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Trading is lifeblood of the industry

Disputes about trade tariffs will hurt the aviation sector more than it will help it, writes **Jack Dutton**.

Over the past couple of months, trade rhetoric has escalated between the world's two biggest superpowers. China and the USA are in a war of words, with the US president, Donald Trump, threatening to impose tariffs of up to $150 billion on Chinese products and China's vice-finance minister, Zhu Guangyao, proposing tariffs on $50 billion of US goods.

Although the debate seems to have simmered down in recent weeks, it is far from resolved. On 25 April, Trump said he was sending his treasury secretary, Steven Mnuchin, to China for talks to help deal with tensions over trade and intellectual property.

A global trade war will undoubtedly have severe ramifications for the aviation market. US aviation investors will be worried because Boeing is the nation's largest exporter. China says it will levy a 25% tariff on more than 100 US products – including aircraft that weigh between 33,000lbs and 99,000lbs.

However, Boeing says that the 25% levy will only affect the current-generation Boeing 737-800, which is gradually being replaced by new technology aircraft as the Max enters service, and 737 Max 7, the smallest and one of the less popular family types. All 60 of the 737 Max 7s on order are with US airlines, according to *Airfinance Journal*'s Fleet Tracker.

Trump also has vowed to place tariffs on some of China's aviation goods. Chinese aviation firms such as Avic and Comac could also be impacted because they make parts for Boeing aircraft in China.

What will this mean for the future of Comac? How will it impact future leases of US-built aircraft into China? How will this impact Boeing? There are many questions, but right now few of them can be answered.

It is unclear what the outcome of this dispute will be, but most economists believe that if it ends badly, it will have a devastating impact for both countries. *Bloomberg* reported in April that China was even considering devaluing the yuan as a tactic, which would have a huge impact on aviation finance in China, as well as the economy as a whole.

Aviation is an industry that thrives on free trade and globalisation. The most consequential trade dispute since the Second World War does not bode well with the market. Even so, you would be surprised at how many people in the industry voted for it.

Portfolio purifying

Let us talk about another type of trading – that of aircraft portfolios. The large lessors seem to be going through a period of portfolio rationalisation: they are trying to make sure their fleets are as efficient and streamlined as possible after acquisitions of competitors. Avolon, for example, has been in the market selling portfolios absorbed from the CIT acquisition over the past few months. Sources say that DAE Capital will be selling aircraft later this year too, with one adding that the lessor will likely want to stay as the lease manager for some of the aircraft. Doing this through an asset-backed securitisation would be a logical option, as the market is hot and DAE closed its debut issuance last year.

However, streamlining a portfolio by selling the least attractive assets comes at the expense of the buyer. "What we continue to see is a situation where, if you want to buy *this* portfolio then you have to take *these* aircraft," a financier tells me. "Well I don't want those aircraft or those lessees. You've got to take some of the bad with the good."

Potential buyers are trying to kick back when it comes to acquiring whole leasing platforms too, when there are some more risky assets involved. Take DVB Bank, for example. Originally, it was understood that its parent, DZ Bank, was looking to sell the whole platform, including the distressed shipping portfolio. However, as the sale has progressed, it has become clear that the business's profitable aviation division will be sold separately and will therefore be seen as a more attractive purchase.

This has also been seen with Intrepid Aviation. Although there are a number of firms which have declared their interest in buying the widebody lessor, sources say that some of them may not be looking at buying the whole platform.

There are a number of reasons why this could be. First, buyers are more cautious when it comes to widebodies, which comprise all the lessor's fleet, and some of the aircraft in the portfolio are with lessees that are under significant financial stress. For example, Fleet Tracker says that Intrepid has two Airbus A330-200 aircraft with Alitalia, a carrier which has gone bankrupt several times.

And everyone knows that widebodies are harder to place than narrowbodies. After last year's insolvency of Monarch Airlines, lessors were able to place the UK carrier's narrowbodies in a matter of months. But when you contrast that to Intrepid's scare with Skymark Airlines in early 2015, for example, when the Japanese airline filed for bankruptcy protection and cancelled an agreement to lease seven A330s from Intrepid, Monarch seems benign for lessors. At the time, the seven cancelled A330s made up 15% of Intrepid's overall fleet and it took more than a year to deliver them to Turkish Airlines, showing that investors need to approach widebodies with caution.

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HSF poaches four WFW partners

Rex Rosales, the global head of transport at Watson Farley & Williams (WFW), and three other asset finance partners at the firm have left to join rival Herbert Smith Freehills (HSF).

Along with Rosales, Jahnavi Ramachandran will join HSF in London, while Siva Subramaniam and Samuel Kolehmainen will join in Singapore.

Rosales has 30 years' experience as an aviation finance lawyer. He joined WFW in 2010 as part of a defection of five transport lawyers from Reed Smith.

Rex Rosales

Sachau joins SkyWorks

SkyWorks has appointed Olaf Sachau as managing director with effect from 1 May. His duties will include providing broad support of origination and execution activities at SkyWorks.

Sachau will also be tasked with expanding investor coverage in support of growing third-party aircraft under management, including aircraft managed through its new Irish asset servicer.

Sachau was previously Intrepid Aviation's chief executive officer. He joined the US lessor in April 2012 as chief financial officer. Before that, he advised NordLB's shipping and aircraft finance departments.

He also was chief executive officer of Amentum Capital and head of aviation EMEA and India at HSH Nordbank.

After studying economics at California State University in Fresno, he joined KfW in 1993 and was active in export and project finance. Further career steps included HypoVereinsbank and the US advisory company Alvarez & Marsal, having had leading positions in aviation finance, turnaround management and consulting.

Olaf Sachau

K&L Gates promotes Grieger to counsel

K&L Gates has promoted Eiko Grieger, a member of the firm's banking and asset finance practice group in Tokyo, to the position of counsel.

Grieger's promotion comes after the addition of other new aviation finance lawyers over the past year, including Seattle counsel Misha Kovacevic, Singapore partner James Bradley and counsel Kamil Ahmed, London partners Philip Perrotta and Sidanth Rajagopal, and Tokyo counsel Robert Snodgrass.

K&L Gates now has more than 60 attorneys, including 20 partners and counsel, around the globe advising on aircraft finance matters.

Airfinance Journal reported in March that its 2017 Rising Star Amanda Darling has made partner at K&L Gates.

Roy joins REN Legal

REN Legal has announced the appointment of Sulagna Roy as counsel, further increasing the strength and depth of the law firm's core asset finance team.

Roy joins from Berwin Leighton Paisner having previously worked at Debevoise & Plimpton after qualifying at Freshfields Bruckhaus Deringer.

She advises borrowers, financiers, lessors and lessees on a variety of structured aircraft finance transactions with an emphasis on cross-border aircraft leasing transactions. Roy has particular experience in operating and finance lease transactions, the acquisition and disposal of aircraft, engines and leasing companies, sale-and-leaseback transactions, export credit financings, Japanese operating lease financing, registration and security issues.

ACG poaches Ex-Im trio to establish new platform

Aviation Capital Group (ACG) has hired three executives from the Export-Import Bank of the United States (Ex-Im Bank) to establish a new aircraft financing platform.

The new platform – Aircraft Financing Solutions (AFS) – will focus on the development and marketing of credit-enhanced financing structures that provide airline customers greater access to additional sources of capital for aircraft purchases, while providing improved risk-adjusted returns for lenders and capital providers, according to the Newport Beach-based lessor.

To help launch AFS, Robert Roy, Andrew Falk and Robert Lewandowski will be joining ACG as managing directors and will together help lead programme development, transaction underwriting and management. All three executives were previously with Ex-Im Bank, collectively serving over 50 years as members of the export credit agency's aircraft finance team. Together, they helped create and run Ex-Im Bank's successful aircraft finance program, which supported over $100 billion of financings, covering more than 1,700 commercial aircraft.

Roy, Falk, and Lewandowski joined in late March 2018 and are located in ACG's Newport Beach office.

"This initiative provides ACG with a compelling complement to its core operating lease services, enabling us to offer a broader set of fleet financing solutions to airlines," says Khanh Tran, president and chief executive officer of ACG. "Our AFS group will work closely with ACG's marketing team to expand the services we offer to airline customers on a wide range of aircraft types."

Several executives have left Ex-Im Bank over the past year, in addition to the three executives that went to ACG. Bob Morin and Gabe Okolski joined the Aviation Finance Consortium (AFIC) in June 2017. Kathy Flanagan, who was part of the transport division of Ex-Im Bank, has retired from the export credit agency. Ex-Im Bank is still unable to guarantee aircraft financing deals unless it has five directors on its board to make a quorum, including a president and a first vice-president. It currently has three board members, no president and no first vice-president. The acting chairman and president of Ex-Im Bank, Charles Hall, resigned in December.

In December, senators Mike Rounds of South Dakota and Tim Scott of South Carolina joined all Democrats on the committee to oppose Scott Garrett, President Trump's nominee to lead Ex-Im Bank, rejecting him by 13 votes to 10. As a result, Garrett's nomination will not advance to the full senate, the final stage of the confirmation process.


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Air Partner Remarketing recruits Hubbard

Air Partner Remarketing, part of the global aviation services group Air Partner, appointed Russell Hubbard as director, aircraft remarketing, in April.

Hubbard is based at Air Partner's London Gatwick headquarters and reports to Tony Whitty, managing director, Air Partner.

Russell has more than three decades of experience in aircraft leasing and financial management and joins the group from Hong Kong-based lessor China Aircraft Leasing, where he was senior vice-president aircraft trading.

He also has held the roles of global head of trading at Avation in Singapore, head of trading at Hong Kong Aviation Capital and chief commercial officer at the Australian-based lessor Global Aviation Asset Management, among others.

His other professional experience includes carrying out airline due diligence studies, analysis on major aviation portfolios and acting as an expert witness in commercial cases in Europe and Asia.

The business, which celebrates its 20 year anniversary this year, started life as Cabot Aviation in 1998. It was acquired by Air Partner in 2015 and was rebranded Air Partner Remarketing in 2017.

Russell Hubbard, director, aircraft remarketing at Air Partner

SAA names interim CFO

South African Airways (SAA) has named Bob Head as interim chief financial officer at the state-owned carrier, as part of a number of new appointments.

Head, a veteran at investment firm Old Mutual, joined the carrier on 11 April, replacing the suspended Phumeza Nhantsi as the embattled state carrier strives to turn around its fortunes.

SAA also named Hendus Venter, who joins from African Bank, as chief information officer. Pumla Luhabe joined as chief commercial officer in February.

The airline's chief executive officer, Vuyani Jarana, said in March the cash-strapped carrier will target break even in 2020 after its net loss widened more than three-fold to R5.6 billion ($453.2 million) in the 2017 financial year.

Acumen Aviation promotes staff

Acumen Aviation has appointed Jeremy Edwards as chief marketing officer. Edwards has been jointly responsible for the management and direction of Acumen's sales team since November. His new role includes responsibility for defining and managing Acumen's global sales, marketing, branding and key account management strategies.

The company also promoted Martin Corcoran as senior vice-president, business development. Corcoran has headed up Acumen's sales activities since joining as vice-president, business development, in 2015. In this new role, he will be responsible for strengthening Acumen's market position, for key account planning, sales campaign implementation, event/trade show representation and the management of the sales team's day-to-day activities.

Claerbout joins Pan Pacific

Andrew Claerbout has joined Philippine carrier Pan Pacific Airlines as director of fleet management.

In an interview with *Airfinance Journal*, Claerbout, who joined the carrier in March, says he first met Pan Pacific executives when he was working for Apollo Aviation.

"I was showing them some aircraft and just kept in touch with them for the past couple of years," he says.

Claerbout is working for Pan Pacific full time, but is also able to work on side projects with his advisory company, TPC Aviation, which he set up last year.

His work at Pan Pacific has got off to a challenging start. Philippine president Rodrigo Duterte ordered the Philippine tourist island of Boracay closed starting on 26 April. As one of Pan Pacific's main destinations, the carrier has had to re-route capacity to Cebu.

"Ourselves and seemingly everyone else are now moving those flights to Cebu," says Claerbout.

Pan Pacific has a fleet of three Airbus A320s. The airline has been considering adding three more aircraft, but the Boracay closure may impact that decision.

"We have been talking about taking three aircraft this year, and I guess those discussions are still ongoing, but I don't know – that's not my decision to make. Certainly, the summer is kind of upside down than how it was initially planned," he says.

Claerbout kicked off his career as a marketing analyst with BBAM in San Francisco. He then spent six years as director, marketing, with Sky Leasing, also in San Francisco, before transferring to Seoul for the company.

In March 2016, he left Sky Leasing and worked for Apollo Aviation as vice-president marketing Asia-Pacific from June to November, before leaving to set up his own company.

Chow joins Mayer Brown

Former White & Case lawyer Hallam Chow has joined Mayer Brown JSM's Beijing office as head of projects, China, in the firm's banking and finance practice.

Airfinance Journal understands Chow will do some aviation finance work, though projects will be his main focus.

"We do see him continuing to do aircraft work but it's fair to say that's not his primary focus," says a source at the firm.

Chow is known for his track record of working on deals for lenders, equity investors and lessees, particularly those in China, Latin America and the Middle East, as well as on deals relating to project financing, acquisition financing, structured financing, aircraft leases, energy and infrastructure, and oil and gas joint ventures.

AIRFINANCE JOURNAL EVENTS

2018
Event Calendar

Conference	Date	Location
38th Annual North America Airfinance Conference	15-16 May 2018	Miami
16th Annual China Airfinance Conference	14-15 June 2018	Shanghai
New: Inaugural Southeast Aerospace & Defence Conference	25-27 June 2018	Mobile
Summer School of Aviation Finance	2-4 July 2018	Cambridge
New: Inaugural US Valuations and Leasing Conference	11-12 September 2018	Chicago
New: Latin America School of Aviation Finance	11-12 September 2018	Mexico City
14th Annual Latin America Airfinance Conference	13-14 September 2018	Mexico City
Airfinance Journal Africa 2018	11 - 12 October 2018	Johannesburg
Asia Pacific Aviation Finance and Operating Leasing School 2018	29 - 31 October 2018	Hong Kong
Airfinance Journal Asia Pacific 2018	31 October - 1 November 2018	Hong Kong

www.airfinancejournal.com/events

Norwegian hits accounting speedbump

Jack Dutton and **Michael Duff** examine the European carrier's distressed balance sheet and the likelihood of an IAG takeover.

When Norwegian Air Shuttle issued its provisional condensed 2017 financial statements on 15 February 2018, it reported book equity of NOK 4.1 billion ($498 million).

However, on 16 April, when the airline released its audited financial statements, it reported equity of NOK 2 billion. What happened in those two months to make half of the airline's equity disappear from its balance sheet?

The answer is in the notes to the provisional release, which stated that the airline was in dialogue with the Norwegian Financial Supervisory Authority regarding the accounting treatment of the company's investment in Norwegian Finans, a Scandinavian retail bank, and specifically if Norwegian still had significant influence over Finans.

The note said that reverting to equity accounting under IAS 28 would reduce the value of the investment by NOK 2 billion and contribute a further reversal of NOK 1.7 billion in cumulative net profits.

Norwegian lost the argument with the Financial Supervisory Authority. Subsequently, an urgent capital raising in March 2018 of NOK 1.3 billion of equity in a private placement appeared to have closed just in time to comfort investors concerned about their NOK 4.3 billion outstanding bond issues.

"I think the placement was done deliberately to raise the equity back," Martin Stenshall, senior equity analyst, Danske Bank Markets tells *Airfinance Journal*.

Asked about financial covenants, Stine Klund, investor relations officer at Norwegian, tells *Airfinance Journal*: "The company has never been in breach of our covenants, but we absolutely want to make sure we have a buffer to the covenants. The board wanted to strengthen this buffer to be better positioned against fluctuations in fuel price, currency and market sentiment."

Norwegian has not raised equity capital since 2009, meaning it has built up most of its long-haul operation from internally generated funds, debt and operating leases.

Klund adds that it was "relevant" for the airline to do a capital raise to get through the last phase of its growth and "also to avoid any further speculations about the company's financial situation and focus on the operations going forward".

Over-leveraged

"I think the leverage is very significant," adds Stenshall. "If you look at Norwegian's reported leverage that's one thing, but the real leverage – its off-balance sheet items, the debt is tied to operating leases – you would have an equity ratio of approximately 5%."

However, thanks to IFRS 16, the airline's real term liabilities will be on the balance sheet from 1 January 2019. With such high leverage, the airline will need to look at other ways to reduce its debt.

"They did an equity issue but that's just a drop in the ocean compared with the amount of debt and financing they have to secure for the large amount of aircraft they are taking this year, next year and year after," says Stenshall.

"Norwegian have been on high leverage for a long time without going bankrupt. It hasn't been a problem as interest rates have been coming down and a lot of their debt is backed by state guarantees so they got quite cheap bank financing."

Klund says that his airline is looking to decrease its leverage.

"Clearly, this equity raise was one measure," he says. "Further on the focus will to a large extent be to go from growth to profitability as the company gets through the peak of its growth. We have also said that we have initiated a process of selling off aircraft, as well as reviewing strategic opportunities for our loyalty programme."

Enter IAG

After Norwegian posted worse than expected financial results on 12 April, IAG, Europe's third largest airline group, acquired a 4.6% stake in the airline, before announcing its interest in acquiring the whole platform. The move caused Norwegian's share price to rally from NOK 175 to NOK 265. Its equity market capitalisation as of 13 April was $1.5 billion at a share price of NOK 265.

However, the day after the IAG announcement, Norwegian founder and chief executive officer Bjorn Kjos told reporters that selling the airline "has not been on our agenda at all". Kjos, and Bjorn Kise, the airline's chairman, own over 25% of the airline so the deal may prove difficult to pull off if sentiments do not change.

That said, several market sources believe the deal is still likely to happen. It would make strategic sense for IAG, as it removes a major competitor in the European and transatlantic markets and gives it access to one of the youngest fleets in the world, saving the group from having to strike a deal with OEMs for aircraft deliveries with long lead times. It would also give IAG access to critical airport slots. Acquisition by a financially-stable airline group also makes sense for Norwegian, given the scale of its financial commitments.

It is unlikely that changes in accounting, even ones that involve half of the airline's equity capital disappearing from its balance sheet, would have a dramatic effect on a potential sale of Norwegian to IAG. IAG would have done its homework and sources say the corporate team has considered a Norwegian takeover for some time.

Klund adds: "First of all, we cannot speculate in IAG's decision making (or any shareholder for that sake). That being said, remember that this is just an accounting effect that hits the first quarter of 2018 instead of the second quarter of 2017."

One source close to the discussions tells *Airfinance Journal* that IAG has already been working on a potential banking facility to acquire Norwegian. However, the conglomerate has over $8 billion in cash on its balance sheet so it could afford to buy Norwegian without tapping banks.

But such an acquisition would come at a price. "It would definitely be above the level NAS is trading at," says Stenshall. "We might have to see a bid higher than NOK 325-400 a share in order for the shareholders to accept the offer."

Cathay's aircraft financing remains competitive despite losses

Hong Kong flag carrier Cathay Pacific can still achieve attractive aircraft financing offers despite its first consecutive annual loss, industry sources tell **Michael Allen**.

Cathay Pacific reported a HK$1.26 billion ($161 million) loss in 2017, almost doubling the HK$575 million loss it made for 2016. Despite this, the airline will continue to renew its fleet to offer a competitive passenger experience and increase the efficiency of its network.

"I don't think that's going to change in terms of replacing a more efficient fleet. Cathay's position has always been that the airport is still congested and therefore the efficiency of the aircraft is critical," says a former Cathay Pacific executive, referring to slot constraints at the carrier's home base, Hong Kong airport.

Cathay took delivery of 12 Airbus A350-900 aircraft in 2017, bringing to 22 its total of the aircraft type. In September 2017, it ordered 32 A321-200neos for Cathay Dragon, to be delivered from 2020, and retired its final four A340-300s and two Boeing 747-400 BCF freighters. Cathay also wet-leased two 747-8F aircraft to increase cargo capacity.

> *"The banks may be a bit more expensive, but financing is not a problem."*
>
> **Former Cathay Pacific executive**

Financiers say they still eagerly await any request for proposals (RFP) for financing from the Hong Kong-based carrier.

"I think it's still competitive. There is definitely appetite in the banking market and I presume the leasing market as well," says a Singapore-based banker who has worked with the airline.

Late last year, Cathay issued an RFP to finance eight 2018-arriving A350-1000s. A Hong Kong-based banker, who was hoping to provide sale-and-leaseback financing for these deliveries, says Cathay ended up going with on-balance-sheet financing, including secured loan and Japanese operating lease with call option (Jolco).

The former Cathay executive says: "The banks may be a bit more expensive, but financing is not a problem," suggesting banks may be lending at marginally – but not significantly – higher rates to Cathay because of a perceived risk from its financial pressures.

Nor has the loss stopped Cathay from expanding its route network, particularly the introduction of long, thin routes with its A350 aircraft.

"We are improving our competitive position by expanding our route network, increasing frequencies on our most popular routes and buying more fuel-efficient aircraft," says Cathay chairman John Slosar in a statement.

> *“From the point of view of Cathay Pacific, we have a very, very big hedging book – it’s public knowledge. The hedging hit that we took on the market in our last annual results was very clear. It’s not an excuse – it’s just a position we have and something we believed in the past has worked in our favour.”*
>
> **Mark Sutch**, general manager cargo, sales and marketing, Cathay Pacific
> April 2016

The most widely anticipated new route for the aviation finance sector must surely be Cathay’s non-stop Hong Kong-Dublin service launching in June, which will save time for market participants travelling between the two aviation finance centres.

Cathay is also adding new routes to cities such as Cape Town, Tel Aviv, Brussels, Copenhagen and Washington DC, as well as several Chinese cities via Cathay Dragon. The airline also has increased frequencies on a number of routes.

Cathay’s route and fleet expansions come amid ongoing competitive pressure from carriers in the Chinese mainland and elsewhere in the region.

The carrier’s former status as the main connecting airline for Chinese passengers to the rest of the world is also being eroded as mainland heavyweights such as Air China (a shareholder in Cathay), China Eastern Airlines and China Southern Airlines open more direct services to international destinations from Beijing, Shanghai and Guangzhou.

“The Chinese airlines continue to add international capacity and that’s one of the reasons why Cathay’s yields are affected,” says K Ajith, director, Asia transport research, at UOB-Kay Hian.

Frugal travellers can often find cheaper fares to the same destinations as Cathay on Shenzhen Airlines, departing from Shenzhen Bao’an airport, which is fairly close to Hong Kong. Even on Cathay’s home turf, HNA-owned competitor Hong Kong Airlines is squeezing the legacy airline on several long-haul routes, including to North America.

Cathay says that in 2017 economy-class demand for travel to the US was “weak”, though premium-class demand recovered. Increased competition on routes to Canada put pressure on yield, especially during seasonally weak periods. The impact was more severe to Vancouver than on the Toronto route. Cathay reduced its frequency to Los Angeles from four to three times daily, but increased frequency on its San Francisco (to which Hong Kong Airlines does not fly) service to three times daily.

Cargo is key

Despite its huge overall loss and difficult passenger environment, Cathay did report a profit of HK$792 million in the second half of 2017. This better-than-expected result was largely because of Cathay’s cargo business, which remained “robust” throughout 2017, according to the carrier.

Demand was strong enough by June 2017 for Cathay to wet-lease two Atlas Air Worldwide 747-8Fs, enabling it to increase cargo frequencies to the Americas and India, although it retired two 747 BCFs that year. Cargo exports from mainland China were “very strong” in the second half of 2017, particularly on transpacific routes, and demand for shipments of perishable goods to mainland China increased. Demand for shipments to and from the Indian sub-continent was also “strong”, and demand for shipments within Asia was “significantly stronger” in 2017 than in 2016, particularly for fresh produce, mail and e-commerce items.

Shipments to and from South America grew strongly, assisted by interline arrangements. The performance of Cathay’s European routes improved and increased shipments of pharmaceutical products benefited yield.

As a result of the increased demand, Cathay raised frequencies on its Delhi, Chennai, Hanoi and Portland (Oregon) cargo services.

“The year 2017 was exceptional for cargo operators. It’s not something that’s the norm,” says Ajith, adding that the cargo market is “highly cyclical”.

He says Cathay is “very highly leveraged” to cargo and a decline in the cargo market could cause its earnings to “falter somewhat” because the passenger business is weak.

“Even with the strong increase in cargo yields in the second half… airline business was still in the red and tax yield declined by 1.2% in the second half, so it’s not exactly rosy,” he says.

In addition, it is “too early to rule out” the negative impact on Cathay’s cargo business of a potential trade war between the US and other markets after President Donald Trump’s imposition of duties on steel and aluminium.

Fuel hedging

Although competition from other airlines is one of the main factors squeezing Cathay’s yields, a bad bet on fuel hedging by the carrier’s management is the main reason the airline has not made a profit for the past two years.

“If they did not hedge, they would have been in the black marginally,” says Ajith.

The former Cathay executive agrees, saying that had Cathay not lost so much money on its fuel hedging bet it would have had more time for the airline to complete its restructuring.

In April 2016, Mark Sutch, general manager cargo, sales and marketing at Cathay Pacific, said low fuel prices at the time had not helped Cathay Pacific Airways as much as other carriers because of its hedging programme.

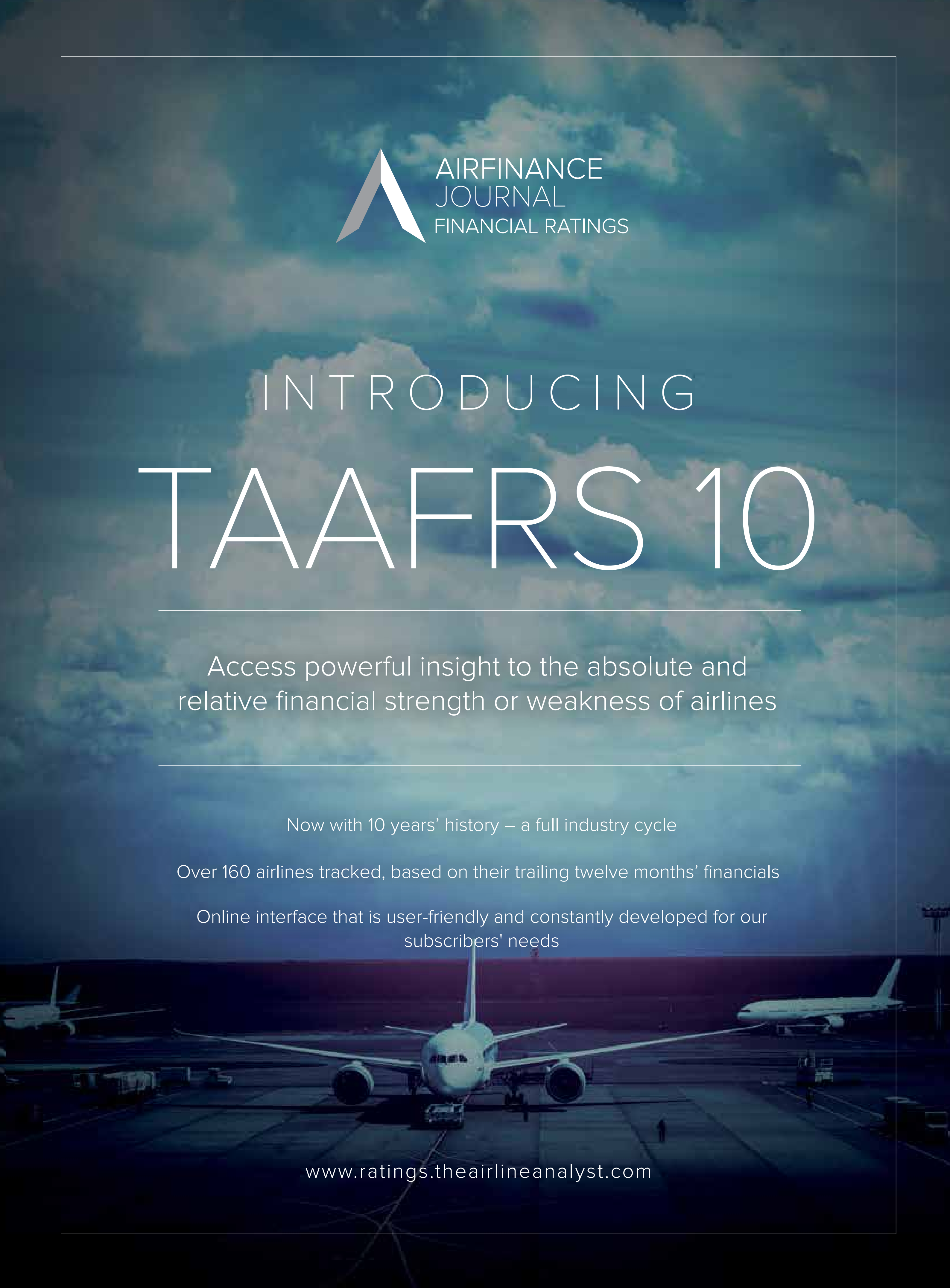
“From the point of view of Cathay Pacific, we have a very, very big hedging book – it’s public knowledge. The hedging hit that we took on the market in our last annual results was very clear. It’s not an excuse – it’s just a position we have and something we believed in the past has worked in our favour,” he said at the time.

In its latest annual results, Cathay says its fuel hedging losses are declining.

Total fuel costs for Cathay Pacific and Cathay Dragon (before the effect of fuel hedging) increased by HK$5.15 billion (or 27%) compared with 2016, because of a rise in the price of fuel and increased operations. Fuel is still Cathay’s most significant cost, accounting for 30.7% of its total operating costs in 2017 (compared with 29.6% in 2016).

After taking hedging losses into account, fuel costs increased by HK$3.16 billion (or 11.3%) from 2016. Cathay says it was able to limit the increase in cost per available tonne kilometres – ATK – excluding fuel) to 0.9%, and hold underlying cost per ATK (excluding fuel and before exceptional items) flat, despite a challenging cost environment. This partly reflected Cathay’s policy to keep growth in staff costs below ATK growth.

“Difficult but necessary decisions have been made,” says Slosar. “We are acting decisively to make Cathay Pacific and Cathay Dragon better airlines and stronger businesses. We believe we are on track to achieve strong and sustainable long-term performance.”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Returns **forge ahead**

Airfinance Journal's research shows that the leasing industry made a net income of $5 billion in 2017, even excluding Avolon and the $1.3 billion of one-off tax benefits reported by ALC and ACG.

Figure 1 - Financial years ending in

$bn/FYE	2012	2013	2014	2015	2016	2017[1]
Revenue in survey	10.8	13.5	12.7	17.0	16.6	16.1
GECAS	5.3	5.3	5.2	5.3	5.3	5.1
Total revenue	**16.1**	**18.8**	**17.9**	**22.3**	**22.0**	**21.2**
PP&E in survey	92.0	108.5	107.3	114.7	120.2	121.0
GECAS	36.2	34.9	30.6	34.3	31.8	30.1
Total assets	**128.2**	**143.4**	**137.9**	**149.0**	**152.0**	**151.0**
Net income in survey	1.6	1.0	2.7	3.2	3.2	3.6
GECAS	1.2	0.9	1.0	1.3	1.4	1.3
Total net income	**2.8**	**1.9**	**3.7**	**4.6**	**4.6**	**4.8**

[1] *Excludes one-off tax benefits for ALC and ACG*

Airfinance Journal has collated and analysed the financial statements for every lessor that has so far published its results for financial years ending in 2017. This is a total of 16, including eight of the 10 largest lessors. The aggregate results are shown in Figure 1.

We have included the few key figures for GECAS which are available in the GE Annual Report. While there are some discontinuities resulting from unavailability of financial data for certain periods (e.g. we do not have access to the Avolon financial statements for 2017) certain ratios and indicators provide a good insight into the rude health of the industry. All members of the sample are "pure" aircraft operating lessors with the exception of CDB Financial Leasing which has a substantial portfolio of non-aircraft financial leases. However, close to 100% of its operating lease assets are aircraft.

These aggregate figures show that the industry generated net income of $4.8 billion in 2017, even without counting Avolon and excluding $1.3 billion of one-off tax benefits reported by ALC and ACG. As a reference, Avolon and CIT Aerospace reported aggregate net income for 2016 of $738 million so their inclusion would definitely have made 2017 a record year for the industry. The sample's Property, Plant and Equipment was $151 billion for 2017.

Much has been discussed about the wave of new money being invested in aircraft operating leases, bringing pressure on

Figure 2 - Lease yield (Lease revenue/Average PP&E)

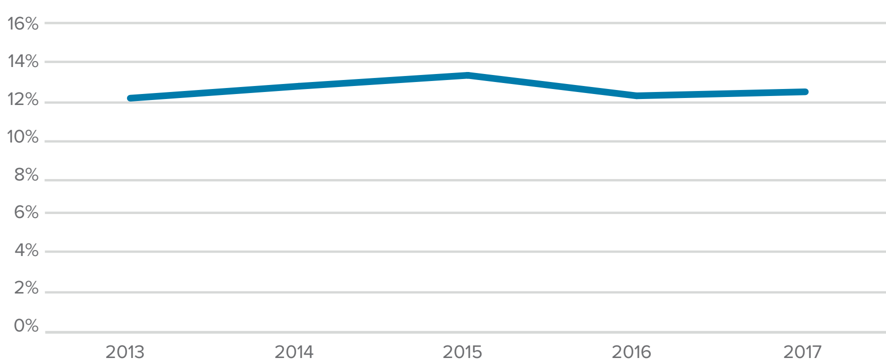


Figure 3 - Return on average equity

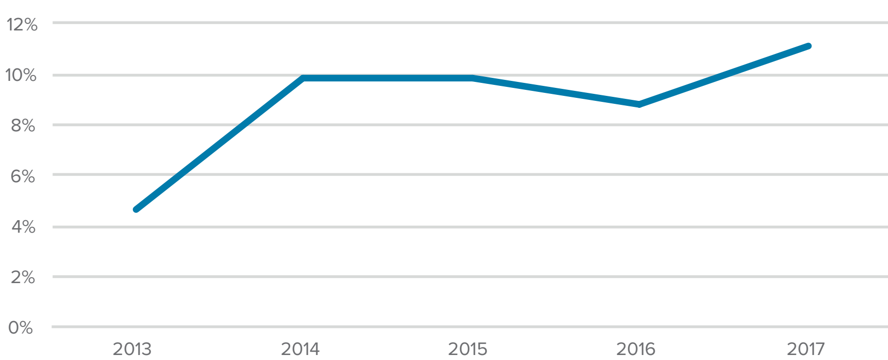


Figure 4 - Debt/equity

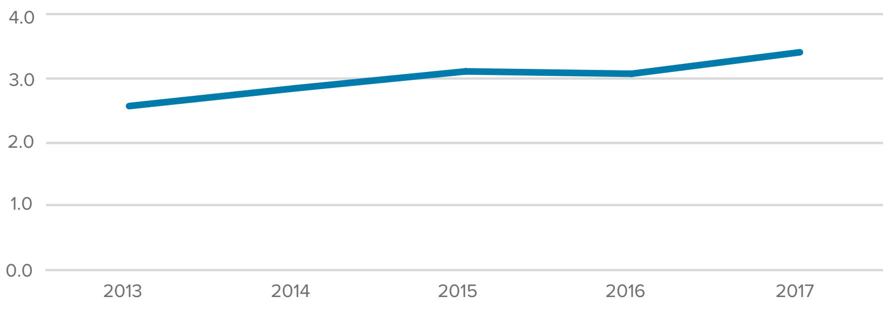


Figure 5 - Finance cost/average debt

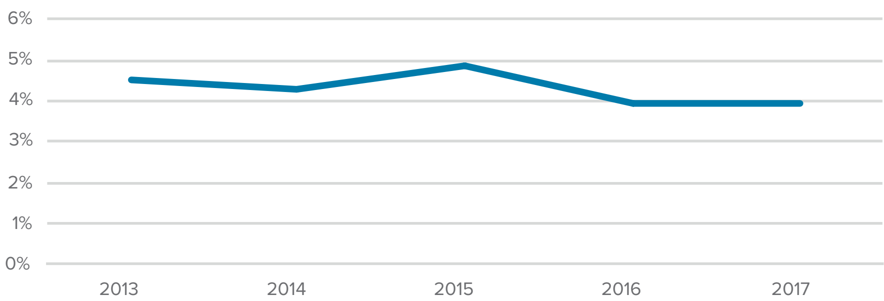
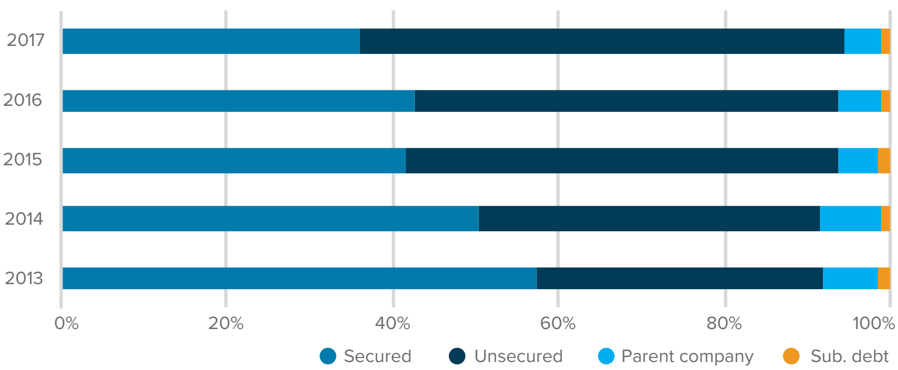


Figure 6 - Debt structure



lease rates. This may have occurred at the margin and in emerging lessors who are not included in the study: the aggregate values show that lease yield for our sample of lessors as shown in Figure 2 held up in 2017 at 12.4% and, more interestingly, return on equity increased from 9.4% to 11 % (displayed in Figure 3).

One of the explanations for the higher ROE in our sample is an increase in leverage from 2.7x to 3.4x as shown in Figure 4 resulting from the exclusion of Avolon and CIT (which had leverage of only 0.5x in 2015). Another is a further slight decline in average interest cost at 4.1%. A further efficiency was the enhanced scale arising from consolidation: aggregate selling, general and administration expenses declined from 7.4% of revenues in 2016 to 6.7% in 2017 (and down from 9.1% as recently as 2014).

Debt structure showed a continuing trend towards unsecured debt as shown in Figure 6. Unsecured debt as a percentage of total debt has grown from 35% in 2013 to 60% in 2017.

We will next update this study in September as part of the *Leasing Top 50* publication by which time the lessors who file in corporate registries will have filed their 2017 results.

The sample of lessors whose 2017 financials are included in the study are:

AerCap, Air Lease Corporation, Aircastle, ALAFCO, Amedeo, Air4 Plus, Avation, AviaAM, Aviation Capital, BOC Aviation, CALC, CDB Leasing, DAE Aerospace, FLY Leasing, GECAS (headline numbers only), MCAP Europe, Nordic Aviation Capital, SMBC Aviation Capital.

Overhead costs

Airfinance Journal has also taken a closer look at overhead costs (selling, general and administration expense) in the most recently published 2017 financial statements. The ranking is shown below. The biggest surprise is the wide range from a major lessor such as BOC Aviation at an impressive low of 5.8% of revenues to DAE Aerospace at 9.6%, where the recently combined DAE/AWAS platform appears on the expensive side. It is, however, only slightly worse than Aircastle, FLY Leasing and SMBC Aviation Capital, all of which incur most of their head office expenses in Ireland.

Nordic Aviation Capital also comes in high at 10.2%, presumably reflecting the costs of managing a huge fleet of aircraft with relatively low average value. Among the US lessors, ACG appears to have the most efficient platform, closely followed by Air Lease Corp. AerCap enjoys the benefit of scale.

CALC brings up the rear with a combination of employee costs, business tax and surcharges, travel and overhead contributing to its figure of 17.8%.

Lessor	SG&A expenses as % of revenue
AviaAM	1.6%
CDB Leasing	3.4%
Amedeo Air Four Plus Limited	3.5%
ALAFCO	5.6%
BOC Aviation	5.8%
Aviation Capital Group	6.7%
AerCap	6.9%
Air Lease Corp	7.3%
Avation PLC	7.9%
Aircastle	8.6%
FLY Leasing	8.7%
SMBC Aviation Capital	9.2%
DAE Aerospace	9.6%
Nordic Aviation Capital	10.2%
MCAP Europe Limited	14.9%
CALC	17.8%

DAE looks at different options for building orderbook

DAE chief executive officer Firoz Tarapore says that a potential narrowbody order may come later than expected.

Dubai Aerospace Enterprise (DAE) says discussions with original equipment manufacturers (OEMs) will take longer than originally anticipated and that the operating lessor could grow via another platform with an existing orderbook.

Chief executive officer Firoz Tarapore says the rationale behind a potential order is that DAE is the only large lessor which does not have a "meaningful" orderbook.

As at 31 December 2017, the lessor had orders for 23 aircraft from Airbus and ATR, for delivery between January 2018 and June 2019. A total of 20 aircraft will arrive by 31 December 2018. DAE has commitments to purchase 10 aircraft from airlines set to receive them from April 2018 to November 2018.

"Discussions are underway," said Tarapore but he admits that the current market environment of challenging lease rates combined with escalation prices pose a significant challenge. "Discussions will take longer than originally contemplated," he adds.

One avenue to get access to an OEM orderbook could be the acquisition of another leasing platform. DAE acquired AWAS last August and the integration of the Irish platform was completed in February.

"We have to make sure that the two companies work perfectly well before we do another acquisition," he says, adding: "This makes more sense at the end of this year or next year."

Tarapore says that, should DAE start looking at another platform at the end of this year, it is likely to be a "2019 event".

In September 2017, Tarapore told *Airfinance Journal* that DAE needed to secure committed growth and will focus on placing an order with Boeing and/or Airbus for a large number of narrowbody aircraft.

"DAE Capital will also continue to evaluate and pursue, as appropriate, other channels to grow the portfolio at an appropriate risk-adjusted return," he said at the time, adding that he anticipated more consolidation in the leasing industry.

"We fully expect further consolidation in the industry as scale is constantly being refined and many smaller players are finding it increasingly difficult to differentiate their offerings and to originate new business.

"Clients want to deal with bigger, strongly capitalised lessors who can sit across the table from them and offer a comprehensive range of solutions to help them grow their business and manage their fleet to adapt to changing market conditions. Consolidation is inevitable as the value proposition of smaller, transaction lessors is eroding in a perceptible way."

The Dubai-based operating lessor reported a $383 million profit from operating activities for the year ended 31 December 2017, up from $255 million in 2016. However, profit after tax was $172.6 million, down from $199 million the prior year.

After its purchase of AWAS, DAE benefited from more revenue-generating aircraft in its portfolio. This was offset by increased depreciation and amortisation and general and administrative expenses after the AWAS acquisition.

DAE ended 2017 with $790.5 million in rental revenues compared with $440.1 million in 2016, a 79% increase.

The lessor says that the Middle East and Africa accounted for 39% of last year's total income compared with 60% in 2016 when the lessor had $265.5 million in revenues from that region.

It increased its exposure to the Asia-Pacific region with the acquisition. In 2017, rental revenues from that region totalled $262 million or one-third of the lessor's annual revenues. In 2016, Asia-Pacific represented 22% with $98 million in revenues.

Exposure to Europe doubled to 14%, with DAE revenues reaching $113.5 million last year compared with $30.5 million the previous year. Rental revenues from the Americas more than doubled to $105 million in 2017 from $46 million in 2016, representing 14% last year versus 11% in 2016.

During 2017, DAE received $230.2 million from aircraft lease rentals from companies under common control (Emirates Airline and Flydubai). The total number of aircraft leased to companies under common control totalled 14 units.

Lease rental income from the top five customers represented 46% of the lease rental income for the year ended 31 December 2017. They represented 81% of the total lease rental income in 2016. No single customer accounted for more than 28% of lease rental income last year compared with 57% in 2016.

As of 31 December 2017, DAE owned 310 aircraft compared with 87 at the end of 2016. It had 299 aircraft held for lease on an operating basis and 11 under finance leases.

During the year, DAE received lease payments on aircraft under non-cancellable operating leases expiring from 2017 to 2029. Future operating lease annual rentals are estimated at $7.49 billion, including $1.26 billion in rentals due within a year, $3.97 billion in rentals later than one year and not later than five years and $2.25 billion in rentals later than five years.

Aircraft lease revenues increased 73.3% to $771.1 million during 2017 compared with $445 million for the year ended 31 December 2016. DAE also recorded $36.4 million in maintenance revenues for the year, up from $21.1 million in 2016.

But amortisation of lease-associated costs during the year decreased to $17 million from $25.9 million over the 12-month period.

In terms of number of aircraft, Asia-Pacific represents 30% of DAE exposure, Middle East and Africa represents 26%, while Europe and the Americas 22% each.

Airbus to hit market with Balthazar

The European original equipment manufacturer is looking to match its US rival's AFIC offering.

Airbus is in the market with an insurance-guaranteed structure, dubbed project Balthazar, for financing Airbus aircraft, say sources.

The European manufacturer and aircraft broker Marsh will, this year, co-launch Balthazar, an insurance-guaranteed product designed for bank and investors that fund new aircraft purchases from Airbus.

Airfinance Journal understands that an insurance policy is almost in place and that a transaction could materialise this summer.

Clifford Chance will be the law firm overseeing the Balthazar transactions, say sources. Under the insurance policy drafted, insurance companies will have a minimum A- rating.

Insurance companies will be agreed by the banks, and Airbus is expected to participate in the risk cover of each transaction. It is not clear if the Airbus coverage, believed to be minimal, will be on the junior tranche or on a pari-passu basis.

Airfinance Journal understands that Balthazar pricing will be on the export credit agencies benchmark with 100% cover. The loan to values is expected to be below 85%.

The insurance-guaranteed structure will also not be exclusively US dollar denominated but would accept the Euros currency for some transactions.

Five insurance companies

Balthazar provides an alternative aircraft finance insurance product for new aircraft deliveries and it is believed that five insurance companies have been selected to underwrite deals. Coface for Trade, Liberty Specialty Markets, The Channel Syndicate, SCOR and XL Catrin will form a consortium of insurance companies as the initial underwriting panel to provide capacity for funding new purchases from Airbus.

Balthazar will be a new way for insurers to support aircraft financing and its insurers rely on commercial banks to structure and negotiate a transaction.

The standard structure will be similar to Boeing's insurance-guaranteed structure, but acceptable structures include finance leases, Japanese operating lease with call options and French tax leases.

"The insurance-guaranteed structure will also not be exclusively US dollar denominated but would accept the Euros currency for some transactions."

Pre-agreements will be in place prior to banks approaching customers with the product, say sources. Those pre-agreements include insurance premiums, policy wording and insurance term before the bank issues a bid. But insurers' agreements can be adaptable to each financial institution and underlying transaction, add sources.

Airbus is said to have launched a request for proposals for a servicer that will manage the day-to-day management of transactions as well as default scenarios from clients. The servicer, which will act on behalf of the insurers, will also play a key role in facilitating communication with banks.

Airlines have increasingly turned to less conventional ways to finance aircraft, given the abundance of liquidity in the market and that Boeing's and Airbus's export credit agencies are unable to guarantee financing for commercial deliveries.

Marsh launched insurance-guaranteed product Aircraft Finance Insurance Consortium (AFIC) to fund new aircraft purchases from Boeing in the second quarter of last year. AFIC is underwritten by four insurance companies: Allianz, AXIS Capital, Fidelis and Sompo International (formerly Endurance).

Airbus hopes to complete at least one transaction this year under its insurance-backed financing product.

At *Airfinance Journal*'s 18th Asia Pacific Airfinance conference in Hong Kong last November, Airbus's vice-president of customer finance, Christin Lodberg, said the European manufacturer was working on a similar product as AFIC for Boeing deliveries. "It is early days still, but we hope to have it ready by early 2018."

Lodberg added that the new Airbus product will be "an addition" to export credit agency financing and will have "attractive terms".

Ex-Im reinsurance programme

In late March, the US Export-Import Bank (Ex-Im Bank) launched a risk-sharing programme with private sector reinsurers for its aircraft loan portfolio. The initiative provides up to $1 billion in cumulative loss coverage for each borrower in the lender's commercial aircraft portfolio, says Ex-Im.

Ex-Im Bank worked with Aon Benfield, the global reinsurance intermediary of Aon, to complete this $1 billion reinsurance programme. Coverage is shared between the bank and a group of 10 insurance companies led by XL Catlin, Liberty Specialty Markets and Everest.

Ex-Im Bank says the programme is the largest public-private risk-sharing arrangement for a US government credit agency. The transaction represents the maximum allowable coverage permitted under Ex-Im Bank's charter and fulfils its 2015 congressional reauthorisation mandate to engage in risk sharing with the private sector to minimise the bank's and US taxpayers' liability for potential future losses.

"We are excited to announce this historic arrangement with the private sector that protects Ex-Im Bank and safeguards US taxpayers' interests without requiring additional funding," said executive vice-president and chief operating officer Jeffrey Goettman, who is serving as Ex-Im Bank's acting head of agency.

"Ex-Im is committed to a path of financial innovation and risk sharing with the private sector," he adds.

Airasia portfolios help FLY transition to new-technology aircraft

FLY Leasing has closed one of the largest portfolio deals likely to be seen this year, acquiring a portfolio of up to 75 aircraft from Asia Aviation Capital.

The FLY Leasing-Airasia transaction, announced in March, involves two narrowbody portfolios that will give access to 41 latest-technology aircraft as the lessor moves towards the Airbus A320neo and Boeing 737 Max-family types.

FLY Leasing chief executive officer, Colm Barrington, says the lessor has taken several positive steps over the past three years, including a major upgrade to the quality of its aircraft to the lease portfolio, significant reductions in the lessor's SG&A (selling, general and administrative expenses) and debt costs, and a major share repurchase programme: the past two-and-a-half years has resulted in FLY buying back 32% of its shares at a 31% discount to its third-quarter 2017 net book value.

Barrington admits that FLY has been investing in new aircraft at a "prudent pace" because the lessor has not wanted to follow the market down to unacceptable returns.

Last year, FLY invested $456 million in 10 aircraft that would contribute $47 million in additional annual revenues. Since 2015, the lessor has sold $1.7 billion-worth of aircraft with an average age of 13 years and replaced them with $1.6 billion-worth of aircraft with an average age of 2.5 years.

"This fleet upgrade has resulted in FLY being an industry leader in terms of the quality and low age of our fleet," says Barrington.

But the Airasia transaction will accelerate the lessor's growth and improve its portfolio quality further. The Airasia portfolio acquisition comes in three parts, each involving an investment by FLY of more than $1 billion for total committed and potential investment by FLY of over $3 billion between 2018 and 2025.

> *"The transaction provides significant additional benefits to FLY's already attractive portfolio, particularly as it provides a catalyst for our transition to the latest-technology aircraft."*
>
> **Colm Barrington**, chief executive officer, FLY Leasing

The committed portfolios involve 55 aircraft and the option portfolio involves a further 20 aircraft. Of these 75 units, 41 are the latest-technology A320neo-family aircraft.

The initial committed portfolio investment involves the purchase by FLY of 34 A320 aircraft and seven CFM56 engines, leased to five Airasia Group airlines with one A320 operated by Pakistan International Airlines. The average age of these aircraft is 6.6 years and the average remaining lease term is 6.2 years.

FLY says the metrics are very similar to its existing portfolio.

Those portfolios provide the lessor with significant growth possibilities. Of the 41 new-technology aircraft involved, 21 are A320neo-family aircraft, which FLY committed to purchase and lease to Airasia Group of airlines under 12-year leases. Deliveries are scheduled between 2019 and 2021.

Barrington says the orderbook of the latest-generation aircraft has several attractive features. First, the lessor's committed deliveries are matched by committed leases and will be debt-funded by a committed facility.

Second, FLY benefits from Airasia's preferential pricing, which results from its large order position with Airbus. Third, the fact that FLY is not required to advance any predelivery payments will lead to enhanced returns.

"The transaction provides significant additional benefits to FLY's already attractive portfolio, particularly as it provides a catalyst for our transition to the latest-technology aircraft. On a pro forma basis, and assuming no aircraft sales, our committed purchases of 55 aircraft will increase our portfolio value by 66% from its current $3.1 billion to approximately $5.2 billion," says Barrington.

He adds that once the deal is completed, 33% of FLY's pro forma fleet by value will be next-generation aircraft.

"It will also reduce our average fleet age by 20% to 5.1 years and will increase our average lease term by 18% to 7.4 years," he adds.

The total price of this portfolio will be about $1.1 billion, which the lessor will settle with just over $1 billion in cash and through the issue of 3.33 million FLY shares at $15 a share.

FLY says the initial 34 aircraft will be financed with just under $700 million-worth of committed financing.

Wesley Dick, senior vice-president, FLY Leasing, says most of this amount will be raised through a four-bank syndicate while FLY will also use its existing aircraft acquisition facility.

"That transaction features two tranches of debt and margins that are in the Libor plus 100-basis-point to 200-basis-point range. And that's generally in keeping with how we think about the financing cost for a tier one airline like Airasia and that would also be applicable to forward commitments," he says.

Dick adds that FLY does not have committed financing for the sale-and-leaseback portfolio that will come as the second phase. "We have a lot of bank demand," he says.

Assuming no aircraft sales, the geographical split of the leases will be heavily weighted towards Asia, which continues to be the fastest-growing aviation region.

"After the acquisition of the initial 34-aircraft portfolio, Airasia will become FLY's most significant lessee with 10% of our fleet by value. Three other Airasia Group airlines will also feature among our top 10 exposures, with Thai Airasia at 5%, Indonesia Airasia at 3% and Airasia India at 3%.

"Overall, our exposure to our top 10 lessees will reduce some from 55% to 54% with our exposure to the entire Airasia Group being at 24%. Lessors currently have a low exposure to Airasia Group airlines and so we expect that there will be a ready market to reduce our exposure to the group over time, and there are no restrictions on us doing this. We are targeting approximately $150 million of Airasia Group sales annually," says Barrington.

> *"That transaction features two tranches of debt and margins that are in the Libor plus 100-basis-point to 200-basis-point range. And that's generally in keeping with how we think about the financing cost for a tier one airline like Airasia and that would also be applicable to forward commitments."*
>
> **Wesley Dick**, senior vice-president, FLY Leasing

The second portfolio involves the purchase by FLY between 2019 and 2021 of 21 A320neo-family aircraft, powered by CFM LEAP engines. These aircraft will be purchased new from Airbus and the lessor will lease them to Airasia Group airlines on 12-year leases, on terms that have already been agreed with the group. FLY has also arranged debt financing for these purchases.

The third portfolio involves options by FLY to acquire 20 A320neo aircraft. Deliveries will commence in 2020 and stretch through 2025. BBAM, on behalf of FLY, will mark these aircraft for lease to its global airline customers.

FLY says the lease rates factor on the 21 A320neo family sale-and-leaseback deal is 0.77%, but the lessor will not firm the options if the lease rates factor remains the same.

"We hope to do significantly better than that and, if we can't, we probably won't take those options," says BBAM's Steve Zissis.

"We will go out in the marketplace, and if the market keeps trending and firming to the positive side, then we will take up the options and lease the aircraft out. If the market gets weaker or comes under pressure, then we'll pass on," he adds. One option is that Airasia Group takes the aircraft, says Zissis. "For us, it will simply be a lease placement. But it is down to Airasia," he adds.

Shares lock-up

An interesting feature in this transaction is Airasia buying shares in FLY Leasing. The Airasia shares will be locked up for a very long term through 2021.

FLY will issue 3,333,333 new shares at $15 a share in a $50 million deal.

"We acknowledge that newly issued shares aren't being issued at a discount to book value. But even pro forma for the transaction, if we look at the amount of time it will take for the business to earn back that day one book dilution on a per-share basis, it's less than two-quarters of earnings. So, the combination of the premium and what this means for the business in terms of its earnings power is something we're excited to talk about," says Dick.

In addition to Airasia acquiring shares in the business, the management team at BBAM and Onex, one of BBAM's key shareholders, will each be acquiring an additional 667,000 newly issued FLY shares also at that same 26% premium to the current share price, adding an additional $20 million. BBAM and Onex will own more than 17% of FLY Leasing after the completion.

Shortlist announced for this year's awards

More than 150 submissions were received for this year's competition, covering 90 unique transactions, with a total value of about $62 billion.

Airfinance Journal has announced the shortlist for the 2017 Deals of the Year, team awards and winners of its individual prizes. Now in its 22nd year, the awards are an essential calendar fixture for airlines and the global aviation finance sector.

Each year *Airfinance Journal* shines a spotlight on aviation finance transactions that stand out in terms of innovation, size, timing, pricing and whether the deal created a new market standard.

The shortlist for these prestigious awards, which will take place in Miami on 16 May 2018, has been compiled after a rigorous judging process. More than 150 submissions were received covering 90 unique transactions (average 10 deals per category), with an aggregate value of about $62 billion. *Airfinance Journal*'s editorial and data experts then narrowed the submissions down to three deals for each category.

The shortlist was then passed on to a judging panel of senior aviation finance executives, comprising Bertrand Grabowski (former board member and head of aircraft finance at DVB Bank), Scott Scherer (former vice-president of aircraft financial services and general manager at Boeing Capital Corp) and Hugh Robertson (former aviation finance partner at Milbank), that will determine the winners.

AIRFINANCE JOURNAL **AWARDS**

There are 19 categories considered in this year's *Airfinance Journal* awards.

Bank Loan Deal of the Year
- Peregrine (AerCap-NCB) for 21 mid-life aircraft
- DAE Capital pre-delivery payment (PDP) for 15 A320s
- Qantas A$350 million ($271.7 million) enhanced corporate loan programme
- Aeromexico 25 737 Max PDP/sale and leasebacks

Export Credit Deal of the Year
- LOT two 787 UKEF financing
- Aeromexico maintenance, repair and overhaul SERV-insured loan
- Norwegian 787 Jolco-UKEF financing

Tax Lease Deal of the Year
- Bocomm Leasing 737s with Ex-Im takeout option
- THY two 777 freighter AFIC/French lease
- Wizz Air three A320 Japanese operating lease

Operating Lease Deal of the Year
- DAE Gulf Air five 787 PDP/purchase and leasebacks
- AviaAM eight A320 Chinese financing of purchase and leasebacks with Aeroflot

Equity Deal of the Year
- Azul $644 million initial public offering (IPO)
- VietJet $167 million IPO
- ACG-Tokyo Century 20% sale

M&A Deal of the Year
- Avolon/CIT Aerospace acquisition
- DAE/AWAS acquisition
- GECAS/CDPQ joint venture

Capital Markets Deal of the Year
- American 2016-3 B tranche EETC
- Goshawk $567 million unsecured bond
- Aergo/METAL 2017-1 asset-backed securitisation

Innovative Deal of the Year
- Atlas/Titan Aviation/Amazon $306 million risk bifurcation
- ICBC Leasing/Korean Air one 787 debut HK tax concession structure
- Korean Air two 787 plus one 747-8I first AFIC transaction

Used Deal of the Year
- Cathay Pacific used aircraft $350 million revolver
- Aero Capital Solutions $350 million stub leases
- Altavair two 777-200LR secured refinancing

Overall Deal of the Year
- Avolon CIT acquisition
- DAE AWAS acquisition
- Korean Air two 787 plus one 747-8I first AFIC transactions

Editors' Deal of the Year
Presented by Jack Dutton, editor of *Airfinance Journal*, and Asia's editor Michael Allen

Team shortlists

Aviation Finance House of the Year
- BNP Paribas
- Citi
- CA-CIB
- Goldman Sachs

Lessor of the Year
- Avolon
- DAE
- CDB Aviation

Airline Treasury Team of the Year
- American Airlines
- Delta Air Lines
- Gol Linhas Aereas

Lessor Treasury Team of the Year
- AerCap
- BOC Aviation
- DAE Capital

Individual award winners

Aviation Finance Person of the Year
- Bob Morin – Marsh/AFIC

News Event of the Year
- Airbus/Bombardier/CSeries investment

Lifetime Achievement Award
- Scott Scherer

Airline of the Year as Measured by Return on Capital
- Delta Air Lines

A cradle of **Chinese civil aviation**?

It all began when a trade delegation from the province of Henan visited Lithuania hoping to buy milk, but ended up buying aircraft, reports **Michael Allen**.

In 2015, a trade delegation from China's Henan province visited the Baltic state of Lithuania seeking shipments of milk. Instead, they ended up involved in aircraft leasing.

Having made an investment in Henan Cargo Airlines, the Chinese were looking for dairy products to import to China using Cargolux aircraft, says Tomas Sidlauskas, chief executive officer of AviaAM China, recounting the story behind his company's Chinese joint venture, AviaAM Financial Leasing China.

While the delegation was in town, a third party brokered an introduction to AviaAM, which wanted to discuss the establishment of a leasing portfolio. AviaAM Leasing and Henan Civil Aviation Development and Investment (HNCA) launched the joint venture (JV) leasing company in 2016.

"It's interesting – you come to buy milk, but you buy aircraft," says Sidlauskas. "We always had the feeling we would like to do something in China, but we really needed the partner who was capable to do that. It wasn't pure luck, but there was a luck factor as well.

"The main idea is we are bringing the deals to the table and they are bringing the financing, because they promised to give us competitive financing from the local banks," says Sidlauskas, adding that the project received political support because it is aligned with China's One Belt One Road initiative.

The joint venture has already completed transactions with Russian carrier Aeroflot, with which AviaAM was already connected.

"The main thing for Aeroflot is that we had a good relationship and they had a lot of brand-new aircraft. To build a portfolio quickly, it's better to do it with well-known airlines. It's easier to get the financing and it's easier to prove to the JV partner that the airline is good," says Sidlauskas.

Sidlauskas says the joint venture is now targeting deals in Commonwealth of Independent States countries, whose carriers might struggle to secure financing.

"[In those countries] it's not easy to get financing from the international society because of the credit rating of the country, but to get financing from China it's not that hard," says Sidlauskas, adding that while pricing was not that good for the joint venture, margins were higher compared with deals in the rest of Europe and in North America.

That joint venture now has 11 aircraft in its portfolio, with another two expected soon.

> *"The Chinese government has identified Henan as suitable for the development of aviation and aircraft leasing."*
>
> **Ryan Guo**, managing director, Zhongyuan Aviation Leasing

Lagging behind

Historians of China acknowledge Henan, the province from which the delegation came, as "the cradle of Chinese civilisation", but in recent decades Henan has fallen behind economically. Poverty remains a problem and Henan has not benefited from China's economic rise as much as richer coastal areas.

A 2008 article in Hong Kong newspaper *South China Morning Post* described Henan as having a "glorious past" and "strategic geographic location", but "lagging behind in China's economic boom" after three decades of reform and opening up.

Now, however, the province is developing rapidly, with aviation a pillar of that growth. Could the cradle of Chinese civilisation also become a cradle of Chinese civil aviation?

Ryan Guo, managing director of Zhongyuan Aviation Leasing, a lessor based in Henan's capital city Zhengzhou, thinks so. He says the Chinese government has identified Henan as suitable for the development of aviation and aircraft leasing.

Zhongyuan Aviation Leasing is backed by five Chinese shareholders: Zhongyuan Asset Management, Henan Province Airport, Hengyu Investment (HK), Zhengzhou Airport Economy Zone Xing Gang Investment and Henan Land Assets Management.

At the end of December, Zhongyuan Aviation Leasing closed its first deal, a $98 million 12-year sale and leaseback for Lucky Air for one Airbus A330-300 with funding from China Development Bank's Henan branch. The deal was structured via a special purpose vehicle (Henan YuPeng Aviation Leasing) through the Henan Zhengzhou Airport Economic Zone, the first time this type of structure has been used.

Guo says the deal received strong support from the Henan government, which gave tax refunds to Zhongyuan Aviation Leasing. He says it is the first operating lease deal in China for which the State Administration of Foreign Exchange allowed the collection of US dollar-denominated lease rentals.

The fact the government granted tax incentives via this economic zone shows that the government supports aircraft leasing development in Henan. Only a limited number of areas in China offer these kinds of benefits, the most active of which is the Tianjin Dongjiang Free Trade Port (DFTP), where more than 1,200 aircraft have been delivered, according to a DFTP source.

Before joining Zhongyuan Aviation Leasing, Guo worked in the richer southern Chinese province of Guangdong, which boasts two economic powerhouses: Shenzhen and Guangzhou.

There, Guo headed the financial leasing division of the Qianhai Shenzhen-Hong Kong Modern Service Industry Cooperation Zone, researching how to attract domestic and foreign leasing companies to set up special purpose vehicles (SPVs) in the zone.

In an October 2015 interview with *Airfinance Journal*, he discussed how Qianhai wanted to follow on from the success of other special zones in China such as the DFTP. He said that, because of its proximity to Hong Kong, Qianhai had been given permission from the Chinese central government to implement "special policies" and was being allowed to research how to introduce English law practices into Qianhai.

"Especially for the aircraft financing sector, the law is English law, so we want to do some research to introduce more English law into Qianhai," he said at the time.

"That would not only allow the Chinese leasing companies to get more guarantee and more protection from the lease agreement, but we hope it will also give the foreign leasing companies like GECAS, ILFC or CIT more confidence to set up SPVs in China."

However, Guo now acknowledges that some provinces have prioritised the development of aircraft leasing more than others.

"Guangdong province has a lot of economic support and they also have a lot of different kinds of businesses like insurance and banking, investment banks – so much support. Maybe for the aircraft leasing industry it's not very important, not very big business in the whole economic plan," he says.

Guo adds that one of the biggest challenges for Qianhai was that Guangdong, unlike Henan, was not granted permission from central government to allow lessors to collect foreign exchange rentals in US dollars.

Move to Hong Kong

An attractive leasing structure in the Henan Zhengzhou Airport Economic Zone and strong government support may still not be quite enough to keep lessors in Henan. Zhongyuan Aviation Leasing is planning to move much of its operations down to the Chinese special administrative region of Hong Kong, where lessors enjoy preferential tax rates. ICBC Financial Leasing closed the first leasing transaction to take advantage of the recently passed bill to lower the effective tax for lessors in the city.

Guo, who said in June 2017 that his company was considering a move to Hong Kong to internationalise its business and take advantage of the tax reforms. He visited Hong Kong with his shareholders in March to explore a potential listing on the city's stock exchange. Guo hopes to make the move by the end of 2018, pending approval internally and from Zhongyuan's local government shareholders.

"We will keep some people in Zhengzhou, but I guess most of the team will move to Hong Kong or we will recruit new people at Hong Kong. The operation team, especially the financial team, most of them will be based in Hong Kong," says Guo.

He is also considering having a second office in neighbouring Shenzhen, because of cheaper rents there.

"It's up to how big an office we rent. Not only our company, but my shareholders have other business [besides aircraft leasing] like distressed asset management and a shares investment company. This office will include all these businesses," says Guo.

"After the shareholders become a listed company in Hong Kong, then maybe later we will become an independent department to IPO [initial public offering] independently."

Despite concerns about low lease rate factors in China and an influx of new lessors crowding the market, Guo is optimistic about the future of aircraft leasing in China.

"I think the market is becoming more and more rational," he says, explaining that the biggest leasing companies have less interest in doing sale-and-leaseback transactions these days.

Guo adds that despite competition from new lessor entrants, these newbies generally cannot get their shareholders to support leasing aircraft with "very lower lease rates compared to big leasing companies".

He adds: "Maybe 100 or 200 aircraft will deliver in one year, but for so many leasing companies they compete with just this piece of the market, so it needs time. I guess one year or two years later the lease rate will go up gradually."

Guo thinks big leasing companies will have to change their business models to explore more services besides pure aircraft leasing, such as aircraft part outs.

While Zhongyuan Aviation Leasing will continue to work with local government to arrange innovative deal structures and develop Henan's aviation industry, Guo – who has experience at other Chinese lessors CCB Leasing and CDB Leasing (now CDB Aviation) – acknowledges the need to remain true to a tried-and-tested aircraft leasing business model.

"I guess we will just have the same business model as other leasing companies: sale and leaseback and place orders," he says. "We have to finish one thing, step by step."

From Luxembourg to Zhengzhou

Luxembourg cargo carrier Cargolux Airlines has been flying to Zhengzhou Xinzheng airport (CGO) since 2014 and has 34 flights in and out a week.

Richard Forson, Cargolux's chief executive officer, describes Zhengzhou airport as a "powerful hub".

He says: "We've seen a significant increase in tonnage from our side and last year we transported a total of 147,000 actual tonnes out of CGO, and it seems to be attracting a lot of attention of many other carriers as well that want to operate into CGO.

"Obviously, Shanghai is congested, Beijing is congested, so we've been pretty pleased with the success we've had of CGO as a traditional point in China. It's also allowed us to expand our footprint."

Henan Civil Aviation Development and Investment (HNCA), the same company that owns part of AviaAM China, owns a 35% stake in Cargolux. The two companies are setting up an airline called Henan Cargo Airlines, in which Cargolux will hold 25% (the maximum allowed under Chinese foreign investment rules) and HNCA 75%.

Forson is still considering options for Henan Cargo Airlines' fleet, which will start with three-to-five aircraft.

"One option is to source from our fleet. The other is to go into the market and see what is available. We are a Boeing 747 operator, so having 747s there we are able to provide them with immediate maintenance support," he says.

"The big thing – once we really scan the market to see what's available – is to what extent we can transfer aircraft from our fleet, although, at the same time, I don't want to see any reduction in our fleet. One has to balance it out; if I had to transfer out of my fleet, I would seek alternative replacements to come back into Cargolux's fleet."

Asked whether he would utilise the same Henan Zhengzhou Airport Economic Zone structure as Lucky Air did via Zhongyuan Aviation Leasing (see main article), Forson says it is something Cargolux has examined. "Obviously, if we were to decide to lease aircraft in from a lessor we would investigate what benefits there would be in the zone surrounding the airport," he says.

"I know there are other free zones that quite a number of transactions have been done through. For Henan Cargo Airlines, it would definitely be one of the alternatives we would look at in sourcing the aircraft."

Forson says strong support for aviation in Henan comes not only from the provincial government but the Communist Party's central committee.

He adds: "It forms an integral part of what they call the Air Silk Road, which is part of the One Belt One Road strategy that President Xi has mentioned on many occasions."

Flybe commits to Q400

Christine Ourmières-Widener, the UK regional airline's chief executive officer, speaks to **Jack Dutton** about the carrier's fleet strategy, European consolidation and women in aviation.

"My jobs have always involved something I've had to fix," Christine Ourmières-Widener tells *Airfinance Journal*.

After obtaining a master's degree in aeronautics at École Nationale Supérieure de Mécanique et d'Aérotechnique, she started her career in aviation as an engineer at Air France in 1988.

"I was the only woman in the hangar – working on the Concorde and A320. It was soon after the introduction of the A320 at Air France, so it was a great experience," she adds.

Ourmières-Widener later rose up the ranks, becoming the airline's managing director for UK and Ireland. Later, in October 2010, she joined Cityjet as the Irish carrier's chief executive officer (CEO), where she spent five years.

When Ourmières-Widener took over as CEO of Flybe in January 2016, she had other problems to fix. Her appointment came after previous Flybe chief executive Saad Hammad left by "mutual agreement" in October, following more than three years with the group. A highly competitive regional market and an over-ambitious order for 24 Embraer E175s, placed in 2010, meant the carrier was struggling financially. Unable to cancel the order in 2014, a deal was reached whereby US carrier Republic Airlines would lease 20 of the 24 E175s and Flybe would sublease Republic's 24 Bombardier Q400s. Flybe's four remaining E175s from the original order will arrive in 2019.

Last year was also challenging, with Flybe issuing two profit warnings because of "higher-than-expected" maintenance costs incurred in a bid to improve the reliability of its Q400 fleet.

Flybe Q400

However, Ourmières-Widener is determined to turn the business around and, in the airline industry, much can change in a short space of time. "The markets are changing every day, so if you're not conscious that routes are opening and closing, that there's new players, that there's new products, you are not ahead of the game. You need to monetise your routes every second," she says.

Successful airlines must respond to change. From one revenue update to another, an airline's most and least popular routes vary drastically, meaning that they adapt their route networks accordingly.

Last year, Flybe analysed its core network targets and since then its targets have changed significantly. It scrapped some routes in Scotland where it was competing with Logan Air and added capacity on certain routes, such as Belfast City airport to London City airport. Despite stopping some Scottish routes, Ourmières-Widener says that no communities were cut off because they are able to fly with another airline.

Rethinking the fleet

To streamline its operations and increase profitability, the UK regional carrier has reduced its fleet over the past 18 months, and targets a minimum of 65 aircraft by 2019. Flybe is also handing back aircraft to lessors, meaning that the percentage of aircraft on its balance sheet will increase.

On 24 April, the airline said it would keep the Q400 for the foreseeable future. It does not plan to buy or lease any new aircraft in the next three to five years, but instead will extend the life of its current fleet.

"The average age of our Q400 fleet is just over 10 years, which is relatively young for regional aircraft, so we have ample life left in the assets and it makes more economic sense to extend their life than buy or lease new," says Ourmières-Widener.

The airline will continue its planned E195 returns as per its current fleet plan, meaning the last E195 will exit the fleet in April 2020. The airline will keep its existing E175s in line with the current fleet plan and take delivery of four new E175s in 2019.

"We don't have big plans to own more aircraft; we just want to have the right percentage of owned versus leased aircraft," says Ourmières-Widener.

As of early April, Flybe had returned six end-of-lease aircraft. It now operates a fleet of 78 aircraft, comprising 54 Q400s, eight E195s, 11 E175s and five ATR72 aircraft.

The airline is reviewing financing options for the four E175s it is due to take next year. It will seek to ensure the fleet does not drop below 65 while handing back the right mix of jets versus turboprops.

"The average age of our Q400 fleet is just over 10 years, which is relatively young for regional aircraft, so we have ample life left in the assets and it makes more economic sense to extend their life than buy or lease new."

Christine Ourmières-Widener, chief executive officer, Flybe

Brexit and barrels

Flybe's fleet rethink has come off the back of several industry headwinds. Some of the main challenges to Ourmières-Widener's airline include foreign exchange fluctuations, such as the weakening of the pound after the Brexit vote in June 2016, as well as fuel costs that are creeping up.

To combat this, Flybe has hedged 76% of its jet fuel for the first half of 2018/19 at $519 per tonne, 43% at $517 per tonne for the second half and 3% at $584 per tonne for the first half of 2019/20.

"We have a good hedging policy – but with hedging, the impact is still there but you're mitigating it – it's not the only solution. Brexit is a risk we are managing. There's uncertainty about it because we don't know yet what the outcome will be or know what the proposed transition period would look like."

For Ourmières-Widener, one of the main risks of Brexit is whether UK airlines such as Flybe remain part of the European Aviation Safety Agency (EASA). If the UK is not part of EASA, ADS, the trade body for British aerospace, believes it will take a decade for the country's aviation authority to create the necessary certification infrastructure.

Although the UK's Department for Transport has privately reassured the aviation industry that Britain will stay within EASA, it is not a given. Ourmières-Widener says that many MPs reassured Flybe about the outcome of Brexit, but many of them do not know the industry well, so she has to provide examples of potential impacts on airlines.

Staying connected

Regional connectivity is core to Flybe's ethos. To be a preferred regional airline for its customers, Ourmières-Widener says it is key that the airline invests further in on-time performance. She says the airline must continue to engage clearly with its employees, as well as its customers when there are disruptions.

"Investing in technology will contribute to our cost savings but will also give us an opportunity to improve our revenue and bring our on-time performance to best in class," she adds.

Being a preferred airline is difficult in an increasingly competitive European airline market, where consolidation is often making the headlines.

"We have been talking about consolidation for many years and it's happening step by step," she says. "If fuel costs rise significantly, then I believe we will see further consolidation of the market."

Although the US market has matured faster than Europe's by going through more consolidation, Ourmières-Widener highlights major differences between the two. In Europe, there are more regions to connect, she says, as well as more cultural differences and languages. Furthermore, unlike US carriers, European carriers do not have the protections of Chapter 11 bankruptcy code and capacity purchase contracts, when a parent airline is able to finance its subsidiary airline's aircraft and then place it there at low cost.

In February, consolidation almost reached Flybe when British transportation group Stobart declared its interest in acquiring the company. On 22 March, though, talks fell apart after the two companies were unable to reach terms.

Commenting on the Stobart bid, Ourmières-Widener says: "They initiated an opportunistic process but we had never indicated a desire to sell the airline."

However, she describes the offer as "an interesting but heavy process", adding: "When you're a public company, with any announcement like this one a process directed by the takeover code automatically kicks in.

"During that time, there was a lot of work to be done internally. At the same time, you need to keep running your business."

Aviation companies are often able to raise substantial capital to fund consolidation. Asked about the state of the aircraft financing market, Ourmières-Widener says: "I think the risk is always with the airlines rather than with the lessors. That's how the model works. There is something fundamentally wrong with the value chain; airports are doing fantastically, lessors are still doing fantastically, but many airlines in the regional space are struggling, so there's something that's not quite right."

She points out that airlines often make the narrowest margins compared with original equipment manufacturers or leasing companies.

"And we [the airlines] are the ones with the most complicated jobs because we need to operate the aircraft and manage our customers. We have to do B2B [business-to-business] and B2C [business-to-consumer] and that's part of what we live every single day. The complex distribution, the management of all the stakeholders is on our shoulders, but we cannot change the industry on our own."

Flybe E175

Women in aviation

There are other aspects of the industry Ourmières-Widener wants to change, including the number of females in senior roles.

At the moment, 7.9% of the airline's pilots are female. It is more than the industry average of 5.26%, but Ourmières-Widener is not satisfied with such a low percentage. Easyjet reported only 5% female pilots, British Airways has 5.9%, while Tui Airways has 5%, according to the International Society of Women Airline Pilots.

"The facts are speaking for themselves and there's room for improvement," says Ourmières-Widener. "Has it changed since I started? I'm not sure because I was the first woman in the hangar when I started in maintenance with my first job years ago and today, most of the time, I'm the only woman in the room – so I don't think things really change."

Despite the lack of improvement, Ourmières-Widener believes there is much the industry can do to encourage female participation.

"It's about motivating girls to study sciences from a young age and it's also about identifying talent, promoting them and giving them more opportunity to be more senior, to have more responsibility in an organisation, depending on the role, of course: pilots and engineers need to have the qualification first."

Ourmières-Widener adds that mentors could also help women make more progress in top aviation roles, before noting that one of the solutions to the global shortage of pilots and engineers could be to recruit more women.

"In recent years, we've been promoting a number of women across the business. They are doing very well and we're very impressed by their willingness to change the status quo. Any diversity in a team is bringing an improvement in performance, so we'd definitely like to see more of that going forward."

An improvement in team performance would be welcome, because the carrier still faces significant challenges. It posted a net loss of £27 million ($37 million) after tax for the year ending 31 March 2017, a swing from a profit of £7 million the year before.

Poor weather in February and March 2018 led to airport closures and flight cancellations across the UK and nearby countries. Flybe had to cancel 994 flights because of bad weather in the fourth quarter – almost triple the number of cancellations the previous year. This resulted in £4 million in lost revenue and additional care and assistance costs for cancelled and delayed flights. This added loss will show in the airline's full-year financial results, to be announced in June.

However, there are signs the tide is turning. In the fourth quarter of 2017, the airline's load factors were up by 6.8 percentage points to 73.5%, which it said was "a strong performance for the winter season".

The airline's strategy to reduce capacity to focus on profitable flying will continue into the new financial year. Flybe says that early indications of its summer trading for 2018 "are encouraging", with an estimated 7.5% increase in passenger revenue per seat offsetting an expected 7.9% decrease in capacity. Also, the airline anticipates that its load factors will continue to improve as it reduces its fleet.

Flybe still has its problems, but Christine Ourmières-Widener is intent on fixing them.

Flybe E195

Barings: more opportunities for airlines in private market

Andrew Kleeman, private placement analyst at Barings, explains to **Jack Dutton** why it is now harder for investors to finance aircraft.

Although Andrew Kleeman, private placement analyst at investment firm Barings, is uneasy about the higher loan to values, larger balloons and weaker collateral seen in deals in today's market, he says that, on the whole, it is still smart to invest in aviation.

"The story with everyone is that it's getting harder and harder to find opportunities to finance aircraft," he says. "The spreads are getting tighter and what's more troubling to us is the fact that the structures are getting more aggressive.

"Our clients are US insurance companies and they need a rating. They want it to be investment-grade, fixed-rate debt, so those two hurdles eliminate a pretty big chunk of the universe for us unfortunately."

Kleeman has reviewed more than 350 investment-grade debt opportunities and purchased over $3 billion of bonds for Barings. He specialises in aircraft finance, closed-end fund financings and secondary trading. Barings' book focuses on both lessor and airline paper, primarily around newer narrowbodies, but it finances smaller widebodies and regional aircraft as well. Some 50% to 60% of the firm's aviation finance exposure is on new narrowbodies, 25% are on smaller widebodies and the last 20% will comprise of a number of other assets, such as turboprops, regional jets and helicopters.

Going private

Barings' history investing in aviation spans several decades. The firm invests in traditional bank loans, private enhanced equipment trust certificates (EETCs) and lessor recourse deals. Kleeman says opportunities can be found in private deals and that many lessors are doing unsecured debt deals in the private placement markets.

"There's been three or four lessors that have done at least one if not two [private] unsecured deals each," he says. "And that works well with the majority of the US insurance companies because they don't tend to understand the collateral very well but the credit of these leasing companies is strong. These lessors have reliable, diversified cash flows from a diversified pool of lessees, as well as great management teams monitoring the portfolio of aircraft. So we've certainly seen a pretty good size demand for the unsecured lessor bonds in the private market."

Barings' strategy is focused on secured paper, so increased private unsecured demand has not helped it much. However, Kleeman says that investors can still extract a lot of value in the aviation industry compared to other sectors.

"It would be interesting to compare aircraft ABS [asset-backed securities] to residential mortgage-backed securities or credit card receivables in today's markets. Aircraft ABS tends to be fixed rate, which is what the insurance companies want, so I think there's still value."

He adds: "I think there's certainly a lot more room for airlines to use the private market. It's a great first step to getting ready to do a public EETC, because you can get a core group of US insurance companies to understand a story with which the public markets may be unfamiliar. In addition, a private EETC can allow multiple funding drawdowns as new aircraft are delivered, avoiding paying the full coupon prior to future aircraft deliveries when you only have cash collateral rather than an aircraft."

Kleeman adds that the costs of doing a private EETC can also be lower, because it can be done with a single rating agency and without an external liquidity facility provider.

"Other features such as borrowing in a currency other than US dollars are possible with some investors, particularly if swap indemnification is possible by the airline," he adds. "We have a lot more capacity for private airline EETCs."

New understanding

A question often mooted at industry conferences is whether the newer investors that have poured their capital into aircraft finance are still going to be doing so in several years' time.

Kleeman says: "I think if you go way back to pre-9/11 when several US airlines were investment grade, there were a lot of aircraft financings that were done as tax equity with delayed debt amortisation in the deals. When 9/11 hit and just about every US airline went through bankruptcy, a lot of those deals were underwater, leading to rejections of the leases and losses for the insurance companies which were the lenders and, in some cases, the tax equity.

"The losses from those loans created some deep scars in the US insurance market regarding airlines. But the strength of aviation finance is finally becoming more apparent to most insurance company investors, and competition in the space is increasing."

Kleeman believes that at the time other insurance companies did not fully understand aircraft, saying they had lost a lot of money and that they wanted stay away from the asset. However, the tables have now turned and investors are coming back into aviation on a quest for yield.

"There certainly will be stresses in the sector in the future, but the airlines, particularly in North America, are stronger than ever. Consolidation in Europe may result in stronger performance from European airlines as well."

Kleeman is upbeat about Asia in the long term because of the region's strong economic development and order backlog, but he does not believe there will always be smooth growth in the region.

"There's a lot of leasing companies that have started up. Some of them have very proven management teams. For others, it's not clear whether they have the technical abilities that some of the larger guys do, so that's going to be something to watch," he says.

"It's going to be tough if you're a financial investor and you have to take a plane back. There's certain technical things that need to get done with the aircraft and you need to have people who can take care of it."

Although having to repossess an aircraft may cause a problem for an investment firm, it is unlikely to cause a mass exodus of investors from the industry. Kleeman believes that would only happen if investors cease to believe there is a relative value in aviation compared to other industries or if there is a major phenomenon, such as 9/11, that causes industry-wide losses.

Cathay United courts Chinese lessors

Although the Taiwanese lender can finance single aircraft, single-lessee transactions to portfolio, warehouse, vintage aircraft portfolios, PDPs and ABS facilities, bank executives tell **Michael Allen** that it is still looking to provide a wider selection of products to its clients.

Taiwanese lender Cathay United wants to expand its aircraft financing business by funding mainland Chinese lessors, three executives of the bank tell *Airfinance Journal*.

The Taipei-based bank hopes to tap into the "tremendous growth" in the leasing market on the other side of the Taiwan Strait, says Winston Quek, executive vice-president, regional head, south-east Asia, Singapore Branch, in an interview at *Airfinance Journal*'s Hong Kong office in April.

He and two colleagues – Bryan Chu, head of its Singapore team, and regional manager Andrew Huang – were in Hong Kong to meet with colleagues in Cathay United's Hong Kong office to discuss this new strategy.

"We've identified the top 10 guys in the Chinese market and we will start engaging these guys fairly soon to understand how we can be relevant in terms of taking on some loans from them and distributing them," says Quek.

Huang says that in the past, Cathay United has "not been that active cooking China deals".

He adds: "We think Chinese lessors are a slightly different market; on the one hand, compared to their international peers, it takes a bit of time for them to accumulate remarketing experiences and build in-house capacity; on the other hand as most of them are quite well-capitalised thanks to their parent banking groups, they'll certainly occupy more seats among the global top 50 lessors list for the years to come."

Quek says he wants to ensure Cathay United is "at the forefront of development" of the Chinese market.

"We have to be nimble and flexible enough to keep pace with the changes of the market. We definitely want to have a relationship with the top players and keep an open eye on those that are developing quickly," he says.

Formosan financing

The majority of Cathay United's aircraft finance business is overseas. As *Airfinance Journal* noted in a special report on Taiwan in November 2017, Taiwanese carriers like to do much of their financing at home because it is cheaper. This provides opportunities for banks such as Cathay United, despite the Taiwanese airline market being relatively small: less than 15% of Cathay United's books are direct lending to Taiwanese carriers, meaning it needs to look overseas for the remainder.

"We've identified the top 10 guys in the Chinese market and we will start engaging these guys fairly soon to understand how we can be relevant in terms of taking on some loans from them and distributing them."

Winston Quek, executive vice-president, regional head, south-east Asia, Cathay United

Cathay United has to compete with other Taiwanese banks in the domestic and international markets, including CTBC Bank and Mega Bank, but Quek is confident of his bank's preeminence.

"I think it's been proven in the market that Cathay United is more active in the aviation market with asset knowledge and origination abilities," he says.

"We have wider product coverage in aircraft financing and we are comfortable with asset-backed, non-recourse/limited-recourse transactions while other Taiwanese lenders are more based on a corporate finance perspective that relies more on lessors' balance sheets and financial performance with full recourse," he says.

CTBC owns a Japanese subsidiary bank called Tokyo Star Bank, whose aviation department has its own management team and a degree of autonomy on deal approval. Last year, Tokyo Star was involved in a ¥14.9 billion (then $136 million) financing for Financial Products Group (FPG).

Quek says Cathay United has no plans to set up a platform in Japan.

"Through our ability to structure transactions, Cathay United can originate transactions providing clients alternative options to consider the most cost-efficient way to fund from the Asian liquidity market," he says.

Cathay United's Singapore aviation team (left to right): **David Lin**, **Bryan Chu**, **Winston Quek** and **Andrew Huang**

Mandarin Airlines ATR72-600

Photo by Ting-Chun Wang

Domestic lending, like all lending, carries inherent risk: Cathay United was a lender to now-defunct Transasia Airways, a Taiwanese carrier that went out of business in 2016.

"From my understanding, our participation is with another Taiwanese bank and the aircraft have been sold. Thanks to the conservative LTV [loan to value], if we have any loss it will be very limited," says Huang, noting that most of Cathay United's transactions with Transasia benefited from security over the aircraft.

A new airline, Starlux Airlines, is in the process of setting up in Taiwan and is targeting a fleet of 14 Airbus A320neo aircraft and 10 widebodies. Huang says he is following the developments with this airline, but that it is too early to say whether Cathay United will do any business with the carrier and probably Starlux will lease its first aircraft, not finance them.

Selective financing of regionals

As of August 2016 (the most recent data provided by the bank), 17% of Cathay United's loan book consisted of ATR turboprop aircraft. In the narrowbody segment, 26% was A320-family aircraft and 16% Boeing 737 family. In the widebody segment, 19% was A330s, 2% was A350s, 2% was A380s, 1% was 747s, 11% was 777s and 4% was 787s. The remaining 2% is Gulfstream business aircraft.

Cathay United bank is open to both narrowbody and widebody financing. In November, the bank won a mandate to finance three ATR72-600s for Singapore-based lessor Avation. The aircraft are under operating lease contracts to China Airlines' subsidiary Mandarin Airlines.

Asked whether Cathay United is keen to finance more turboprops in future, Quek says: "Yes, we are fine with the assets, but we only focus on ATR72-600 and some Bombardier Q400s, as these are more liquid than other turboprops.

"Cathay United is also selective when financing regional aircraft. We only work with experienced clients in the market and reliable lessees, thus although we have financed more than 20 turboprops, most of the lessees are Uni Air (a subsidiary of Eva Air) and Mandarin Airlines, which Cathay United is familiar with."

> *"As you can see from our track record, Cathay United has originated lots of transactions for lessors since 2012."*
>
> **Winston Quek**, executive vice-president, regional head, south-east Asia, Cathay United

First ABS

Cathay United's loan book is now about $1.4 billion and the bank has financed more than 140 aircraft. The bank has centralised all its aviation business in its Singapore branch, which provides global coverage for aircraft financing. The Singapore aviation team consists of Chu, Huang, assistant vice president David Lin and two other junior managers. Cathay United also has a supporting product team of more than 10 people in its Taipei office, covering the functions of origination, distribution, documentation and agency.

Cathay United says it can provide a variety of financing options, such as pre-delivery payment (PDP) financing, warehouse facilities and working capital loans. The bank's main aviation business is financing operating leases with lessors.

"Our product coverage is quite diversified. We have completed transactions from simple single aircraft, single-lessee transactions to portfolio, warehouse, vintage aircraft portfolios, PDPs and ABS [asset-backed securities] facilities. However, we are not satisfied with that and are still looking to provide a wider selection of products and innovative solutions for our clients," says Quek.

Cathay United was an initial investor on DVB Bank's December 2017 $722.5 million ABS transaction. The deal, KDAC 2017-1, was the second-largest public issuance in aircraft ABS in 2017, a year that saw 12 issuances overall. It was also Cathay United's first ABS.

Chu says: "We are the first Taiwanese bank that successfully booked this ABS in the market. This kind of ABS concept is quite well received in the US market but, in Asia, the growth has just started."

Quek adds: "Cathay United can provide not only lending products but also debt capital markets solutions for our lessor clients, such as Formosa bonds (a bond issued in Taiwan but denominated in a foreign currency), helping them to tap the Taiwanese US dollar liquidity market, which is proven to be always a very stable and liquid US dollar pool in Asia."

The bank is "very active" in originating transactions by itself, says Quek.

"As you can see from our track record, Cathay United has originated lots of transactions for lessors since 2012 and Cathay United is acting as facility agent, security trustee and swap provider in these facilities," he says.

In November, a source at Cathay United told *Airfinance Journal* the bank was trying to widen its distribution channels to countries such as Japan and South Korea.

"Taiwanese banks can be a bit harder because even though we are under the largest group in Taiwan, once we get outside of Taiwan we are not so big," the source said at the time.

Commenting on this, Quek says Cathay United has "reached very good progress" on distribution to non-Taiwanese lenders in aircraft financing over the past few years.

"We've already successfully syndicated with lenders from Hong Kong, China, Korea and Japan, and we have a very positive view to bring in more lenders from the region through Cathay United's current network in Asia-Pacific," he says.

"We even have some south-east Asian lenders who approached Cathay United initiatively asking for cooperation and to share more aviation knowledge and transactions with them, so they can start joining [transactions]."

High-tech **takes over**

Geoff Hearn looks at the market for maintenance, repair and overhaul and finds that new technology is driving demand.

The increasing role of engine, airframe and systems providers, or original equipment manufacturers (OEMs) as they are known, is seen by many industry observers as the key trend in the commercial aircraft maintenance, repair and overhaul (MRO) market. Whether this trend is a good one for aircraft operators and owners is a matter of some debate.

MRO spending increasing

The reason for the OEMs' interest is not hard to see. The MRO market, driven by an airline industry that is registering record profits, is worth more than $75 billion a year, according to international consultancy ICF in its recently released analysis of the industry.

Engine overhaul accounts for about 40% of the spend and component maintenance a further 21%, with the majority of the remainder accounted for by airframe maintenance and modifications. ICF predicts the total annual MRO figure will increase to about $118 billion by the end of 2027 and to around $140 billion by 2037.

Airframes getting cheaper to maintain

There is good news for operators and owners when it comes to airframe maintenance, because unit costs are decreasing as manufacturers seek to reduce scheduled tasks. Heavy maintenance, in particular, is benefiting from increased intervals between major checks.

Another factor shaping the future of the MRO market is the increasing importance of new-technology aircraft, which are e-enabled (enabled to use the internet) to provide enhanced capabilities for aircraft health monitoring and management. ICF estimates the current fleet of e-enabled aircraft to be around 30% of the total fleet, but the consultancy expects this to rise to about 60% by the end of 2037.

Another significant trend is the increasing importance of the narrowbody market. Figures published recently by the Oliver Wyman consultancy estimate that single-aisle aircraft make up 57% of the commercial aircraft fleet and account for 45% of MRO spend. Widebody aircraft, although only making up 20% of the current fleet, account for 44% of MRO expenditure because they are more maintenance-intensive and more complex. However, this looks set to change as the narrowbody fleet grows and accounts for a greater share of the total commercial aircraft fleet. Oliver Wyman forecasts that narrowbody MRO spend will increase by about $28 billion over the next 10 years, taking its share of the total annual spend to around 55%.

According to ICF's analysis, the next decade will see airframe MRO demand migrate from older aircraft to composite and more-electrical aircraft. Similarly, Oliver Wyman forecasts that, by 2028, close to 30% of annual MRO spend will be associated with aircraft built in the 2010s.

Newer aircraft have extended check intervals and reduced labour-hour requirements, so this trend has implications for MRO providers. A symbol of the trend to new-technology aircraft is the A320neo C-check carried out in April by Romanian MRO Aerostar. This was one of the earliest Neo C-checks to be carried out worldwide and the first to be done in Europe.

Early retirement less frequent

According to analysis by ICF, a reduction in the price of aviation fuel from its peak level has led to a downturn in the number of retirements of aircraft, which peaked in 2012. The trend is a broadly positive one for MRO suppliers because it implies that older airframes and engines, which require more maintenance than younger aircraft, remain in service longer.

There is, however, an impact on the availability of used parts and materials, which help independent providers to compete more effectively with OEMs. Operators and owners benefited from lower material costs as retirements increased, but these benefits are likely to decrease if current retirement levels are maintained. Richard Brown, principal, ICF, says: "The reduction in retirements has caused a reduction in feedstock of in-demand aircraft and engines with green-time remaining and [of] valuable surplus parts. We continue to see intense competition for part-out aircraft with an observation that some appear willing to overpay for assets (perhaps due to impatient private capital seeking a home)."

Engines getting more complicated

Engine OEMs have tended to be more involved in the maintenance of their products than airframe manufacturers and this involvement has increased as engine technology has become more

Romanian MRO Aerostar recently carried out the first European A320neo C-check complex (*see Airfinance Journal, Guide to financing and investing in engines 2018*). The introduction of the latest generation of narrowbody engines from CFM and Pratt & Whitney looks likely to increase further the manufacturers' participation in the maintenance of their respective engines.

The key difference between engine and airframe maintenance is that the cost of engine overhaul is dominated by the cost of parts, whereas airframe maintenance is labour-intensive. Estimates vary, but the industry consensus is that about 80% of an engine overhaul cost is attributable to the new parts required. Unlike providers of heavy maintenance for airframes, engine shops cannot compete by leveraging lower labour costs.

The role of surplus used parts is therefore even more influential in engine overhaul than it is in airframe maintenance. The engine manufacturers have largely succeeded in precluding the use of non-OEM parts-manufacturer approval (PMA) material, but the availability and use of surplus parts is more difficult for them to control. Despite the recent reduction in availability, the surplus parts market is about five times larger than the PMA market.

Asia-Pacific is biggest market

Reflecting the growth in air transport in general, the importance of Asia-Pacific to the MRO market is increasing. The region already accounts for 31% of MRO spending, according to ICF's analysis, and this is set to grow to 38% by 2027, states the company's forecast. North America is the second-largest market, accounting for 26% of current spending, but this is set to reduce to 18% by 2037.

In addition to the inherent demand in the region, industry estimates suggest that operators from outside Asia-Pacific send one-quarter of their widebody heavy airframe maintenance needs to the region. Some observers doubt that MRO capability in the region can be built up sufficiently to accommodate both types of demand, meaning operators will have to look elsewhere for their MRO needs, presenting opportunities in North America, western Europe and Latin America.

The MRO demand generated by the boom in aircraft deliveries in India has largely been met by providers outside of the country, but there are efforts to ensure more work is carried out domestically. For example, US company AAR has entered a joint venture with Indamer Aviation to set up a new MRO facility in Nagpur, which will initially comprise of six narrowbody maintenance bays.

Everybody is talking about data

With the advent of e-enabled aircraft, there is widespread consensus that access to the data they generate is key to providing MRO services and to gaining market share. There is little doubt that the importance of this access provides the aircraft OEMs with significant competitive advantage in their quest to increase their presence in the MRO market. Engine manufacturers probably have the economies of scale and market presence to maintain their already strong presence, but whether component and system manufacturers are able to maintain their presence and direct support to operators is more questionable.

The increasing number of mergers, acquisitions and partnerships in the MRO sector is at least in part driven by the need to establish organisations capable of adding value in the various aspects of data handling.

Financiers

Lessors and financiers are not the ideal customers for MROs because their requirements tend to be, if not unpredictable, sporadic. The majority of work is generated when leases are transferred and bridging maintenance is required. The task required can be difficult to predict, particularly if the aircraft is moving between regulatory regimes.

Airlines that provide regular business are not only more attractive in terms of potential labour-hours, but provide the opportunity to build up relationships. Lessors risk being viewed as secondary customers, but in a world where the percentage of aircraft on lease continues to increase, most MROs recognise that they need to build relationships with the lessors and other financiers.

Lufthansa Technik reports 5% sales growth

At its annual results briefing in Hamburg, Lufthansa Technik announced its sales revenue grew by €260 million ($320.8 million) to €5.404 billion from the previous year's €5.14 billion – a 5% increase.

The organisation, which has support contracts covering about 20% of the world's commercial aircraft fleet, is seen by many as a barometer of the maintenance, repair and overhaul market. If this is the case, the signs are good. In addition to the sales growth, the company achieved an adjusted earnings before interest and taxes of €415 million, up from €411 million the previous year.

Constanze Hufenbecher, chief financial officer, attributes the success to high levels of investment. "Since 2014, we have almost doubled our annual investments to €233 million and we plan to pursue this approach further," she says.

The company's focus on data is also a reflection of wider trends in the industry and Hufenbecher stresses that a significant amount of the investment is going to the development of digital platforms and solutions.

Airfinance Journal and CDB Aviation launch **scholarship to promote diversity**

The course will nurture the next generation of aviation finance talent and enhance the diversity in the industry.

Airfinance Journal and CDB Aviation Lease Finance have joined forces to set up a scholarship for the MSc Aviation Finance programme at University College Dublin (UCD) Smurfit Graduate Business School.

The inaugural *Airfinance Journal* scholarship, sponsored by CDB Aviation, will award 50% of tuition fees to a female student, starting September 2018 at UCD. The scholarship is designed to achieve two core aims:

1. Nurture the next generation of aviation finance talent, and
2. Develop women in aviation to broaden and enhance diversity in the industry.

The programme was launched in 2016 by Willie Walsh, chief executive officer of International Airlines Group, and came about because the major aircraft financing businesses based in Dublin were very keen to develop a further stream of high-quality graduate intake into the business, and create a teaching research and learning environment to support those looking at careers in aviation finance.

Patrick Blaney, chairman of the Aircraft Leasing, Finance and Law programme at the UCD Michael Smurfit Graduate Business School, says the programme targets 30 students a year, with up to five students on a part-time basis over two years.

"Our target demographics are 50% non-EU and 50% EU (including UK), with the non-EU part having an Asian focus given that the main source of air traffic growth in the next 20 years will be from Asian countries, particularly India and China," he says.

Gender balance

Blaney says the target gender balance is to get to 50% female participants on the course.

"Over the two years, we have grown the participation from three females in the academic year 2016/7 (one of whom took up an appointment in MIT during the beginning of the year) to nine in 2017/8

and have a strong list of applications from female students for 2018/9.

"I am hopeful that we will get to 50% within three years, but that depends very much on the strength of the applications received. Our existing female students are strong performers, and come from Canada, Nepal, France and China, so augurs well for the future."

CDB Aviation says the notion of achieving gender balance within the work environment is among the most important and critical aspects of building the workforce of the future.

"This initial scholarship programme seeks to do just that by promoting and raising the visibility of women in aircraft leasing and aviation finance," says CDB Aviation chief executive officer and president Peter Chang.

"This *Airfinance Journal* and CDB Aviation Lease Finance scholarship will greatly assist us in reaching out to highly skilled female students interested in a career in aviation finance," he adds.

CDB Aviation asserts that it is imperative for the aviation industry, particularly the aircraft leasing and aviation finance sector, to focus on the development of the next generation of professionals, who will contribute to the industry's future growth and success.

A highly skilled workforce is a prerequisite for the leasing company's future growth because it continues to broaden global reach from its Chinese roots and appeal to customers who represent diverse cultures and backgrounds.

Chang is a stalwart supporter of promoting young people's interests in aviation and all aspects of the business. He sees advancing educational opportunities specific to aviation and supporting the next generation of industry workers, as well as increasing gender and cultural representation as a pivotal component of business success and his interest for globalising CDB Aviation.

The lessor says funding education through scholarships is a logical means to expand and offer opportunities to those who may not view the aviation industry as a career option. Scholarships have historically been essential to the majority of students who want to graduate with a college degree. By supporting this scholarship programme, CDB Aviation is seeking to award a person's interest in aviation and facilitate not only their educational pursuits, but also create an aviation enthusiast that may well find themselves supporting the leasing of a spaceship someday.

"We believe this initial scholarship programme will only continue to gain momentum, both in terms of the number of student scholarships offered, as well as the geographic spread of university participants," says Chang.

"Initiatives like this one, which CDB Aviation and *Airfinance Journal* envisaged together, are at the heart of a broader industry education movement in which talented, exceptional individuals are able to find the prerequisite support to pursue their interests in aviation, while building careers that will become the girders of the future success of our industry. We recognise and applaud the many other current industry efforts in support of education, including the initiatives by the ISTAT Foundation and many of our peer competitors."

Assessing reduced lease collateral protections

Steven T. Gaal, managing partner and co-founder at SkyWorks Holdings, explains how provision of maintenance reserve requirements can be impacted by strong competition for aircraft assets.

The aircraft-leasing sector continues to attract new investment capital. Interest in the sector stems from a variety of factors, including a track record of favourable risk-adjusted returns and the attractive qualities of commercial aircraft assets. Aircraft are vital global infrastructure assets with unique attributes that include high mobility, limited new supply sources, broad demand diversity (both geographical and retirement driven) and long economic lives.

Economic lives for most single-aisle commercial aircraft should remain strong because of a reducing impact of technology cycles, high long-term operational reliability and commoditisation of aircraft type offerings. The asset class has also achieved prominence through its growing size – current in-service commercial jet aircraft exceed $700 billion based on values ascribed by aircraft appraisers.

In spite of these positive factors, the high degree of positive investor sentiment could shift, at least temporarily. The compression of return levels in aircraft leasing or a normalisation of US dollar interest rate levels could move some liquidity into other asset classes. Liquidity could also shift because of unexpected volatility in the aircraft market.

There has been a high degree of correlation between changes in air traffic growth and changes in rental rates of commercial aircraft. An unexpected downward shift in global air traffic growth could impact already-compressed returns on aircraft which are rolling off of lease at a similar time.

In spite of such risks, aircraft leasing has captured a broadened awareness that appears likely to persist beyond any industry correction cycle. Investor attention is likely to be reinforced by the outlook for continuation of high growth in air travel and thus demand for commercial aircraft, as well as a continuing trend of diversification in the demand profile of aircraft. These factors, along with further rationalisation of the competitive environment for commercial airlines, should increase resilience of the aircraft market to outside shocks which, in turn, should further reinforce investor interest.

"The asset class has also achieved prominence through its growing size – current in-service commercial jet aircraft exceed $700 billion based on values ascribed by aircraft appraisers."

Steven T. Gaal, managing partner and co-founder, SkyWorks Holdings

The current high level of competition for aircraft assets is resulting in reductions in leasing collateral protections for certain new leasing arrangements. One of the key protections sometimes impacted is the provision of maintenance reserve requirements. Such reserves serve to collateralise end-of-lease financial obligations. Without such protections (or alternatives such as tripartite maintenance power-by-the-hour arrangements) the aircraft investor is accepting an unsecured exposure on the scheduled (or unscheduled) maturity date of the leasing transaction. The exposure level is equivalent to the shortfall, if any, in the maintenance condition of the aircraft from the return condition requirements stipulated in the lease – and thus assumed by the investor in assessing the residual value of the aircraft for purposes of calculating returns.

The remainder of this article will discuss the ramifications of this in further detail.

Airline industry creditworthiness and impact of term

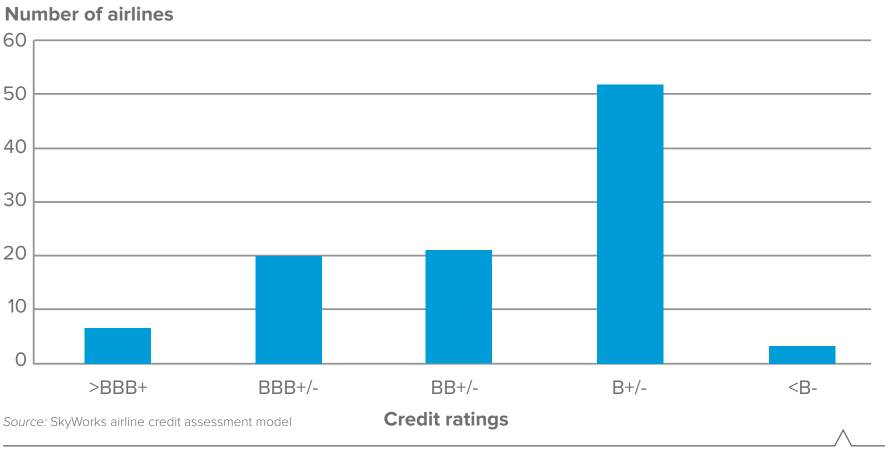
The airline industry has enjoyed strong profitability over the past three years and the general credit standing of carriers in certain regions such as North America has greatly improved. However, many air carriers remain non-investment-grade from a creditworthiness standpoint.

SkyWorks maintains a credit assessment model on more than 100 airlines, which utilises a variety of data sources, including *The Airline Analyst* (an airline financial data product made available from *Airfinance Journal*). A high-level summary of the credit assessments generated from this model are presented in Figure 1 on the basis of a rating agency-style scale. The data indicates that about three-quarters of airlines fall below a level equivalent to investment grade. It should be noted that about one-quarter of the airlines included in SkyWorks' credit assessment model have public credit ratings, and that the proportion of carriers with public ratings falling below investment grade is similar in magnitude.

The long tenor of a typical aircraft lease agreement is another key consideration in assessing the credit risk of a leasing transaction. Tenors of traditional financing structures to non-investment-grade borrowers are typically short in duration (generally five years or less). This is driven by the fact that default exposure increases with a lengthening of financing tenor.

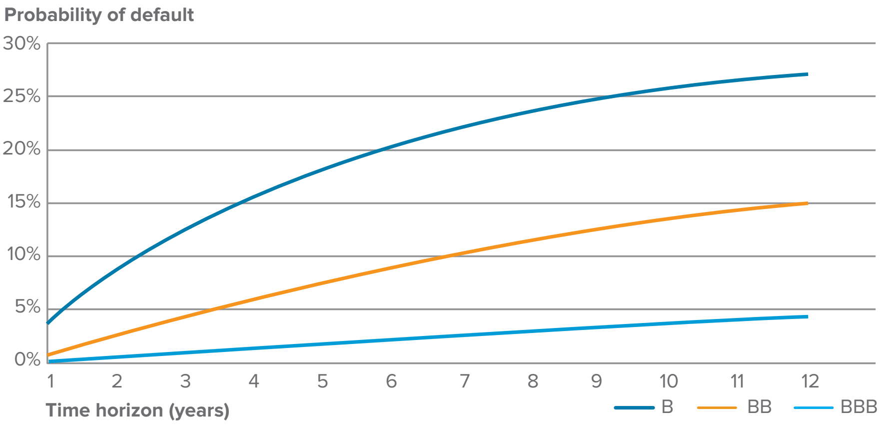
A valuable source of insight on the impact of term on credit risk is provided through an annual study on credit rating

Figure 1: Distribution of SkyWorks credit assessments



Source: SkyWorks airline credit assessment model

Figure 2: Probability of default over time based on initial issuer rating



Source: Default, Transition and Recovery: 2016 Annual Global Corporate Default Study and Rating Transitions, by *Standard and Poor's; SkyWorks analysis*

migrations produced by Standard and Poor's (S&P). The latest version of the study, which is available for download from S&P's website, is titled Default, Transition and Recovery: 2016 Annual Global Corporate Default Study and Rating Transitions.

A rated entity starts at a given credit rating and the possibility after a finite period is that the rating has either remained constant, decreased, or increased. The study shows that there has been an historical tendency for the population of rated issuers to be more likely to experience a decrease in rating than an increase in rating. As a result of this pattern, there is a tendency over time for default risk to grow.

Figure 2 shows this growth in risk of default for an initial issuer rating of BBB, BB, or B based on the empirical data concerning actual issuer defaults assessed in the study.

As shown, there is a significant increase in the incidence of defaults as the issuer's initial credit rating weakens and as time horizon lengthens. Based on the typical tenor of a new aircraft lease, the study implies that an investor could face about a 25% likelihood of a default from a lease to a lower-credit-tier airline. Defaults are therefore likely to continue to represent a significant risk factor in the aircraft leasing industry.

Financial exposure to maintenance value burn-off

An aircraft investor's financial exposure arising from uncollateralised return condition requirements stipulated in a lease can be significant. This equally applies in the event of an unscheduled termination of the lease prior to its scheduled maturity. This exposure can change significantly over the life of the aircraft investment depending on the pattern of maintenance value burn-off, which, in turn, depends on the aircraft's utilisation pattern, maintenance programme and costs of maintenance life replenishment. The total magnitude of exposure for a particular aircraft lease will vary in significant part on the extent to which the various maintenance intervals for the aircraft are correlated.

Figure 3 summarises the results of an analysis conducted by SkyWorks on the potential magnitude of this exposure for a typical narrowbody aircraft with full-life equivalent return conditions. The financial exposure for the lessor in this hypothetical aircraft example varies between about $2.9 million and $12.3 million. The actual exposure range may be wider than this because the range only takes into account the financial exposure estimates for four specific age snapshots under a particular set of assumptions.

These exposure levels indicate that up to at least one-third of an investor's aircraft investment (assuming it has been made on the basis of a "full life" return of the aircraft) may be exposed to the credit of the lessee, before considering the impact of a market-to-market of lease rentals as well as transition costs. Given the magnitude of this exposure, the impact of a lessee default as an aircraft's maintenance value burn-off approaches peak levels can be quite severe.

Because future aircraft utilisation (which drives certain of the aircraft's maintenance intervals) can only be estimated at the outset of a leasing transaction, the actual exposure level carries a degree of uncertainty, thus requiring active monitoring of the asset and lessee.

Risk reduction from maintenance collateralisation and portfolio diversification

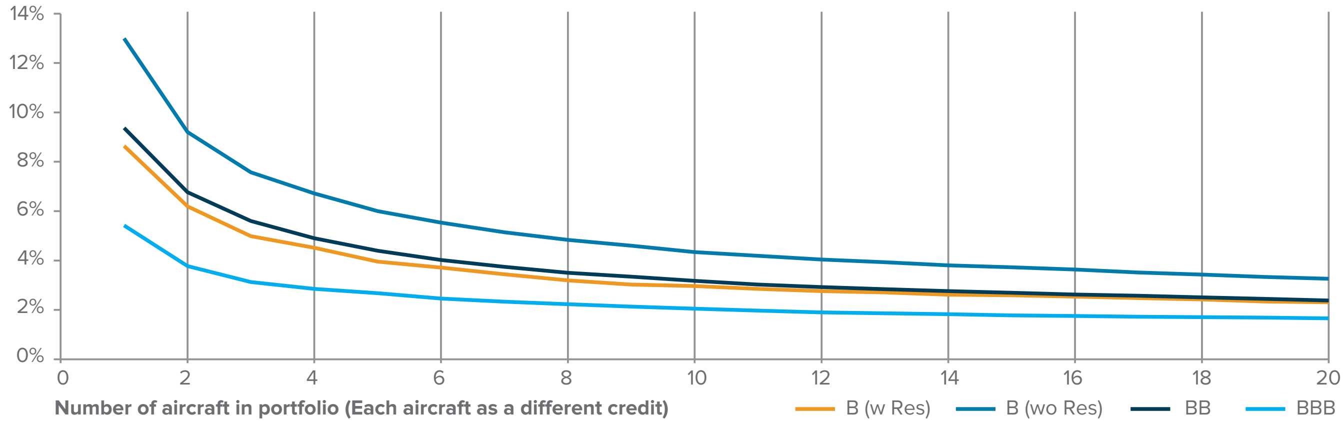
As discussed, maintenance reserves or alternative collateral structures such as

Figure 3: Indicative return condition exposure for typical narrowbody aircraft

	Age 6	Age 8	Age 10	Age 12
Indicative network carrier utilisation	$8.3m	$10.9m	$2.9m	$6m
Indicative low-cost carrier utilisation	$9.2m	$12.3m	$5.5m	$9.2m

Source: SkyWorks analysis and assumptions

Figure 4: Portfolio volatility by initial lessee credit rating and size of portfolio



Source: SkyWorks AIRR model

letters of credit, or tripartite power-by-the-hour agreements, can be used to collateralise maintenance value burn-off. The findings of an analysis using SkyWorks' proprietary AIRR investment analysis tool are provided in Figure 4. The analysis indicates the degree of risk reduction that maintenance reserves (and the additional element of portfolio credit diversification) can provide an aircraft investor.

The AIRR model employs Monte Carlo simulation to assess probabilistic returns from aircraft leasing investments. AIRR runs multiple trials to indicate potential investment outcomes, including expected downside scenarios from lessee defaults occurring on various dates. It should be noted that the analysis results are based on a large number of underlying assumptions and are also impacted by the risk-modelling algorithm of AIRR.

The curves that are plotted in Figure 4 indicate the degree of risk (measured by coefficient of variance) for four different portfolios of narrowbody aircraft. The four portfolios comprise the same aircraft type but each aircraft is assumed to be with a different lessee unrelated from a credit perspective to other lessees in the portfolio. The lessees in a given portfolio all have the same indicated initial credit rating of either BBB, BB, or B. Furthermore, leases which underlie the BBB and BB portfolios, as well as one of the two B portfolios, assume no maintenance reserve provisions (or alternative maintenance collateralisation structures).

Several patterns are clearly exhibited across the portfolio scenarios. Risk is reduced as credit diversification increases and assumed credit rating of the counterparty improves. Further, the impact of risk reduction produced by maintenance reserves is significant – the level of risk observed for the portfolio of B credits with maintenance reserves is similar to the portfolio of BB credits without maintenance reserves.

Given the large differences in default probabilities between the BB and B credit levels shown in Figure 2, it is clear that leases that collateralise maintenance value burn-off are highly desirable (especially in the case of aircraft portfolios with limited lessee diversification).

Conclusion

Asset selection, active monitoring, establishment of portfolio concentration policies and structuring of lease collateral protections all represent key tools and practices for mitigating credit and other risks in aircraft leasing.

While it may be more difficult in the current market environment to obtain collateral protections for certain credits, one favourable trend for investors is the increasing cooperation that maintenance providers are showing in the structuring of tripartite power-by-the-hour agreements. Active monitoring and credit diversification will be of elevated importance to the extent pressure on risk premiums and collateral protections remains.

ATR42-600 – a niche to itself

Appraisers see only a limited market for ATR's smallest model, but values are helped by the absence of in-production competitors.

The ATR42 is a twin-turboprop, short-haul regional airliner developed and manufactured by ATR (Avions de transport régional), a joint venture formed by French aerospace company Aérospatiale (now Airbus) and Italian aviation conglomerate Aeritalia (now Leonardo). The original ATR42-300 entered service at the end of 1985.

The -500 series was a major upgrade with new more powerful engines, new propellers, increased design weights and an improved passenger cabin.

The -600 is the latest version, which in common with its larger and more widely sold stablemate, the ATR72-600, incorporates further significant improvements in performance and available payload. A new cabin design and updated avionics are also part of the latest upgrade. ATR says the -600 variants have reduced maintenance costs compared with their predecessors.

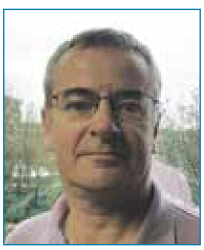
Future developments

In June 2017, ATR said it was finalising the evaluation for the launch of a version of the ATR42-600 with enhanced short take-off and landing capabilities to be known as the ATR42-600S model.

The ATR42-600S is intended to allow take-off and landing, with a full passenger load, from runways of about 800 metres.

Istat appraisers' views

Avitas



Martin O'Hanrahan, senior consultant

The ATR42-600 is the most up-to-date variant within the ATR42 family and first entered commercial service in 2012. Since then, the ATR42-600 has built up an active fleet of more than 35 aircraft, distributed among a total of 16 current operators, with a further four operators having placed orders. The firm order backlog is close to 40 aircraft with a further 70 aircraft reserved on option. Only one aircraft is reported as being in storage.

The larger ATR72-600 has achieved many more orders and the two variants have proved to be complementary, as witnessed by the 10 operators that fly both types. The ATR42-600 offers a range of about 800 nautical miles (nm) with a typical capacity of 48 passengers, while the ATR72-600 carries about 20 more passengers over a range of about 890nm.

ATR42-600

Although it features upgraded avionics and an enhanced cabin, the -600 has not achieved the market penetration of its predecessors. Before 2012, the ATR42-500 was the standard production model and the remaining in-service fleet of the variant is close to 100 aircraft.

The ATR42-600 can be expected to act as a replacement aircraft for older family members, as well as providing a good complement to the ATR72. The ATR42-600 also provides an entry-level type for operators in need of an advanced turboprop in the 40- to 50-seat category. These factors are likely to support demand for several years and some units are likely to transition to cargo use. Nearly 60 ATR42s (mostly ATR42-300Fs) are flying in freighter or combi configurations already.

Similar market dynamics have been seen in the case of older ATR42 models, resulting in relatively low availability levels. Depressed demand for small regional jets has also been a benefit for turboprops in this size class.

The ATR42-600 competes directly against the out-of-production Bombardier Dash 8-300 (Q300), which has about 180 units still in active service with a wide and diverse operator base.

Fintech Aviation Services

Oliver Stuart-Menteth, managing director

The success of the ATR42-series programme has been limited compared with the sales achieved by the Bombardier Dash 8-300, which amassed a total of 246 orders. The ATR42-500 was in production for 17 years and yet amassed only 121 firm orders, leading to an average order rate of seven aircraft a year, while its successor, the -600, with no current direct competitor, has a total of 76 firm orders and deliveries. Overall, demand within the 50-seat sector compared with the wider market is best characterised as weak with isolated and unpredictable pockets of demand.

Compared with the ATR42-500, the -600 offers cabin enhancements and an upgraded avionics suite, which complies with new and planned regulatory requirements in Europe and the US. There is no difference in seating capacity between the two variants. ATR claims that maintenance costs are reduced by 30% thanks, in part, to improved component reliability.

The majority of operators have refrained from upgrading from the -500 because they cannot justify the potential lease rental increase. In 2017, ATR received only one confirmed order for the -600, which reflects

AIRCRAFT CHARACTERISTICS

Seating/range

Max seating	50
Typical seating	48
Maximum range	800 nautical miles (1,480km)

Technical characteristics

MTOW	18.6 tonnes
OEW	11.5 tonnes
MZFW	16.7 tonnes
Fuel capacity (standard model)	5,700 litres
Engines	PW127M
Thrust	2,160 shp

Fuels and times

Block fuel 100 nautical miles (nm)	340kg
Block fuel 200nm	602kg
Block fuel 300nm	835kg
Block time 100nm	33 minutes
Block time 200nm	52 minutes
Block time 300nm	73 minutes

Fleet data (-600 models only)

Entry into service	2012 (1996 for -500)
In service	40
Operators (current and planned)	17
In storage	1
On order	18
Built peak year (2012)	8
Expected 2018	8
Average age	3 years

Indicative maintenance reserves

C-check reserve	$35 to $40 per flight hour
Higher checks reserve	$25-$30/flight hour
Engine overhaul	$95-$100/engine flight hour
Engine LLP	$25-$30/engine cycle
Landing gear refurbishment	$20-$25/cycle
Wheels, brakes and tyres	$355-$40/cycle
Propeller	$15-$20/propeller hour
Component overhaul	$115-$120/flight hour

Source: *Airfinance Journal research/analysis*

The figures shown for fuels and times are Airfinance Journal's estimates based on published data. They are intended to reflect 100% passenger load-factors, international standard atmosphere (ISA) conditions en-route, zero winds and optimum flight levels.

a lack of demand in the sub-50-seat sector, which manufacturers such as Bombardier have exited.

However, the recent indirect order by US carrier Silver Airways of Florida for 20 ATR42/72s, via an operating lease from Nordic Aviation Capital (the only active -600 lessor), has ended an order hiatus in North America. Fintech is not aware of any naked [without lease-attached] trades since deliveries of the -600 started. Very few used lease transactions have occurred, with 98% of the delivered fleet still with their original operator.

New aircraft operating lease rates are in the range of $120,000 to $140,000 a month dependent on lease term and jurisdiction. With the -500 used trading market slowly developing, we do not anticipate the market for the -600 to develop for a significant period of time. Given the small number of transactions, used value and lease rate trends will be guided by -500 values, which typically experience high depreciation in the first few years but become more robust for mature aircraft. Poor correlation with age suggests that used lease rates are more dependent on specification and technical condition than build-year.

ICF

Angus Mackay, principal

The ATR42-600 entered service with launch customer Precision Air of Tanzania in 2012 and was designed to maintain family continuity with the ATR42-500.

With the end of production of Bombardier's Q300 aircraft, the ATR42-600 is now practically unopposed in the 50-seat category, which augurs well for future demand, relatively strong value retention and healthy lease rental returns. As a niche market aircraft, ATR is not expected to produce more than 10 ATR42-600s a year and is unlikely to have slot availability until 2020. These factors, combined with the departure of lessors Avation, ALC and GECAS from the market, constrains availability and provides positive values and lease rate support. Leading regional aircraft lessor NAC remains active in the market as ATR's largest customer. Manufacturer support also has been increased with the establishment in 2017 of a dedicated leasing, asset management and freighter business unit.

ATR delivered eight ATR42 aircraft in 2017, and took one order from Japan Air Commuter. In early 2018, fortunes for the type received a significant boost with ATR's first order in 20 years from the important US market. Silver Airways placed orders for 16 ATR42-600 and four ATR72-600 aircraft to replace its fleet of 21 34-seat Saab 340s. The order supports ATR's claim that the type is a prime choice to replace older 30- to 50-seat regional aircraft. ATR forecasts the delivery of 600 aircraft in the 40- to 60-seat category between 2016 and 2035.

Further market support may be provided by the mooted short take-off and landing variant, which may attract operators constrained by airfield limitations. The ATR42-600's main competition comes from its predecessor and from Bombardier's out-of-production Q300.

Values

Current market values ($m)

Build year	2012	2014	2016	2018 (new)
Avitas view	9.6	11.5	13.5	15.9
Fintech view	–	11.3	12.9	15.1
ICF view	11.5	12.6	13.9	15.3

Assuming standard Istat criteria.

Indicative lease rates ($000s/month)

Build year	2012	2014	2016	2018 (new)
Avitas view	85-95	105-115	130-140	150-160
Fintech view	90 - 110*	90 - 110*	90 - 110*	120-140
ICF view	85-100	105-125	145-165	170-185

** Dependent on specification and technical condition.*

Compact competitors

The top end of the regional aircraft market is rather crowded. **Geoff Hearn** looks at the merits of three of the principal competitors – the Superjet 100, the Embraer E190 and Bombardier's CRJ1000.

Given that the market for large commercial aircraft has only two major competitors, the much smaller 100-seat segment attracts a surprising number of manufacturers. In addition to the long-established presence of Canada's Bombardier and Brazil's Embraer, Japan, China and Russia all have companies that aspire to take an economically viable share of a relatively small pie.

Of the new entrants, only Sukhoi has so far managed to make any inroads into the dominance of the western market by Embraer and Bombardier. The Russian company's Superjet 100 is in direct competition with Bombardier's CRJ1000 and Embraer's E190, both of which are part of successful regional aircraft families.

Bombardier CRJ1000

Bombardier CRJ1000

Bombardier's 100-seat CRJ1000 is the latest and largest member of the Bombardier (Canadair) regional jet (CRJ) family and retains many of the characteristics of the earlier models. The CRJ1000 features uprated engines and landing gear, increased wing area and fuselage length, and a fly-by-wire rudder. The CRJ1000 is available in three different range variants.

In addition to the standard version, an extended-range (ER) model is available and Bombardier also offers a EuroLite (EL) version aimed primarily at the European market where weight-related charges tend to be more onerous than elsewhere.

As part of the CRJ1000 design process, Bombardier introduced an improved NextGen passenger cabin. The new interior features were then incorporated into the CRJ700 and CRJ900 and all three models were designated in marketing literature with the NextGen tag.

Bombardier is concentrating its efforts on development of its new CSeries single-aisle family and major upgrades to the CRJ family are unlikely.

Embraer E190

Embraer E190

Embraer's E190 is a member of its E-Jet family and is a stretch of the E170/175 models. The E190 is fitted with a larger wing, larger horizontal stabiliser and more powerful engine, the General Electric CF34-10E, than the smaller models. The E190 is available in LR (long range) and AR (advance range) versions, which have different MTOWs.

Superjet SSJ100

Its entry into service in 2005 was several years earlier than the CRJ1000's debut but the aircraft are of similar technology levels. However, the advent of several new/re-engined competitor models has prompted Embraer to launch the developed and re-engined E2 family, of which the E190-E2 is the lead model. The first E190-E2 to enter service was delivered to Norwegian carrier Wideroe in early April.

Indicative relative operating costs per trip

	E190	CRJ1000	SSJ100
Cash cost (COC)	Base	89%	97%
Direct cost (DOC)	Base	93%	98%

Assumptions: 500 nautical sector – fuel price $1.75 per US gallon. Fuel consumption, speed, maintenance costs and typical seating layouts as per Air Investor 2018. Capital costs based on list prices.

Superjet SSJ100

Launched in 2000, the Sukhoi Superjet 100 (SSJ100) is a product of a joint venture between the Russian aircraft manufacturer and the Italian aerospace company Leonardo. It is a new-technology, fly-by-wire regional aircraft powered by two PowerJet SaM146 engines, jointly designed and produced by Snecma Moteurs and NPO Saturn. The aircraft has the highest-ever proportion of western components in a Russian aircraft. The SSJ100 is available in basic (95B) and long-range (95LR) variants.

Although the entry into service date is close to that of the CRJ1000, the SSJ100 is a clean-sheet design and, as such, includes more advanced technology than the Bombardier model.

According to reports, the Russian manufacturer is planning a new generation of this regional jet, which will have higher capacity and will incorporate a new wing and new engines. Such an aircraft is unlikely to be available before 2025.

Operating cost

As ever, the manufacturers' claims on the relative operating costs of their respective models are at odds. Bombardier reportedly claims the CRJ has up to a 10% cash operating cost advantage. This is plausible given the CRJ1000 has a significant weight advantage over the competing aircraft. However, the claim becomes less clear-cut when cost per seat is considered because, even in this size-category, the relative seating capacities are a matter of some debate. Superjet claims a 10% operating cost advantage over its competitors.

Airfinance Journal has used its own model to compare the costs of the three models and the analysis broadly supports the Bombardier view of cash operating costs, giving the CRJ1000 an 11% advantage over the E190. The SSJ100 cash cost per trip lies somewhere between the two western aircraft.

The main issue of contention in these costs is that each of the manufacturers claims an advantage in maintenance cost, which is difficult to verify. Theoretically, the lighter Bombardier aircraft should have an advantage, but this may be offset by the commercial terms offered by the manufacturers, where the engine suppliers play a key role.

The inclusion of capital costs based on list prices reduces the advantage of the CRJ1000. List prices are, of course, subject to large discounts and, in particular, the SSJ100 is reported to have been sold for prices that make it much more competitive than would appear to be the case from published prices.

Orders and markets

The sales of 100-seater aircraft are paltry compared with the figures in the single-aisle market. The combined confirmed backlog for the CRJ1000, the E190 and SSJ100 is less than 220 aircraft. The in-service fleet is fewer than 700 aircraft, of which the E190 accounts for more than 500. The future of all three aircraft is, to some extent, dependent on the market for new aircraft in the category, although only the E190 in its E2 guise looks likely to be a strong contender for new orders beyond the short term.

The size of the 100-seat market is difficult to pinpoint, not least because forecasts vary in their definition of the segment. However, Embraer's most recent projection is broadly in line with other industry sources in foreseeing a demand for 6,400 new jets in the 70- to 130-seat segment over the next 20 years.

The Brazilian manufacturer breaks this down into sub-categories, suggesting that 2,280 units will be required in the 70- to 90-seat segment and 4,120 units in the 90- to 130-seat segment. If these estimates are correct, the total market over the next 20 years would equate to about $300 billion. This may seem healthy, but it is put into perspective by Boeing's equivalent forecast for the total single-aisle market, which is more than 10 times the size.

Market perception

The relative sales success of the various aircraft appears not to be directly related to operating cost advantages. Despite being apparently more expensive, even on a per seat basis, the E190 has outsold its rivals. In particular, the CRJ1000 has failed to compete in terms of orders with the aircraft it was intended to rival. Looking at individual models within families can be misleading and a comparison of sales across the entire family of CRJs and E-Jets shows the Bombardier models in a better light, although the Embraer models remain significantly more successful.

The reason for the comparatively poor sales of the CRJ1000 is difficult to pinpoint, but the model was relatively late to enter the market. The European market seems to prefer the four-abreast configuration of the E-Jets, while the Bombardier aircraft, unlike other family members, has failed to break into the North American market. This probably owes much to the US pilot scope clauses, which limit the size and number of aircraft that can be operated by regional subsidiaries of the major carriers.

By the standards of non western-built aircraft, the SSJ100 has sold well, but it is still heavily dependent on domestic carriers such as Aeroflot to bolster its orderbook. The current international political situation is unlikely to encourage further orders from outside of Russia and its satellites. The situation could, however, increase the number of domestic orders.

Key data

Model	CRJ1000	E190	SSJ100
Maximum seats	104	114	108
Entry into service	2011	2005	2011
List price ($m)	49.5	50.6	35.4
In service	61	523	103
Backlog	10	52	155

Source: Airfinance Journal research/Fleet Tracker as of 20 April 2018

Rating agency unsecured ratings

Airlines

Airline	Fitch	Moody's	S&P
Aeroflot	BB-(stable)	-	-
Air Canada	BB-(pos)	Ba3(stable)	BB(pos)
Air New Zealand	-	Baa2(stable)	-
Alaska Air Group	BBB-(stable)	-	BB+(stable)
Allegiant Travel Company	-	Ba3(stable)	BB-(stable)
American Airlines Group	BB-(stable)	Ba3(stable)	BB-(stable)
Avianca Holdings - IFRS	B(stable)	-	B(stable)
British Airways	BBB-(stable)	Baa3(stable)	BBB-(stable)
Delta Air Lines	BBB-(stable)	Baa3(stable)	BBB-(stable)
Easyjet	-	Baa1(stable)	BBB+(stable)
Etihad Airways	A(stable)	-	-
Gol	B(stable)	B2(stable)	B-(pos)
Hawaiian Airlines	B+(pos)	B1(stable)	BB-(stable)
Jetblue	BB(pos)	Ba1(stable)	BB(stable)
Latam Airlines Group	B+(pos)	B1(stable)	BB-(stable)
Lufthansa Group	-	Baa3(stable)	BBB-(stable)
Qantas Airways	-	Baa2(stable)	BBB-(stable)
Ryanair	BBB+(stable)	-	BBB+(stable)
SAS	-	B1(stable)	B+(stable)
Southwest Airlines	BBB+(pos)	A3(stable)	BBB+(stable)
Spirit Airlines	BB+(neg)	-	BB-(stable)
Turkish Airlines	-	Ba3(stable)	BB-(neg)
United Continental Holdings	BB(stable)	Ba2(stable)	BB(stable)
US Airways Group	-	B1	-
Virgin Australia	-	B2(neg)	B+(stable)
Westjet	-	Baa2(neg)	BBB-(stable)
Wizz Air	BBB(stable)	Baa3(stable)	

Source: Ratings Agencies - 19th April 2018

Lessors

	Fitch	Moody's	S&P	Kroll Bond Ratings
AerCap	BBB-(stable)	-	BBB-(stable)	-
Air Lease Corp	BBB(stable)	-	BBB(stable)	A-(stable)
Aircastle	-	Ba1(stable)	BB+(pos)	-
Avation PLC	B+(stable)	-	B+(pos)	-
Aviation Capital Group	BBB(stable)	-	A-(stable)	-
Avolon	BB(stable)	Ba2(stable)	BB+(stable)	BBB+(stable)
AWAS Aviation Capital Limited	-	Ba3(stable)	BB(pos)	-
BOC Aviation	A-(stable)	-	A-(stable)	-
Dubai Aerospace Enterprise	-	Ba2(stable)	BB(pos)	-
Fly Leasing	-	Ba3(neg)	BB-(stable)	BBB(stable)
ILFC (Part of AerCap)	-	Baa3(stable)	-	-
Park Aerospace Holdings	BB(stable)	Ba3(stable)	-	-
SMBC Aviation Capital	A-(stable)	-	BBB+(stable)	-

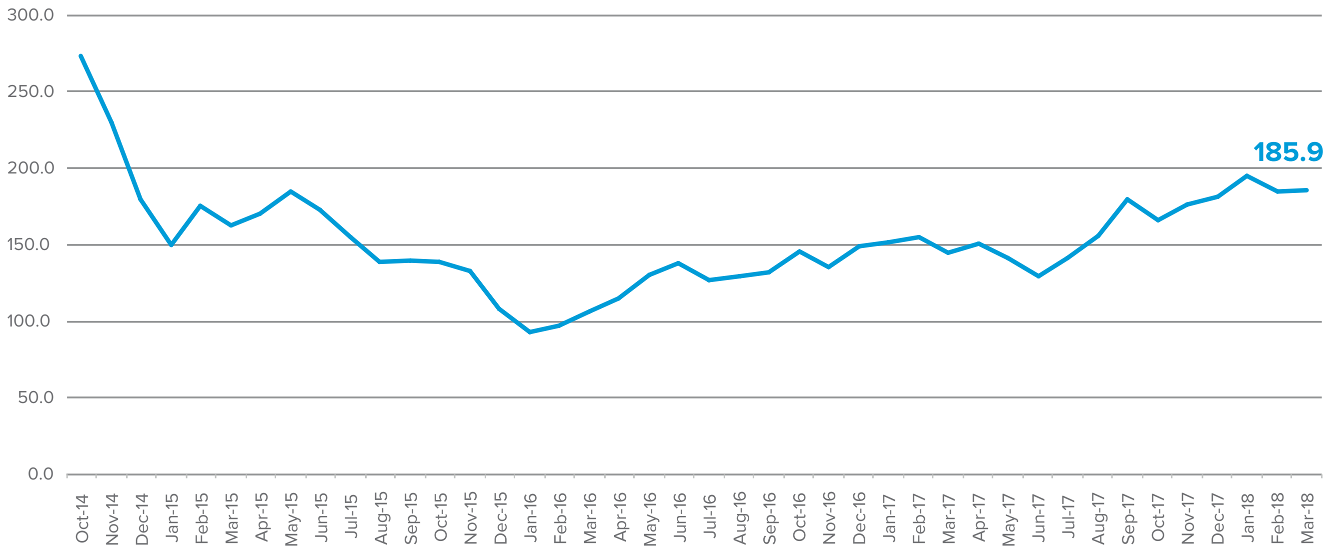
Source: Ratings Agencies - 25th April 2018

Manufacturers

	Fitch	Moody's	S&P
Airbus Group	A-(stable)	A2(stable)	A+(stable)
Boeing	A(stable)	A2(stable)	A(stable)
Bombardier	B(neg)	B3(neg)	B-(stable)
Embraer	BBB-(stable)	Ba1(neg)	BBB(neg)
Rolls-Royce	A-(stable)	A3(neg)	BBB+(stable)
United Technologies	-	A3	A-(neg)

Source: Ratings Agencies - 19th April 2018

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



Source: US Energy Information Administration

Recent commercial aircraft orders (Feb 2018-April 2018)

Customer	Country	Quantity/Type
Ryanair	Ireland	25x737 Max 8
ANA	Japan	2x777F
Druk Air	Bhutan	1xA320neo
Lion Air	Indonesia	50x737 Max 10
SAS	Sweden	35xA320neo
ALC	US	8x737 Max 8
American Airlines	US	22x787-8; 25x787-9
Xiamen Airlines	China	20x737 Max 8; 10x737 Max 10
Turkish Airlines	Turkey	25x787-9
Hawaiian Airlines	US	10x787-9
UPS	US	14x747-8F
Air Sénégal	Sénégal	2xA330neo
Emirates	UAE	20xA380
Bangkok Airways	Thailand	4xATR72-600

Based on *Airfinance Journal* research up to 25 April 2018

Aircraft list prices - new models

Model	$ millions
Airbus (2018 prices)	
A319neo	99.5
A320neo	108.4
A321neo	127
A330-800neo	254.8
A330-900neo	290.6
A350-900	317.4
A350-1000	359.3
Boeing (2018)	
737 Max 7	92.2
737 Max 8	112.4
737 Max 9	119.2
777-8X	379.2
777-9X	408.8
787-10	312.8
Bombardier (2017)	
CS100	76.5
CS300	85.7
Embraer (2018)	
E175-E2	51.6
E190-E2	59.1
E195-E2	66.6

Current production aircraft prices and values ($ millions)

Model	List price	Current market value*
Airbus (2018)		
A319	92.3	35.6
A320	101	43.9
A320neo	110.6	48.5
A321	118.3	51.9
A330-200	238.5	87.5
A330-300	264.2	100.8
A350-900	317.4	147.9
A380	445.6	221.8
ATR (2016)		
ATR42-600	22.4	16.1
ATR72-600	26.8	20.4
Boeing (2018)		
737-700	85.8	36.3
737-800	102.2	46.4
737-900ER	108.4	48.2
737 Max 8	117.1	51.0
747-8 (passenger)	402.9	163.1
747-8 (freighter)	403.6	183.6
777-200F	339.2	160.9
777-300ER	361.5	157.1
787-8	239.0	118.5
787-9	281.6	142.2
Bombardier (2017)		
CRJ700	41.4	23.0
CRJ900	46.4	26.1
CRJ1000	49.5	28.3
CS100	79.5	32.5
CS300	89.5	37.1
Q400	32.2	21.7
Embraer (2018)		
E170	43.6	25.1
E175	46.9	28.6
E190	50.6	32.6
E195	53.5	34.6

*Based on Istat appraiser inputs for Air Investor 2018

Lease rates ($'000 per month)

Model	Low	High	Average
Airbus			
A319	225	275	250
A320	290	345	317.5
A320neo	330	390	360
A321	350	410	380
A321neo (ACF)	360	450	405
A330-200	600	750	675
A330-300	625	825	725
A350-900	950	1,150	1050
A380	1,450	1,900	1675
ATR			
ATR42-600	105	155	130
ATR72-600	145	180	162.5
Boeing			
737-700	220	275	247.5
737-800	310	375	342.5
737-900ER	330	380	355
737 Max 8	330	440	385
747-8 (passenger)	1,050	1,300	1175
747-8 (freighter)	1,325	1,550	1437.5
777-200F	1,150	1,350	1250
777-300ER	1,050	1,350	1200
787-8	850	975	912.5
787-9	950	1,100	1025
Bombardier			
CRJ700	170	200	185
CRJ900	180	233	206.5
CRJ1000	190	255	222.5
CS100	230	280	255
CS300	280	310	295
Q400	170	200	185
Embraer			
E170	170	225	197.5
E175	190	250	220
E190 (AR)	230	280	255
E195 (AR)	240	280	260
Sukhoi			
SSJ100	165	210	187.5

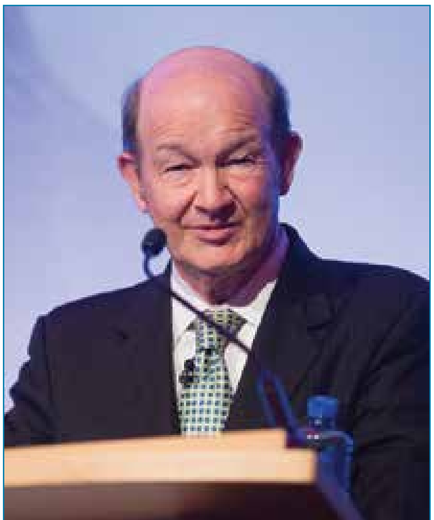
Commercial aircraft orders by manufacturer

	Gross orders 2018	Cancellations 2018	Net orders 2018	Net orders 2017
Airbus	68	23	45	1,109
Boeing	255	34	221	912
Bombardier	0	0	0	70
Embraer	0	0	0	86
ATR	4	0	4	113

Based on *Airfinance Journal* research and manufacturer announcements until 25/04/2018

Disruptive events do not change long-term fundamental relationships

Events such as 9/11 and a potential US-Russia war should not negatively impact aviation in the long term, because it is an industry built on longer-term trends and relationships, writes **Adam Pilarksi**, senior vice-president at Avitas.


Our author at the 20th Global Annual Airfinance Conference in Dublin

"When the tragic events of 9/11 happened air traffic came to an instantaneous standstill in the US and the consequences were felt for some time."

Adam Pilarski, senior vice-president, Avitas

The world is on edge right now. There is the prospect of all-out war in the Middle East focused on Syria, with bombing raids by the US, the UK and France already taken place on targets in that country. There are strained relations between Russia and the US, which may boil over to military confrontations. There is the real potential of a serious trade war affecting the whole world. Various world leaders are becoming more obstinate, increasing the chances of serious conflicts between various countries. Any such developments by definition are bad for air traffic. All this makes many of us quite anxious.

In times of higher stress it is useful to remember some long-term relationships that have guided us for many years. Aviation is an industry with predictable and stable relationships between variables going back some time. Some relationships are fairly simple; some are more complicated. As people make more money they want to fly more. As airline tickets become cheaper people also want to fly more. We all know that air traffic, being a luxury product, grows at about double the rate of the rest of the economy. We know that this ratio has been declining over time as the industry matures. We also know that that ratio is higher in less mature markets, hence air traffic is expected to grow less in the US and Europe than in, say, India. We also know that the industry is highly cyclical. We know that as traffic grows and airlines make more money they order more aircraft. There is a fairly predictable pattern of orders and deliveries of aircraft. Overall, the consistency of behaviour is quite good and we can predict the future with a considerable degree of confidence.

There are occasional meltdowns, which in the short-term change the long-term relationships. When the tragic events of 9/11 happened air traffic came to an instantaneous standstill in the US and the consequences were felt for some time. Aviation did not disappear though and we could clearly understand the short-term disruptions that occurred. While unpredictable events by definition cannot be predicted, their consequences can. The result is that we can still understand what drives aviation developments and can plan for the future based on rational analysis.

The danger is that we can confuse short-term disruptions for long-term structural changes. So, 9/11 caused a temporary downturn in traffic not to be confused with, what some analysts saw, the end of aviation. In the same way the present very positive reality of high airline traffic and high airline profits is a temporary disruption of a long-term pattern, it can be explained by special circumstances. The conclusion that we have entered a period of a paradigm shift with no more downturns is as wrong as the statements declaring the end of aviation after 9/11.

As way of example let us look at cargo traffic. In the past few years, it grew much less than before compared with passenger traffic, which led people to believe in the end of cargo traffic. Taking the long view, both passenger and cargo traffic grew at similar rates for close to seven decades. When isolating the past decade, we experienced much lower cargo growth. Some saw this as a paradigm change. Now that cargo is coming back people are beginning to accept that the low cargo growth of the past few years was an explainable aberration rather than the beginning of a new trend. The reasons for that were lower trade because of world political friction, high oil prices and low cost of money.

Looking at historical patterns, we notice that the past few years are again an aberration with traffic being unreasonably high. The above-mentioned ratio of growth of traffic to economy of greater than two has been consistently, though slowly, coming down over the past four decades. That trend has been temporarily reversed in the past couple of years because of a number of reasons. This is not a manifestation of a paradigm shift but the result of specific reasons discussed by me previously.

The thing to watch for is a possible dramatic change in the aviation environment. It is important to remember that a short-term meltdown because of current political turmoil should not be confused with a downturn in traffic in line with explainable developments subject to standard modelling. Some times these long-term relationships experience a short-term, albeit fully explainable, disruption but eventually predictable and explainable behaviour resumes. We should expect soon a downturn back to the norm but we may get an extra push down because of the current high level of political uncertainties.

Prepare for a bumpy ride but do not lose your overall long-term vision of aviation as an important and rational element of our life.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