" were used at that time. I compared it to a religious experience and named these developments "the 10 plagues", implying the very unique nature of such events.

Compared with such a reality my predictions of a major market adjustment were not seen as a significant disaster threatening the viability of our industry but rather an inconvenience necessary to bring more stability. Of course, my prediction of the bubble bursting was overshadowed by the total catastrophe that has happened.

The current downturn, or rather dramatic collapse, goes straight to the very essence of our industry, which in its nature brings people together. It follows a period of great overbooking, which requires dramatic adjustments to the tremendous imbalances we have experienced over many years. The immediate collapse is the result of worldwide recommendations of social distancing and outright prohibitions to fly. Right now, aviation is close to a standstill all over the world.


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

> *"I assumed the role of Jeremiah non-stop and, while being negative, I did not foresee the calamity that unfolded because of the Covid-19 pandemic."*

We all know this will not continue forever. Aviation will not disappear; nor will life itself. The realities will eventually improve and with the pent-up demand some high-growth periods are still ahead of us. The negatives will continue in the short term. The question is what will happen in the medium term and the long term.

The most optimistic scenario I can come up with results in a pretty dismal situation for the next few years. Some airlines and lessors will disappear, aircraft production will slow down significantly and traffic will reach quite low levels. Considering that, in my view, we already have enough aircraft for existing demand, only very limited production levels are needed for the next few years.

Our positive forecast sees the cessation of the pandemic in a few months and assumes no second or third wave of the disease. We also assume a drug to treat the problem and a successful vaccination in about a year. But with all this we see traffic levels reaching those of 2019 only in 2023, resulting in a loss of four years of growth with appropriate loss of income and business opportunities.

Assuming an eventual recovery, we have to analyse some long-term implications of current realities for long-term growth of our industry. The current pandemic will definitely affect globalisation, trade and specialisation, which unfortunately only reinforce the trends we have been experiencing over the past few years.

The industry that will emerge will be different from the one we are familiar with. Since we did not have a downturn for more than a decade some of the weaker players will disappear, new products will be developed and new industry champions will emerge. We probably will enter a period of, what the great Austrian economist Joseph Schumpeter called, "creative destruction".

This is all an integral part of progress. We humans, when faced with adversity and difficult circumstances, adjust to changing circumstances and innovate to come up with new inventions and new products.

This appears to be one of the periods we are entering now. We hope that these hard times will result in some positive developments to make our lives better in the future. A new era of aviation awaits us, possibly spurred by revolutionary new vehicles flying at higher speed and not contributing to global warming.