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GROWTH NOT WITHOUT CHALLENGES FOR ASIAN LESSORS
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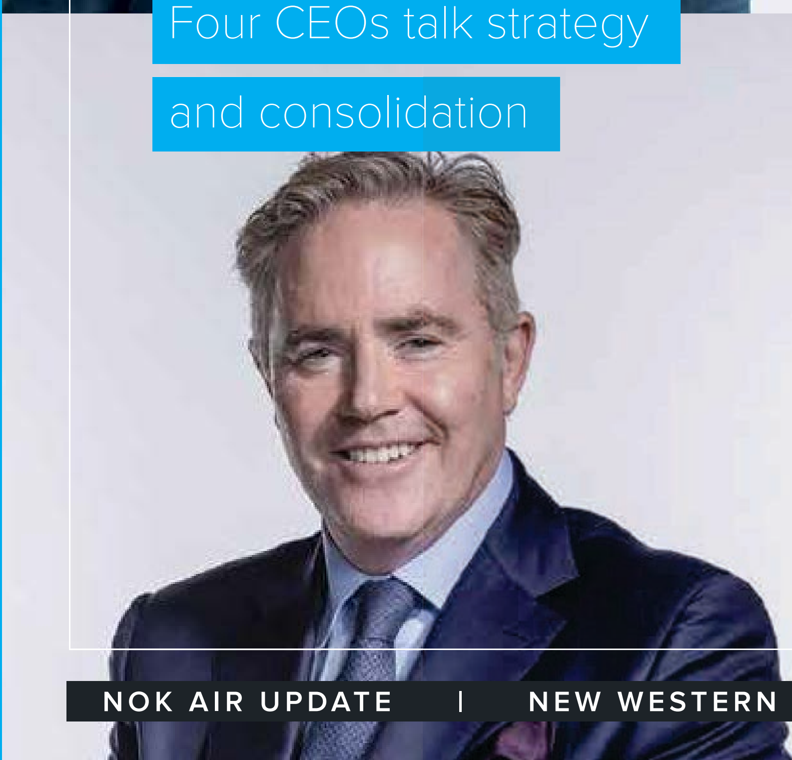
Growth not without challenges for Asian lessors

Four CEOs talk strategy and consolidation



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Lessons from **Primera Air**

The Danish budget carrier failed to survive in two challenging markets – the transatlantic and the low-cost, long-haul sectors, writes **Jack Dutton**.

It has been a cruel summer for small European airlines. VLM, Small Planet Germany, Azur, Skywork and Primera Air have failed to survive in an increasingly competitive airline market.

Focusing on the most recent casualty, Primera originally said it stopped flying because of "several unforeseen misfortunate events" that had severely impaired its balance sheet. However, it is likely that several preventable mishaps contributed to the airline's demise.

First, it was trying to crack two incredibly challenging and competitive markets – transatlantic and low-cost, long-haul (LCLH) air travel. The transatlantic market is the most competitive intercontinental aviation market in the world, while few airlines have made money through the LCLH model. Some parts of the transatlantic market are unnecessarily competitive – for example, both Icelandair and Wow Air fly directly to and from Reykjavik to Cleveland, not exactly a route thought of as "high demand". Although low-cost carriers are increasing their presence in this market, it is a tough battle with legacy airlines, which have been around longer and often have customer loyalty.

Primera ceased operations on 2 October, only five months after it launched flights to the US from London Stansted, Birmingham and Paris Charles de Gaulle. Offering ambitious fares – such as flights from the UK to the US for less than £100 ($132) – led to many broken promises, such as cancelling its Birmingham to Boston route and reducing its New York flights from the middle of the UK from daily to four times a week.

For smaller airlines with ambitious return targets, timing is critical for new aircraft deliveries. Primera expected to master the LCLH model with shiny new Airbus A321neos operating from the summer, but the aircraft did not arrive on time. While other, larger market disrupters, such as Norwegian, could withstand new aircraft delays (and are, indeed, trying to get rid of some aircraft), it took a toll on smaller Primera's operations. At the time of its collapse the airline had 15 aircraft, comprising nine Boeing 737-800s, four A321neos and two 737-700s, according to *Airfinance Journal*'s Fleet Tracker. Some market participants cited the cost of purchasing expensive new aircraft as one of the reasons for Primera's downfall, but in a Linkedin post the airline's chief financial officer, Eduards Toms, was quick to deny this. True or not, what everyone can agree on is that operating older aircraft tends to be more expensive than operating new aircraft with a similar range.

Therefore, instead of A321neos, Primera customers were initially treated to wet leased 757s, which often had to refuel in Iceland despite being advertised as non-stop flights. Leasing the old jets from Florida-based National Airlines because of the A321neo delays reportedly cost Primera £18 million.

And these are just issues specific to Primera. Let us not forget the industry-wide headwinds that all airlines face, such as the rising cost of fuel. In the past year, Brent Crude has increased from about $55 a barrel to $84 a barrel. Airlines that lack effective hedging policies and have overspent during times of cheap oil will continue to be burnt by increasing fuel prices.

On top of that, punctuality is key when running an airline, especially in Europe, because delays can be extremely expensive. In EU countries, customers are able to claim compensation under Regulation 261/2004, which can see costs surge for carriers.

Airlines also need access to additional liquidity to keep their balance sheets in check. Primera was unable to reach an agreement with its banks to secure bridge financing, leaving it with no other choice but to file for bankruptcy. As interest rates continue to rise, airlines globally – especially the smaller ones – will find it more difficult to access cheap capital.

In the airline industry, if you want to be audacious and disruptive, you need to have the scale and liquidity to survive if plans go awry. Primera will certainly not be the last airline casualty. Its demise shows that, even though low-cost carriers are ubiquitous, they are by no means invincible in today's market.

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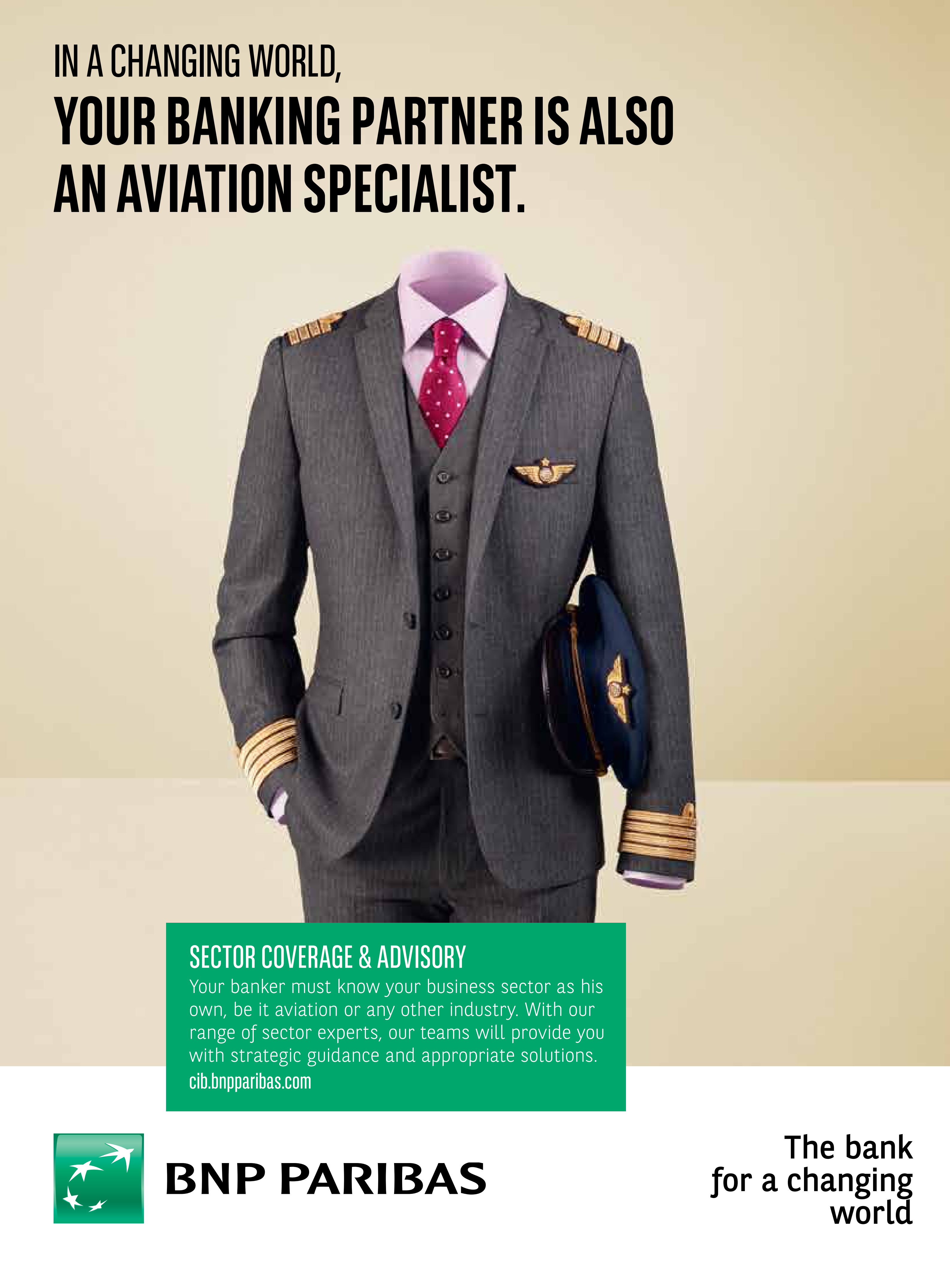
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Dragon Aviation Leasing appoints new CEO

Gang Li has been appointed chief executive officer (CEO) of Dragon Aviation Leasing, replacing Jean-Louis Chevrot. Li, who took up the position on 1 October, was previously chief accounting officer of AerCap from 2012 to 2018. Between 2006 and 2011, he was AerCap's head of financial planning and analysis.

Chevrot joined Dragon Aviation Leasing in 2007. Before that, he worked for 13 years in the aircraft financing group of Banque Indosuez as senior vice-president Europe.

Dragon Aviation Leasing, a wholly owned subsidiary of AerDragon Aviation Partners, was established on 23 October 2006 with its head office in Beijing. AerDragon, which is based in Ireland, is a joint venture between China Aviation Supplies (50%), AerCap (16.667%), CA-CIB AirFinance (16.667%) and East Epoch (16.667%).

CA-CIB AirFinance is owned by Crédit Agricole Corporate and Investment Bank.

East Epoch's main investor is Hsu Pu, who was the chairman of the board of Hsu Fu Chi International Group. East Epoch became an investor in Dragon in May 2013.


Gang Li

Faury to succeed Enders at Airbus

Guillaume Faury is to succeed Tom Enders as Airbus's chief executive officer (CEO) in April 2019.

Faury served in various senior management roles at Eurocopter from 1998 to 2008. Starting in engineering, then flight testing, he later became executive vice-president for commercial programmes, then executive vice-president for research and development.

In 2009, he joined French car maker Peugeot, where he served as executive vice-president for research and development as a member of the managing board. In May 2013, Faury returned to Airbus as CEO of Airbus Helicopters and, in early 2018, took the helm of Airbus Commercial Aircraft.

"We have diligently prepared for this succession, reaching a unanimous conclusion after a thorough examination of all potential candidates, internal and external, says Denis Ranque, chairman of the board of directors of Airbus.

He adds: "His global outlook, extensive operational experience, strong personal values and straightforward leadership style make him the ideal candidate to rally Airbus teams in the delivery of value to customers, partners and shareholders going forward."

Ranque will continue as chairman of the board of directors until the end of his mandate in April 2020, but has requested to leave the board to pursue other interests. Airbus says it will begin the process of selecting a new chairman in due course. It ads that it wants to maintain international diversity at board and management level.

Dunnachie joins ATR from Aerfin

Mark Dunnachie has joined turboprop manufacturer ATR as head of the Europe, Middle East and Africa region.

Previously, Dunnachie was Aerfin's chief commercial officer but left the part-out and trading company in June.

He was previously based in Singapore as vice-president Asia-Pacific for Embraer Commercial Aviation.

Dunnachie started at Embraer in 2000 as a sales director. He was transferred to Embraer leasing subsidiary ECC Leasing in 2008 as managing director and was in charge of owned assets and portfolio leases.


Mark Dunnachie

Carey Olsen adds Cayman partner

Law firm Carey Olsen has appointed corporate and finance lawyer Richard Munden as a partner in its Cayman Islands office.

Munden advises on a range of corporate and finance transactions, with particular focus on aviation finance and other asset finance matters, including asset-backed securitisations. He also specialises in financing for hedge funds and private equity funds, debt capital market transactions, equity issues and joint-venture and shareholder arrangements across a wide range of industries.

He joins Carey Olsen after 10 years at another offshore law firm in the Cayman Islands, where he was responsible for leading and growing the transport finance practice in North America and Europe. Before moving to the Cayman Islands, he worked in the asset finance team at Freshfields Bruckhaus Deringer in London before working in-house at Vueling Airlines in Barcelona, Spain, as general counsel and then head of fleet.

Over the past five years, Munden has worked on 16 transactions that have been recognised in *Airfinance Journal*'s Deals of the Year awards. Over the past decade he has worked closely with the Cayman Islands Government and the Civil Aviation Authority of the Cayman Islands on revisions to civil aviation legislation for a number of matters, including the implementation of the Cape Town Convention in the Cayman Islands.

Skyworld promotes Hewitt

Skyworld Aviation has named Juliet Hewitt as marketing director after Peter Greensmith's decision to step back from day-to-day operations.

Hewitt joined the aviation consultancy in 2000 and has been responsible for establishing the company brand. She also oversees all marketing activities.

Greensmith, who has established his own consultancy company, Papa Golf Aviation, will remain active in Skyworld's business as project manager.

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Volaris fills CFO position

Ultra-low-cost carrier Volaris has appointed Sonia Jerez Burdeus as its chief financial officer (CFO). She will take up her new role on 7 January.

Jerez will replace Carlos Alberto González López who filled the position after Fernando Suárez Gerard left the carrier for personal reasons on 30 September.

Gerard, who had been with Volaris since 2006, was the carrier's executive vice-president and CFO.

Jerez Burdeus will report directly to Volaris' president and chief executive officer, Enrique Beltranena Mejicano.

She previously held CFO roles at low-cost European carriers Vueling Airlines and Wizz Air.

Sonia Jerez Burdeus

SAA names new interim chief financial officer

South African Airways (SAA) has named Deon Fredericks as its new interim chief financial officer (CFO).

The appointment is effective from 15 October. Fredericks, who is on secondment from Telkom for a 12-month period, takes over from Robert Head, whose contract as SAA interim CFO ended on 30 September.

Fredericks is Telkom's chief investment officer and was previously chief financial officer from September 2014 to July 2018.

He is a chartered accountant and a CIMA-qualified chartered global management accountant with an honours degree in accounting and business management.

Stander takes charge at Comair's airlines division

Comair has put Wrenelle Stander in charge of its airlines division, which includes low-cost carrier Kulula and the South African company's British Airways franchise.

Stander will assume her new role in November.

"I'm delighted to be joining Comair at an exciting time for its aviation division, which will enter the next phase of its fleet-renewal programme in January," she says.

Stander's previous aviation experience includes being managing director of South Africa's Air Traffic and Navigation Services Company, deputy chief executive officer of the South African Civil Aviation Authority and director-general at the Department of Transport.

GE names CEO after unanimous vote

GECAS's parent company, General Electric, has replaced chief executive officer (CEO) John Flannery with outsider and board member Larry Culp.

Culp, who was appointed to GE's board in February, was also named chairman after a unanimous vote of the GE board of directors, effective immediately.

He was CEO of Danaher Corp from 2000 to 2014.

Additionally, the GE board has appointed Thomas Horton as lead director. Horton served as chairman and chief executive officer of American Airlines between 2011 and 2013, and chairman of American Airlines Group from 2013 to 2014.

Culp and Horton have been members of the board since April 2018.

GE indicates that while its businesses other than power are generally "performing consistently with previous guidance", because of weaker performance in the GE Power business, the company will "fall short of previously indicated guidance for free cash flow and EPS [earnings per share] for 2018".

In addition, GE expects to take a non-cash goodwill impairment charge related to the GE Power business of about $23 billion. GE says it will provide additional commentary when it reports third-quarter results.

GE's shares jumped 14% to $12.88 on news of the move.

The shares had dropped more than half since Flannery became CEO in August 2017, replacing Jeff Immelt, who had led GE since 2001.

Thirion leaves Etihad

Ricky Thirion, senior vice-president risk and restructuring at Etihad Airways, has left the Abu Dhabi-based airline, market sources indicate.

Thirion became SVP risk and restructuring in January, after being interim group chief financial officer and group treasurer of the airline for over 10 years.

Thirion is now on gardening leave, *Airfinance Journal* understands.

SocGen appoints head of aviation finance

Société Générale Corporate and Investment Banking (SG CIB) has appointed Yann Sonnallier as global head of aviation finance.

Sonnallier was previously deputy head of aviation finance and replaces Lucien Tomasini, who has retired after more than three decades at the bank. Based in Paris, Sonnallier reports to Frédéric Surdon, global head of asset finance.

Sonnallier will continue to develop the bank's aviation finance department, which offers products such as commercial debt, leasing solutions, recourse and non-recourse portfolio financings or credit-enhanced financing to support airlines and lessors.

Yann Sonnallier

Thai Airways appoints board and audit committee members

Thai flag carrier Thai Airways has appointed a new member of its audit committee, as well as a new member of its board of directors.

Distat Hotrakitya has become chairman of the audit committee. The audit committee now consists of Hotrakitya, Rathapol Bhakdibhumi and Somkiat Sirichatchai.

Sumeth Damrongchaitham has been appointed a member of the board of directors in place of Chakthip Chaijinda.

AviaAM China to expand portfolio next year

The joint venture hopes that additional capital from Chinese insurance giant Ping An will allow it to increase its aircraft investments. **Jack Dutton** speaks to its CEO, Tomas Šidlauskas.

AviaAM Financial Leasing China, the joint venture between Lithuanian company AviaAM Leasing and Henan Civil Aviation Development and Investment, looks to add "at least eight to 10 aircraft" next year, according to the company's chief executive officer (CEO).

Chinese insurance giant Ping An invested $44 million in AviaAM Financial Leasing China at the end of August. As a result of the transaction, the joint venture has two funds, amounting to $90 million in capital to help grow the portfolio.

The recent investment comes after previous cooperation in which a bank belonging to Ping An helped the lessor finance the acquisition of a Boeing 777 aircraft for $144 million.

In an interview with *Airfinance Journal*, Tomas Šidlauskas, AviaAM Financial Leasing China's CEO, says: "It's good that the bank shows trust in our organisation and they believe in our future. They are happy with the deals we are doing and our concentration in the future will probably be One Belt, One Road countries, which are highly supported by the Chinese government."

The money from Ping An will be used as equity to acquire aircraft. The debt to supplement it – provided by Chinese banks – will cover about 85% of the value of the aircraft, says Šidlauskas.

Ping An already has its own leasing business, customers for which are non-Chinese airlines. *Airfinance Journal*'s Fleet Tracker shows that Ping An owns eight Airbus A320-family aircraft, four A350-900s, one 737 Max 8 and one 737-800.

> *"We are looking to acquire eight to 10 aircraft in the next year at least. It helps our organisation to develop and in the future we will try to attract additional capital."*
>
> **Tomas Šidlauskas**, China CEO, AviaAM Financial Leasing

Šidlauskas says it took "nine or 10 months" for the Ping An deal to come to fruition.

He adds: "We are looking to acquire eight to 10 aircraft in the next year at least. It helps our organisation to develop and in the future we will try to attract additional capital – having on board a good name in the market, the number one insurance group in the world; it's a good name on the list for clients."

The lessor has a fleet of 15 aircraft, made up of 10 A320s, three A321s, one 737-800 and one 777. The 737-800 is on lease to China's Okay Airways, while Aeroflot is leasing the other 14 aircraft.

"Our target is to have between 16 and 18 aircraft by the end of this year," he adds. "Over three or four years we are planning to grow to around 50 aircraft."

The joint venture has signed a letter of intent (LoI) for an aircraft delivering to a Chinese airline. Šidlauskas adds that the joint venture is looking at "two to three aircraft from other leasing companies to buy".

Despite having a significant exposure to Aeroflot, Šidlauskas says that the joint venture is working on adding new Chinese customers.

"Aeroflot don't have any more deliveries from their own orderbook so we started to talk to Chinese airlines, airlines in the One Belt, One Road region," he says. "We're trying to explore this market in different regions."

Chinese RFPs

Although AviaAM Financial Leasing China looks at airline request for proposals (RFPs), Šidlauskas says: "With Chinese aircraft RFPs, the price of the assets are very high and globally the lease rates are very low. The term of the lease too is usually eight to 10 years and makes the business pretty risky from a financial perspective."

The joint venture is aiming to build its portfolio and is not looking to sell any of its portfolio for a few years, says Šidlauskas.

"It's nice to have good names on your portfolio," he says, "but we're not an organisation that will do a deal just to do it. Our aim is just to be profitable."

Novus, banks and Boeing launch new fund

Senior management at the Dubai-based lessor tell **Jack Dutton** about CAF, a platform that provides junior and mezzanine loans for airlines financing Boeing aircraft.

Novus Aviation Capital, Development Bank of Japan, NordLB and Boeing have launched Cedar Aviation Finance (CAF) in September, a new junior debt fund designed to provide airlines and lessors with higher loan-to-value financing for the acquisition of Boeing-manufactured aircraft.

Novus will manage the fund, providing junior and mezzanine loans to bridge the gap between equity and senior debt.

CAF comes off the back of similar platforms such as Tamweel Aviation Financing, which was launched in 2013 by Novus, DBJ and Airbus. The first CAF transaction is expected to take place by the end of the third quarter this year, says Novus.

Operating globally out of five offices in Europe, Asia and the Middle East, Novus has a portfolio under management of about 50 aircraft worth nearly $4 billion.

Clifford Chance was the lead counsel on the deal.

Junior and mezzanine markets "underserved"

The fund was set up as a response to the record numbers of new aircraft delivering, and junior and mezzanine debt markets are "underserved" by the financial community, says the managing director of Novus Aviation.

"We believe the junior and mezzanine financing segment of the market remains underserved by the financial community at a time when the OEMs [original equipment manufacturers] are delivering a record number of aircraft," says Mounir Kuzbari in an interview with *Airfinance Journal*.

"In terms of success rate on our bidding campaigns, we are seeing more mandates on junior debt than on operating leases deals. On the leasing side, we don't see liquidity reducing for the time being – on the contrary, we are still seeing a further influx of liquidity with new ventures being set up," says Hani Kuzbari, a managing director at Novus.

"Same on the senior debt side, where competition remains intense with continuous pressure on margins. Over the next 12 months, based on the pipeline and discussions we have with airlines and lessors, we don't see demand for junior debt and high LTV [loan-to-value] financing changing in the medium term."

The idea behind Novus's first junior debt fund in 2013 was to plug the gap left by the changes in the export credit agency market and the retrenchment of the traditional aviation banks.

"Liquidity has been back across the capital structure but when listening to our customers, the offer of attractive junior loan products remains relatively limited," says Mounir Kuzbari. "This, combined with new regulatory changes for banks and rising interest rates, will put stress on some of the legacy players and new entrants.

"We've been present in the junior loan space for a good few years now – other than outlier deals, where local transactions were done on a corporate basis that are not really reflective of where the commercial junior loan market should be. You, for example, see deals with local banks in Asia providing 100% financing to their flag carrier at very aggressive rates. That's not the type of deal we would look at."

He adds: "We see the junior loan market typically looking at deals with a five-to-seven-year term – margin over a certain base rate whether it is floating or fixed – 300 and 600 basis points range. That's the universe of pricing we are seeing in the market."

Target fund size

Novus will not disclose the target size and ambitions for the fund, but the lessor has no minimum number of aircraft it will place in the fund and a "fairly flexible model", in terms of how long it has to deploy the capital.

"We could probably induct 30 to 50 aircraft without too much of an issue in the next 12 to 18 months, if the right opportunities arise," says Mounir Kuzbari. "We expect two to four aircraft to be financed in this quarter, assuming deliveries don't slip into next year."

He adds that the fund is "largely beneficial to our airline customers who typically like to see multiple financing options, including on- and off-balance-sheet, through one platform. It's also kind of a natural hedge to changes in accounting treatments whereby we might see more airlines shifting their strategy from sale and leasebacks to finance leases".

The fund complements the Dubai-based lessor's operating lease business, and Novus is in select discussions with additional investors about joining the fund.

"Any partner that will be added will have to work well with the existing partnership. We're not marketing wide – chemistry is very important. We're being selective," adds Hani Kuzbari.

"We have more funding capacity than what we see in terms of pipeline in the next 12 to 18 months. So we certainly could do more transactions."


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Nok Air misses lease rental payments

The Thai low-cost carrier has set out a recovery plan, but the jury is out on whether the airline will stay in business, reports **Michael Allen**.

On 29 August, *Airfinance Journal* broke the news that Thai low-cost carrier Nok Air had missed lease rental payments to Investec. The following month, it emerged that this had an impact on most of the lessors with exposure to the airline.

According to *Airfinance Journal*'s Fleet Tracker, other lessors with exposure to the airline include: ALAFCO, with three Boeing 737-800s; Apollo Aviation Group, with one 737-800; Avolon, with two 737-800s; BOC Aviation, with three 737-800s; DAE Capital, with one 737-800; Fly Leasing, with one 737-800; GA Telesis, with one 737-800; GECAS, with six Bombardier Q400s and two 737-800s; Merx, with one 737-800; NBB Leasing, with one 737-800; and Tokyo Century, with one 737-800.

"They [Nok] don't seem to realise that every day that goes by without the rent being paid we are incurring cost because we have to pay the secondary and tertiary layers of debt on the aircraft," says one of the affected parties, who declined to be named.

On 27 August, Pia Yodmani, Nok Air's chief executive officer (CEO), resigned from the carrier, having taken the helm in September 2017 when former CEO and current Nok shareholder, Patee Sarasin, resigned.

"Certainly, there is concern amongst the lessors for Nok Air," says a source at another affected lessor.

Asked how lessors will deal with the situation, the source says there is "not a one-size-fits-all answer to that".

He adds: "We have to look into what the root of the problem is and work out a solution, and we need to work out who is running things going forward and find out what the situation is before we consider action."

Another lessor source says he is waiting to see whether Yodmani's replacement "has the experience to drive the airline forward". Director Pravej Ongartsittigul was appointed acting chief executive officer, effective 27 August, but the airline plans to appoint a new CEO at an unspecified time.

Even before the resignation of Yodmani, sources were voicing their concerns to *Airfinance Journal* about the financial health of Nok Air.

> *"I think the first step is to decide whether you want to do a deal with the airline to get the aircraft out or whether you wish to pursue the lease payment. Some lessors will take the view that Nok can tread its way out of this – and take that on the chin."*
>
> **Alan Polivnick**, a partner at Watson Farley & Williams

On 17 August, a lessor risk manager, who had recently evaluated an aircraft portfolio for potential purchase, told *Airfinance Journal* that the presence of one Nok Air aircraft in that portfolio was "definitely a risk factor".

"A lot of the lessors have far less tolerance for Thai operators than they did a year ago," says Alan Polivnick, a partner at Watson Farley & Williams' Bangkok office, citing incidents in the Thai airline market that shook lessor confidence.

In February 2018, *Airfinance Journal* reported that Los Angeles-based lessor Air Lease was considering the repossession of an aircraft and a spare engine from Orient Thai Airlines.

In June, Asia Atlantic Airlines, an operator of two 767-300ERs, informed staff of mass redundancies and told *Airfinance Journal* it was initiating a major restructuring, including introducing new aircraft, a new management team and board of directors.

In September 2017, at least a dozen Thai airlines temporarily lost their permission to fly international routes ahead of a then-upcoming ICAO safety assessment of the country.

In 2016, Israeli lessor Global Knafaim Leasing repossessed an aircraft it had on lease to Thai airline Business Air Centre after a long legal battle to get the aircraft out of Thailand.

"I think the first step is to decide whether you want to do a deal with the airline to get the aircraft out or whether you wish to pursue the lease payment," says Polivnick. "Some lessors will take the view that Nok can tread its way out of this – and take that on the chin."

However, Polivnick says many of the aircraft leased into Nok Air – particularly the 737-800s – are in high demand, so lessors may take this opportunity to get the aircraft out and offer Nok Air a waiver for outstanding lease payments. The downside for the airline is that if it accepts, it may end up paying higher lease rentals in future when it is forced to take aircraft from a lessor with a higher risk appetite and higher lease rates.

Recovery plan

On 21 August, Nok Air "cautiously" set out a recovery plan. The carrier cited "extreme" competition in the aviation industry, increases in the price of jet fuel and the fluctuation of the US dollar as external factors, causing the airline's shareholder equity to drop to below 50% of paid-up capital for the second quarter of 2018, ended 30 June.

"Internal" factors cited were that passengers had lost confidence in Nok Air because of flight delays. The airline also mentioned "cost efficiency" as being a factor.

The recovery plan focuses on revenue improvement by offering more product choice for passengers, co-branding, increasing ancillary revenue and communicating on-time performance to customers.

Cost-reduction measures include the remodelling of ground handling; reducing maintenance costs; improving fuel use management by improving take-off and landing plans; and increasing aircraft utilisation by adding nighttime and longer flight operations in international flights. Nok also looks to improve its on-time performance above 87.89% as of June 2018 to regain passenger confidence.

It adds: "Other than the current business partners such as Thai Group, Nok Air will be looking for further business partners including considering investing in subsidiaries such as Nokscoot Airlines to expand the network."

Five days before, Nok's board approved the airline to borrow Bt500 million ($15.3 million) at an annual interest rate of 6% from a "close relative" of the company's major shareholders.

Hataitratn Jurangkool, who (as of 30 June) owns 9.22% of Nok Air, has agreed to extend the loan to the airline, which will be separately drawn down by issuing one or more promissory notes, with each note having a term no longer than 180 days.

At the same time as approving this loan, Nok Air's board also approved additional investment of Bt490 million in Nokscoot Airlines, the company's joint venture with SIA group airline Scoot. The loan will be used to purchase newly issued shares in Nokscoot.

Nok Air says the additional investment will create an opportunity for Nokscoot to expand its budget airline business by increasing flights and routes, thereby increasing its market share.

"The big challenge for Nokscoot is Scoot could invest more in the company – and has the resources and willingness to do so – but can't because of foreign ownership [restrictions]. There's very little Scoot can do," says Watson Farley & Williams' Polivnick.

"It's an issue, and whoever is going to take over Nok Air will need to look at Nokscoot," he adds.

Lessors' next steps

Nok Air's lessors have met the airline to discuss delays in lease rental payments, according to two people from two different lessors who attended the meetings.

> *"The big challenge for Nokscoot is Scoot could invest more in the company – and has the resources and willingness to do so – but can't because of foreign ownership restrictions."*
>
> **Alan Polivnick**, a partner at Watson Farley & Williams

A source from one of the lessors, who has met with Nok, described the meeting as "messy".

The source says: "They are behind with lessors and talking to lessors for some deferrals to help them out. Their financials are obviously pretty tight, with not much cash. It is critical for their major shareholders to support them and keep going for the next few months."

A second source who has discussed the issue with Nok says there was "not any huge clarity" from the meeting and that "the jury is out" on whether shareholders and management can ensure the airline stays in business.

He says his company needs to make an internal decision on the best approach.

"There are some follow-up questions we have to do. In short, we have to have some internal decisions on how we approach it," says the source, who adds that his company always tries to help when it can.

"On their long-term prospects, my view is as long as the shareholder stumps up to support them in some way, that's the key. They've been around a long time and had difficulty for a while... but they seem to have always paid lessors."

The source says Nok does not officially have arrears with his company, but does have "a bit of lateness", adding that rental arrears are not uncommon with airlines in the region.

Asked for examples, he points to the long-running case of HNA-affiliated airlines being late with lease payments.

The source adds that Nok could see its revenues increase during the busy travel period of December through to Chinese New Year (5 February, 2019), giving it some extra cash with which to pay lease rentals.

An Asia-based legal partner, who is aware of the meetings, says that in this kind of situation lessors usually prefer to keep their aircraft with the airline, with repossession a last resort.

The first lessor source who met with Nok says: "I don't think lessors are being too patient, but I don't think we want to see it go completely bust. I think some form of help would be needed and I'm not sure if anyone is going to pull the plug on them just yet, as a repo from Thailand isn't the most straightforward either."

Asked for comment, a Nok Air spokesperson says: "Our senior management including CFO [chief financial officer] has had a number of discussions recently with several lessors regarding the aircraft rental issues. We are unable to go into detail about the results of our latest discussion at this stage.

"But there was an air of understanding and optimism from lessors regarding Nok Air's endeavour to regain its financial strength, and lessors are doing whatever they can to contribute to this course. The recent management change at Nok Air will be instrumental to turn our balance sheets around and fledge again."

Nok's financials – the TAA view

Airfinance Journal reported on 7 December 2017 that Nok Air's financial rating decreased over the past fiscal year by one grade from CCC- to CC – The *Airline Analyst*'s (TAA) lowest rating.

Commenting over eight months after that was reported, Mike Duff, TAA's managing director, says that in the year to 30 June 2018, Nok Air's earnings before interest, taxes, depreciation, amortisation and restructuring or rent costs (Ebitdar) margin of 10.7% had improved, but not to historical levels of about 24%.

Furthermore, its liquidity fell to $52 million at 30 June 2018 from $98 million at 31 December 2017.

The airline's fixed cover charge was 0.5 times for the 12 months ending 30 June 2018. This was "actually an improvement over the previous three years", says Duff.

"A fixed cover charge of below one for an extended period is unsustainable. It eats up liquidity in the absence of asset sales or capital raises," he adds.

The airline was 15.5 times leveraged on 30 June 2018.

"Nok's leverage is at unsustainable levels unless they can rapidly improve Ebitdar margin," says Duff.

The situation will be a challenge for the airline's chief financial officer, Pawinee Chayavuttikul, as well as whoever comes in as the new CEO.

One of the issues that departing chief executive officer Pia Yodmani has had to deal with, and the new CEO will have to deal with, is exactly where Nok Air positions itself in the market, says Alan Polivnick, a partner at Watson Farley & Williams' Bangkok office.

"They are creating a family of airlines – Thai Airways, Thai Smile and Nok Air – looking to emulate regional competitors who have those three tiers of airlines," he says.

"The low-cost carrier domestic market in Thailand is very, very competitive and I guess we will need to see where Nok Air will place themselves in that. I'm sure some of the competitors would love Nok Air's slots at Don Mueang airport."

Former CIT staff set up new platform

Zephyrus Aviation Capital has had a busy few months, pricing its first asset-backed securitisation and buying a mid-life portfolio from Avolon. **Jack Dutton** reports.

Former staff members of US-based lessor CIT Aerospace have set up a new lessor called Zephyrus Aviation Capital, the start-up's chief executive officer (CEO) tells *Airfinance Journal*.

Damon D'Agostino, previously chief commercial officer at CIT Aerospace, is the CEO of the new lessor. Tony Diaz, the former CIT Aerospace president, is the non-executive chairman. Robert Meade, CIT's former head of marketing, is the chief commercial officer and Richard Genge, CIT's former assistant vice-president, marketing and asset sales, is the vice-president.

The lessor has offices in Dublin (Ireland) and Fort Lauderdale (USA).

Zephyrus has a starting portfolio of 21 mid- to end-of-life aircraft, which it bought from Avolon. The portfolio includes Airbus A319s, A320s, A321s, three A330s, Boeing 737-700s and 737-800s. The aircraft have an average age of 13 years.

"CIT was one of the major A330 lessors. We're really comfortable with the used A330 as an aircraft type and are quite bullish on its value in the market," says D'Agostino.

About one-third of the lessees in the portfolio are from Asia, slightly less than one-third are European and the remainder are from North America and South America.

Virgo Investment Group, in which Diaz has been the operating partner, is the majority equity partner in the platform. Seabury Capital acted as sole adviser to Zephyrus for the initial portfolio and is a minority equity partner.

Deutsche Bank led the debt financing for Zephyrus.

D'Agostino declines to reveal how much equity and debt the company has access to, but says that it intends to "grow to 60 to 75 aircraft in the next 12 to 18 months".

D'Agostino says acquiring new narrowbodies and widebodies "didn't feel like the right space".

He adds: "In my own mind, we landed on the mid- to late-life space; it really kind of speaks to my background of 24 years plus at CIT, really understanding the metal not just as a financial trade."

Virgo has been investing in aircraft since 2012 under the name of Zephyrus, which inspired the name of the new lessor, says D'Agostino.

"Zephyrus is actively pursuing new opportunities; if we have the right deals that come along, we will transact. We're in discussions with a number of other parties on aircraft to grow the business.

"One of the things that Deutsche Bank really liked was the experience of the management team – the fact we've been together as a team for decades."

D'Agostino adds: "We see an opportunity in this space, because there's not as much competition as the new and nearly new aircraft market. Other players in this space have raised a lot of capital, but also seem to be gravitating toward slightly younger aircraft now. You have seen that in recent ABS [asset-backed securitisation] deals. That creates a nice space for us and it plays to our experience and skill set. We believe that with our background and capital we can add value to the airlines and other industry constituents as a fleet management solutions provider."

Debut ABS

To fund the portfolio, the lessor came to market with an ABS, which priced at 98.52% of par value, according to D'Agostino.

"We came in at 210 over swaps, which is within 10 basis points of other first-time issuers," says D'Agostino in an interview with *Airfinance Journal*. "For doing an ABS out of the box, that's a really favourable outcome, especially when you consider the age of the portfolio – 13.3 years is slightly higher touch."

The $336.6 million single-A-tranche deal was used to finance a portfolio of 21 aircraft, comprising 18 narrowbodies and three widebodies. The aircraft – seven A320s, three A319s, eight 737NGs and three A330s – have a weighted average age of 13.3 years and are on lease to 19 airlines.

"The book was more than two times oversubscribed, which I think was also a nice outcome," he adds. "The investors who bought into this deal are very sophisticated players who know the space. That was also a very nice endorsement."

The portfolio was acquired from Avolon and the aircraft were former CIT leases, according to D'Agostino.

It has a coupon of 4.605% and a loan-to-value (LTV) of 74.07%.

"We've done the roadshow and met with the investors. Many of them are hopeful to be able to grow with us through future issuances, so they like our growth story and access to equity."

D'Agostino adds that he "sees no reason" why Zephyrus would not become a regular ABS issuer. The deal closed on 9 October.

Under ZCAP 2018-1, ZAL Limited is the seller and Zephyrus Aviation Capital is the servicer.

DVB Bank is the liquidity facility provider, Canyon Financial Services is the managing agent and UMB Bank is the facility agent, security trustee and operating bank.

Deutsche Bank is the sole structuring agent and lead arranger.

Vedder Price and A&L Goodbody acted for Zephyrus on US and Irish law respectively. Clifford Chance acted for the banks.

Comparable recent ABS transactions are GECAS's START financing, Merx Aviation's MAPS 2018-1 and DVB's KDAC Aviation Finance.

Zephyrus's financing covers aircraft that are older than those in the other deals, although its developing market exposure is significantly lower.

The latest ABS also has a higher LTV of 74%, compared with 61%-69% for the GECAS, Merx and DVB financings.

Lessees in the Zephyrus portfolio include: Air Explore, Air Europa, Air India, Air Transat, Asiana, Avianca, Bulgaria Air, Eastar Jet, Gol, Indigo, Interjet, Jeju Air, Jet Lite, KLM, Privatair, Qantas, Sun Country Airlines and Vueling.

South Korean airlines account for 17.1% of the portfolio by value, while the largest single-airline exposure is to Qantas, which accounts for 12.9%.


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Xiamen Airlease sale and leaseback impresses market

The Beijing-based lessor has flown under the radar for the past couple of years, but a 28-used aircraft sale and leaseback with China Eastern has caught the market's eye, write **Michael Allen** and **Elsie Guan**.

Beijing-based Xiamen Airlease (also known as Xiamen Aircraft Leasing) has caused a stir in the highly competitive sale-and-leaseback market with a huge 28-used aircraft transaction for Shanghai-based China Eastern Airlines (CEA). The deal comprises 17 Airbus A320s, 10 Boeing 737-700s and one 737-800, with financing provided by three undisclosed Chinese state-owned banks. The average age of the aircraft is 18 years.

"With the completion of this transaction, Xiamen Aircraft Leasing's portfolio has now increased to 52 and the company will continue to grow through further acquisitions within China and Asia," said chief operating officer Xiaoge Duan at the time.

The deal has impressed market players both inside and outside China.

"Twenty-eight aircraft straight off the bat – it's a big deal," says a Hong Kong-based banker who has met with the company.

"They've been concentrating on picking up a lot of domestic deals, mainly from the big leasing companies, and the focus has been mainly older midlife aircraft with shorter leases attached."

A Hong Kong-based law firm partner says: "It's certainly one of the biggest deals in the market and it shows they are serious, and quite aggressive in a way. I guess that also fits in with their strategy really because one of their strengths is to deal with second-hand aircraft."

The company told *Airfinance Journal* in a September 2017 interview that it planned to specialise in mid-life aircraft and older aircraft.

Some market players mistakenly assume Xiamen Airlease is connected to Xiamen Airlines, a Chinese airline based in Fujian province and controlled by China Southern Airlines. But many Chinese airlines, both state-owned and private, now have in-house leasing companies. For example, China Southern has China Southern Airlines International Financial Leasing, China Eastern has CES International Financial Leasing, Spring Airlines has Spring Leasing and Juneyao Airlines has Harvest International Financial Lease.

Xiamen Airlease is owned by Smart-hero (HK) Investment Development, which was founded in Hong Kong in 2001, according to its website. The Cyber Search Centre of the Integrated Companies Registry Information System, a database of Hong Kong-registered companies, says Smart-hero (HK) Investment Development was incorporated on 4 January 2002. No further information about the company is available and it is not clear whether it has a substantial physical presence in Hong Kong. Smart-hero's website only lists an address in the mainland city of Xiamen.

The company's businesses include real estate, tourism, catering and medical investment in China and overseas. It has a unit called Smart-hero Property Group in Xiamen.

The Hong Kong-based partner, which is not familiar with Xiamen Airlease's parent company, says the company may be following the trend of other real estate companies seeking higher returns in the aircraft leasing market. The aircraft leasing businesses of Hong Kong-owned Accipter, Goshawk and Century City were all partly driven by the real estate downturn.

Beijing Equity Exchange

Xiamen Airlease's sale and leaseback with China Eastern had to publish its request for leasback financing on the Beijing Equity Exchange, China's biggest equity exchange platform dealing with equity, asset transfers and capital raises by Chinese state-owned enterprises, according to the exchange's website.

Established in February 2004 and authorised by the state-owned Assets Supervision and Administration Commission, the exchange is designed to reduce the potential for corruption and assist the government in managing the market economy. Ma Feng, a partner at King & Wood Mallesons Beijing, which acted on the Xiamen Airlease-China Eastern transaction, says that the Chinese government does not want state-owned companies to dispose of assets with a "very low value", or by "unqualified persons", so the government makes all state-owned companies list their asset disposals on the Beijing Equity Exchange.

"You can take it as a normal bidding process, except it's public," he says. "The big challenge for this process is the timing." Ma adds that financing had to be secured within 30 days of the deal being mandated. Ma's colleague Chen Jie, a senior associate at the firm, says it has been a long time since CEA disposed of so many aircraft at once.

"They may have done one or two aircraft disposals also through the same process, but they could have been sold to cargo or foreign airlines [not lessors]," she says.

A source close to the transaction, who declines to be named, says: "State-owned asset disposal involves a lot of regulations. For state-owned assets, if you want to dispose of them you have to go to the Shanghai or Beijing asset exchange and go strictly through the procedure."

Co-leasing structure

The deal takes advantage of a so-called "co-leasing structure". The source says that the co-lease structure means China Eastern and its subsidiary jointly take responsibility for the lease as "co-obligors".

The source adds: "That's quite unique: even in China, not many airlines use this structure, mainly only China Eastern. I think this deal will set a precedent for the future disposal model of really old aircraft. The airline can save maintenance fees because this is sale and leaseback. Maybe just in two or three years the lease will be terminated, but from the airlines' perspective they can save the structural maintenance fee – which is a huge amount of money."

Co-leasing is popular with China Eastern because it gives it more control over its subsidiaries, says Ma. "Up until now, all the China Eastern systems of the aircraft import and quota allocation is managed by CEA itself." He adds that Xiamen Airlease may send some of the aircraft to be disassembled.

"In China, there are so many state-owned airlines and so many old aircraft," he says. "I would think this transaction is going to set a precedent in the market for big airlines which have a lot of old used aircraft in terms of how leasing companies and airlines can work together to dispose of such kind of aircraft."

Growth not without challenges for Asian lessors

Michael Allen and **Olivier Bonnassies** speak to the chief executive officers of four major Chinese lessors about their growth strategies and market expectations.

The competitiveness of the aircraft leasing market has reached a critical juncture. More and more lessors are complaining of low lease rate factors, and no one seems able to predict when this trend might level out.

Peter Chang, CDB Aviation's chief executive officer, says the leasing market is "at its fiercest we have seen since the advent of the leasing sector".

He adds: "There are many inexperienced lessors with low-cost capital and there are too many players. Should the rental yields continue to be depressed, and as the interest rates rise and the oil markets remain uncertain, we can expect some realignment for the players."

Domhnal Slattery, Avolon's chief executive officer, says the level of competition in the sale-and-leaseback segment of the market has been raised to the point where many established lessors have reduced their acquisition volumes from this channel. "This behaviour is driven, we believe, by the strategic growth requirements of new entrants into the sector," he says.

"In our view, this strategy is unsustainable and will lead to an adjustment in the medium term, precipitated by any number of possible factors, including raising interest rates, increasing oil prices and emerging market volatility,"

Slattery says Avolon is essentially out of the sale-and-leaseback market except for a small number of bilateral off-market deals where the lessor can leverage its relationships to support customers. "Given our attractive orderbook, we are focused on the OEM [original equipment manufacturer] direct order channel for growth in the medium term," he adds.

Robert Martin, BOC Aviation's managing director and chief executive officer, agrees. "Because of our orderbook, we are able to grow while avoiding the most competitive areas of the market, namely small-scale purchase and leasebacks where balance sheet size and access to capital is not the advantage that it is for larger transactions."

He says BOC Aviation continues to hit its net lease yield targets, which have been very stable at between 8% and 8.5% for the past five years. "We have managed this by remaining very disciplined and not accepting every transaction available to us."

"We are delivering from a global platform and are prepared for whatever the market brings our way."

Peter Chang, chief executive officer, CDB Aviation

CALC's Mike Poon is more muted on this question and did not give a specific view on whether he thinks lease rate factors are competitive or not. He says: "CALC is competing with its unique position as a full value chain aircraft solutions provider – ie, we provide holistic solutions for each stage of an aircraft life."

Strategising

To meet the demands of a competitive market environment, it is vital for lessors to have a strategy that distinguishes themselves from competitors.

Chang tells *Airfinance Journal* that his company is prepared for these changes in the market.

"When you have a combination of market drivers, such as increasing fuel cost and rising interest rates, there will be a resulting impact on the industry. Should the rental yields remain low, we should expect changes – and we are ready," he says.

Chang says that hard work over the past two years helped CDB Aviation get to where it is today.

"We built up a world-class team and established our global footprint with offices in Dublin, Hong Kong and Fort Lauderdale. Building on our cornerstone belief in relationships, we refreshed crucial relationships with suppliers, including OEMs and banking partners.

"Next, we focused on enhancing internal processes, technologies and management systems to maximise the professional quality support we provide to our customers. We recognise the value of timely and accurate management systems, including data flows, CRM [customer relationship management] and contract management tools, which aid our executional excellence."

It is this so-called executional excellence that Chang believes is a "hallmark" of CDB Aviation and what sets it apart from other lessors.

"We intend to build on our commitments in which we demonstrate to our customers and industry partners that we are reliable, efficient, transparent and approachable. We believe this is the foundation that will pave the way for long-term relationships," says Chang.

"So, today, we are delivering from a global platform and are prepared for whatever the market brings our way. Our growth trajectory is certainly based on the solid and sustainable financial resources of China Development Bank and a talented and resourceful team who are highly responsive to our customers."

Poon describes his lessor's business model as a "full value chain aircraft solutions provider" as "unique", echoing language the company has been pushing in its press releases and marketing materials for some time now.

"CALC and its mid-to-end-of-life aircraft solutions arm – Aircraft Recycling International [ARI] – leverage on their respective strengths and work in synergy to provide comprehensive, tailor-made and flexible aircraft solutions," he says.

Poon adds: "Apart from aircraft leasing, purchase and leaseback, structured financing and other value-added services such as fleet planning, fleet placement packaged deals, CALC and ARI also extend to downstream sector service offerings, including mid-life aircraft leasing, disassembly and recycling, MRO [maintenance, repair and overhaul], aircraft conversion and more, to enhance the residual value of used aircraft."

BOC Aviation continues to add new-generation aircraft to its fleet, with more than 95% of its orderbook comprising the latest available models.

"We have 72 aircraft scheduled for delivery in 2019 and we are focusing on ensuring that these are all delivered by the airframe manufacturers and on adding to these through the purchase-and-leaseback channel," says Martin.

He adds that BOC Aviation differentiates itself from competitors in myriad ways. It has one of the youngest fleets in the industry, one of the longest average remaining lease periods and it has a high level of liquidity in its balance sheet: close to $4 billion in cash and undrawn committed facilities. It also takes pride in its "key shareholder relationship" with Bank of China.

"We also have a high-quality orderbook, robust relationships with our OEM suppliers and list some of the world's most successful airlines as customers, meaning that we have only repossessed 36 aircraft in our 25 years," says Martin.

A key objective for Avolon over the next year is to continue its momentum towards an investment-grade ratings profile, says Slattery.

"Ultimately, an improved credit rating profile with its associated upside will help to drive earnings growth at Avolon and boost our shareholders' return on investment. Through our dialogue with the rating agencies we understand that two factors are important in supporting our path to an investment-grade profile – closing the ORIX transaction and reducing the proportion of secured debt in our capital structure. These factors will be particular focus areas for the Avolon business," he says.

Portfolio composition and growth

CDB Aviation had a fleet of 190 aircraft as of 30 June, according to *Airfinance Journal*'s Leasing Top 50 2018.

Chang describes the operating lease business as "a risk management business".

He says: "We are diligent and prudent when considering and evaluating credit risk profiles. Our risk composition is a bell curve which provides for the correct inclusion of tiers addressing high risk/high reward through to low risk/low reward.

"We approach our CDB Aviation portfolio with scale in mind, like a legacy approach. Our philosophy will not change too much in its foundation as new technologies enter the market. The philosophy and formula in terms of consideration of value and operating base will dictate decision-making. We will continue to be primarily a new-technology narrowbody-centric fleet, espousing new technologies and maintaining a young fleet. Each time we review an asset, we address both technology and associated customer base opportunity."

Chang adds that CDB Aviation will continue to build its aircraft portfolio with direct orders, sale-and-leaseback and portfolio acquisitions.

"Given our attractive orderbook, we are focused on the OEM [original equipment manufacturer] direct order channel for growth in the medium term."

Domhnal Slattery, chief executive officer, Avolon

"We have the bandwidth within our team to move on multiple fronts in reviewing the numerous opportunities the markets are presenting. The combination of our team's skills with established industry relationships, as well as the financial resources, enable us to consider portfolio growth objectives through many lenses," he says.

As of 30 June, CALC owned and managed 115 aircraft and an orderbook of 189 aircraft, comprising 139 Airbus and 50 Boeing aircraft, which will be delivered by 2023, according to Poon.

The lessor continues to explore different channels to expand its fleet, including purchase and leasebacks and portfolio trading. Poon also points to the company's recently established CAG sidecar, saying this shows CALC's "asset-light business model in full play" and enables the company to "strengthen its position as an aircraft asset manager" and "enlarge its aircraft asset under management while optimising its portfolio".

Martin says: "We aim for our portfolio to reflect the global split between narrowbody, widebody and freighter. Today, this is approximately 63%, 33% and 4%, respectively, and we invest in aircraft that have the widest group of operators and the deepest pool of investors.

"In terms of credit risk, we actively grade our airline customers and review their creditworthiness on a regular basis. We need each airline to exceed a certain credit threshold before we will do business with them. Of the 780-odd airlines in the world today, we really target doing business with fewer than 20% of these, so we select our airline customers very carefully."

BOC Aviation manages its liabilities very prudently. "We source debt globally in both capital and loan markets leveraging our A- rating from S&P and Fitch, tapping our $10 billion global medium-term notes programme and the more than 80 banks that comprise our loan group. We also spread deliberately debt maturities over a 10-year repayment profile," says Martin.

Avolon uses multiple procurement channels to source aircraft, including sale-and-leaseback transactions with airlines, direct orders with Airbus, Boeing and other OEMs, as well as portfolio acquisitions from other lessors to build its portfolio selectively.

"We believe that the utilisation of multiple aircraft procurement channels will provide us the flexibility to enhance our portfolio and performance through the cycle as each channel can be calibrated to react to, and increase opportunity from, prevailing market conditions," says Slattery.

Avolon's approach to its portfolio composition is based on its long-held view that the most attractive risk-adjusted returns are supported by a young fleet of the most liquid asset types, says Slattery.

"A young fleet is one of the strongest mitigants against residual value risk and impairment," he says. "In addition, younger aircraft are generally more fuel-efficient, which is a nature hedge against increasing fuel costs. Our forward orderbook, which comprises exclusively of these new-technology, fuel-efficient, attractive aircraft types supports that asset strategy going forward."

The lessor's orderbook of 319 new-technology aircraft provides embedded growth in the most attractive asset types out until 2024 and it will be this channel that will provide the majority of Avolon's growth in the near to medium term.

But he believes portfolio diversification is also important in the management of credit risk. Slattery says Avolon has one of the most diverse customer bases in the industry, with 156 customers operating in 64 different countries.

"Our top five customers represent less than 20% of our total net book value and this diversification is a key differentiator for our business from a portfolio risk perspective," he says. "Additionally, our broad customer base also gives us excellent visibility on supply and demand dynamics in all the key global markets, providing us with insight into the primary issues impacting airlines globally."

Consolidation to continue?

The market has witnessed several large merger and acquisition (M&A) transactions recently, including Goshawk's purchase of Sky Leasing assets and ORIX'S purchase of 30% of Avolon in the summer. More recently, Apollo Aviation acquired the Aergen assets and announced it would be bought by the Carlyle Group.

To Slattery, consolidation will remain a theme, both within the aircraft-leasing sector and in the wider aviation sector. BOC Aviation's Martin agrees. "The M&A activity has been a pervasive feature of the industry. We doubt that this will change. Lessors' growth aspirations appear to be greater than the number of available aircraft transactions, so a lack of balance sheet expansion is driving M&A as an alternative source of growth," he says.

On consolidation, CALC's Poon says: "CALC will continue to seek opportunities in vertical integration to strengthen our full value chain service offering."

CDB Aviation's Chang expects consolidation "within the group of Chinese lessors".

He adds: "However, it is less clear to see much beyond this group, apart from GECAS, perhaps, which may become a wild card."

As for his own company, Chang says it will "look at all opportunities, as we are very fortunate to have the significant financial resources of China Development Bank".

"CALC will continue to seek opportunities in vertical integration to strengthen our full value chain service offering."

Mike Poon, CALC

He adds: “We will be ready when the opportunities arise meeting our criteria – and we will pull the trigger.”

Chang also expects Chinese capital to continue entering the industry.

“One needs to just understand the opportunity that the Chinese aviation market offers, not the least of which is the entrance of a projected 7,000 aircraft in the next 20 years. The roll and engagement of Chinese capital has not even scratched the surface of the investment opportunity ahead,” he says.

“Certainly, there is a temporary slowdown in foreign investment, which is understandable for several reasons, including global trade uncertainty. A good deal of Chinese investments to date has been in debt markets, which has lowered, with such investors slowing down. Once consolidation occurs and with the ongoing sophistication of aviation infrastructure, this investment will pick up and the impact will be significant.”

Avolon views the Chinese aviation sector as one of the fastest-growing markets in the world. In its white paper produced in 2017, titled *The Land of Silk and Money*, the lessor forecasted a need for 3,200 additional aircraft for Chinese carriers by 2026.

“We have seen a rapid rise in the number of Chinese lessors entering the market over the past few years. Additionally, we have also seen a significant increase in the amount of capital and investment from Chinese banks and financial institutions in the sector. The motivations are two-fold – firstly, new entrants have been motivated by the Chinese national strategy to build a global aviation industry as demand for domestic air travel accelerates. Secondly, they were attracted to the returns that the sector can offer,” says Slattery.

Martin says China remains one of the fastest-growing major markets in the world and is the greatest component of the global aircraft orderbook. “Historically, its lessor community has been underdeveloped and has been looking to gain market share over the last decade. We expect PRC [People’s Republic of China] lessors and investors to continue to commit capital to aircraft ownership as its aviation industry builds.”

“Because of our orderbook, we are able to grow while avoiding the most competitive areas of the market, namely small-scale purchase and leasebacks.”

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

Growth of leasing industry to continue?

Leasing has become a cornerstone of aircraft procurement, with about 40% of the global fleet now under operating lease contracts.

CDB Aviation’s Chang says the reason for the leasing industry’s success and continued growth is “simple”.

“We deliver an economic efficiency to the sourcing of aircraft for airlines. Leasing offers a less-expensive alternative for some airlines as they implement their fleet strategy. What began as a boutique finance business, over time it has become a main street industry, now in terms of acceptance and engagement by airlines worldwide,” he says.

“The ability for a quality lessor to step in and provide a solution to what is a costly and time-consuming process of acquiring aircraft is of great benefit to an airline. For an airline to not have to deal with elements such as PDPs [pre-delivery payments], and the acquisition of engines, IFE [in-flight entertainment] and a myriad other components underlies the value and solidifies the role of the leasing industry.”

Chang adds: “Today, aircraft leasing has dedicated management assigned by OEMs, who have re-aligned their structures to accommodate our market. And importantly, the leasing industry has increased awareness and dedicated participants amongst bankers, private equity and other financial interests, which further legitimise the importance and growth of the commercial aircraft leasing industry.”

Poon agrees that air travel has sustained “strong and stable growth in the past decades”. He adds that this “growth streak” will continue “in the years to come”.

He says: “In addition, we see a growing trend of aircraft leasing, and expect it to grow further, creating large room for aircraft lessors, especially for CALC, which excels at providing flexible leasing solutions.” He adds that CALC also sees “surging demand” for the leasing of mid-life aircraft.

Martin says BOC Aviation is not basing its growth expectations on any expansion in lessor market share, although should airline profitability and cash production diminish, this may see the leasing community financing share rise. “However, with underlying passenger demand growth running above the 5% long-term trend for the past seven years, we are confident in the growth of our industry and our company,” he adds.

Avolon’s world fleet forecast white paper expects that more than 40,000 new aircraft will be delivered over the next 20 years, with the world fleet doubling to 51,800 aircraft by 2036. Over the same period more than 16,000 aircraft will retire from airline service. “With the cycle for aircraft orders and deliveries expected to continue to increase, it is not unreasonable to assume that significant funding will be required to finance these deals,” says Slattery.

Avolon anticipates a $4.2 trillion funding requirement for aircraft financing, with $700 billion needed over the next five years and an average of $170 billion annually over the next decade. “In order to meet these needs, the roles of the various liquidity providers will continue to evolve, with operating lessors’ market share increasing from 40% to 50%, over time, supported by increased participation by capital markets and new investor classes,” he adds.

CDB Aviation’s Chang says that, as with all industries, aircraft leasing is evolving.

“Some things will change. Some will stay the same. Lessors have shown a remarkable ability to adapt to the changes and capitalise on the long-term aviation dynamics,” he says.

“Will leasing remain a core source of aircraft financing for airlines around the world? Absolutely,” he adds. “Will there be challenges ahead for lessors? Of course. Will the competitive landscape remain the same? Unlikely. Strong lessors with access to capital and experienced teams will deliver for their airline customers and their investors for many years to come.”

Vietnam could allow more foreign **investment in aviation**

The Vietnamese government has issued draft amendments to a 2016 decree that would permit a higher level of foreign investment in the country's airlines and other aviation businesses. If passed, they could help the country's rapidly expanding airlines get the capital they need for their fleet growth, reports **Michael Allen**.

Vietnam's aviation industry has come a long way since the 1990s, when local carriers such as Vietnam Airlines flew 1980-vintage Tupolev Tu-134As, aircraft not known for their reliability. There were several accidents involving these aircraft in the 1990s, killing almost every passenger on board.

It is a different story in Vietnam today. Many carriers have opted for more safe and modern aircraft such as the Airbus A320 and Boeing 787. Industry observers are bullish about the growth in the region, which has seen an increasing demand to fly over the past few years.

Vietnam's tourism industry is healthy: there were about 13 million visitors to Vietnam last year (beating previous projections by three million), and more than three million trips abroad by Vietnamese people, according to a report by law firm Tilleke & Gibbins.

For example, low-cost carrier Vietjet, set up in December 2011 and run by Southeast Asia's only female billionaire, is betting on the desire of Vietnam's growing middle class for and ability to afford more domestic and overseas travel.

Vietjet ordered 100 Boeing 737 Max aircraft in 2016 and added an additional 100 to the order at the 2018 Farnborough air show.

A smaller but significant recent entrant is Jetstar Pacific, which launched in 2008 and is owned by Vietnam Airlines (70%) and Australian flag carrier Qantas (30%). The low-cost carrier has a fleet of 18 A320s and is planning to expand that number to 30.

To sustain such rapid fleet growth, Vietnam's airlines must source huge amounts of capital. The Vietnamese government has proposed opening up the country's carriers – as well as other areas of the aviation industry – to additional foreign investment, though it has reduced the previously proposed figure of 49% to 34% because of concerns over foreign investors gaining too much control.

"The Vietnamese government is trying to promote the aviation sector… and wants to try to make these airlines more competitive, while retaining ownership in the hands of Vietnamese nationals," says Maxfield Brown, manager of Dezan Shira & Associates' business intelligence unit in Vietnam.

> *"The Vietnamese government is trying to promote the aviation sector and wants to try to make these airlines more competitive, while retaining ownership in the hands of Vietnamese nationals."*
>
> **Maxfield Brown**, manager of business intelligence unit in Vietnam, Dezan Shira & Associates

"One of the biggest constraints in the short term has been the capital constraints of the aviation industry, so the move has been to increase capital inflows into the aviation industry and allow Vietnamese companies to compete more effectively in Southeast Asia."

The government has released draft amendments to Decree No.92/2016/ND-CP, which was first issued in 2016, and, among other things, introduced four measures to liberalise the aviation industry.

Decree 92 was issued on 1 July 2016 by the government of the Socialist Republic of Vietnam, according to a copy of the decree, and relates to "conditional business sectors or activities in the civil aviation industry". It spans eight chapters and 31 articles and is too detailed to explain in full within the scope of this *Airfinance Journal* article.

Tilleke & Gibbins summarises the key points as follows. First, it reduces the licensing process for passenger carriage services from about nine months to just less than 60 days. Second, the approval authority for capital transfers for foreign investment in the sector was transferred from the prime minister to the minister of transport. This was to help facilitate quicker changes (only 10 days for approval) in investors and investment structures. Third, more flexibility was given to the documentation that can be provided to prove financial capacity (two years' financial statements or a reference letter from a credit institution).

Finally, it loosens state capital requirements in relation to airport business. Asked for clarification on what "state capital requirements" means, John Frangos, a consultant at the firm's Bangkok office and co-author of the report, says it refers to "the amount of capital that must be contributed by the Vietnamese state (via a state-owned enterprise or other government body) to a particular business or investment project".

Brown adds that while the government, in its new draft amendments to Decree 92, initially considered increasing the foreign ownership limit to as high as 49%, there was some "pushback" from industry groups and the government opted for 34% instead.

"As you start getting closer and closer to the 50% limit [where a shareholder gets control], the foreign entities which are participating in the Vietnamese company have a greater and greater control over what is going on," says Brown, who adds: "There were concerns that if they exceeded the 35% limit, the foreign owner would be able to veto certain regulations during shareholder meetings."

Local airline voices

The Vietnamese government will release a draft version of the law for comment and seek opinions from various stakeholders, says Frangos. After that, it will finalise the draft and put it into law after sign-off by the prime minister, Nguyễn Xuân Phúc. Because it is a decree, not a law, it does not need to go through the country's legislature.

"A 'decree' is the technical term, but it serves the purpose of a law," says Frangos.

Vietjet's managing director, Luu Duc Khanh, has already weighed in publicly on the decree, praising the proposed revisions in the Vietnamese English-language press.

He says it will "not only boost the healthy performance of aviation transport firms through the application of modern management formats by foreign investors, but also attests to the Vietnamese government's open-door policy through allowing more foreign capital injection into the aviation sector, which is capital-intensive and requires governance expertise", according to online news platform *VietNamNet Bridge*.

Several Association of Southeast Asian Nations economies have raised their foreign ownership limits, with Thailand and Indonesia to 49% and the Philippines to 40%, he says.

Khanh adds: "If Vietnam insists on keeping the rate below the level applied in regional countries, this could result in an imbalance between market entry conditions and investment environment openness, which will make it more difficult to attract foreign capital flows into the aviation transport sector."

However, Khanh declines to comment further on the decree for *Airfinance Journal*.

Leigh Borrello, a Sydney-based asset finance and leasing partner at Holman Fenwick Willan (HFW) who has acted for Vietjet, says the airline has a lot of sale-

and-leaseback transactions and "obviously the more equity you have sitting behind you, the easier it is to get more financing to do the [fleet] expansion".

Vietnam Airlines and Jetstar Pacific, when consulted by the government, argued that if the government increases the foreign ownership limit to 35%, foreign investors would have the right to veto important resolutions at the general shareholders' meetings under the Enterprise Law, making it more difficult to govern the activities of local airlines, according to *VietNamNet Bridge*.

"I think that's why the Vietnamese government decided to go with a 34% ceiling rather than go with 49%," says Brown.

Jetstar declines to comment. Vietnam Airlines acknowledges a request for comment from *Airfinance Journal*, but did not respond by press time.

Challenges for investors

There is already a track record of foreign investment in Vietnamese carriers. Japan's All Nippon Airways (ANA) took an 8.8% stake in Vietnam Airlines worth about $108 million in 2016.

"If you look at ANA's mid-term plan, they are trying to get routes in the Southeast Asia and North Asia markets. Obviously, domestic growth is quite limited in Japan. The bullet trains have been expanding and new LCCs have been entering this market," a Japanese banker told *Airfinance Journal* anonymously at the time.

"ANA wants to get as much as possible from Vietnam Airlines, and Vietnam Airlines wants to get as much as possible from ANA, but it's very difficult to become like Delta and Virgin Atlantic, or Delta and Aeromexico. The Vietnamese government does not want to see that Vietnam Airlines is controlled by ANA. If I were ANA, I would have considered investing in Vietjet, but I don't think there was an opportunity."

The person – who was unavailable for comment when contacted again in October 2018 – added: "We can see what happens in two or three years, but as Vietnam Airlines grows, probably they want to be quite independent from ANA. Once they have learned everything from ANA, they can go on their own and become a bigger competitor to ANA." ANA did not respond to a request for comment, including questions about whether it has any plans to increase its stake if the decree amendments are introduced.

Brown of Dezan Shira & Associates says that other foreign investors looking to invest in Vietnamese airlines once the decree is passed should not expect to gain a high level of control over the company. In Thailand and Indonesia, he says, the foreign investment limit for airlines goes all the way up to 49%, whereas the Vietnamese government is now only considering raising it to 34%.

"The first thing would be to understand that, at this stage, it's more of an investment rather than a controlling stake because of where the Vietnamese government has decided to draw the line on foreign ownership limits," he says.

Tilleke & Gibbins' Frangos agrees. "It's not necessarily a jurisdiction which allows a lot of foreign investors to see quick profits," he says. "It's a long-term calculation – when you factor in levels of development and increasing population and things of that nature – compared to Thailand, which has achieved a certain level [of development] already."

Investors with appetite for Vietnamese airlines still have time to consider their options and seek advice.

"I would think some time in the next six to eight months you might see some movement on this, if the Vietnamese government is very keen to push this forward," says Brown. "I think at this stage they are still in the consultation phase and I haven't seen any immediate action being taken on this front."

HFW's Borrello says: "The country needs more foreign investment. It's one of those areas they can certainly play with; it's just whether or not, politically, they're prepared to do that."

Brown is optimistic that the government will support the decree amendments.

"I think the Vietnamese government is going to make every effort to make [the country] investor friendly as much as they can," he says. "Over the past 10 years, the government has been very receptive to foreign investment and they are still at a stage where they see credible benefits."

Boeing 777-300ER – not all doom and gloom

Appraisers say pressure is mounting on values of the popular widebody, but there are some positives.

The 777-300ER is the most successful model in Boeing's 777 family. The formal go-ahead for the 777 was announced in October 1990. Original 777-200 models were available with a choice of powerplant from General Electric (GE), Pratt & Whitney or Rolls-Royce. The stretched 777-300 first flew in 1997 and was sold primarily to Asian airlines, the large majority of which selected Rolls-Royce's Trent engines.

No GE-powered standard 777-300 aircraft were delivered, but the manufacturer was awarded sole supplier status on the extended-range 777-300ER version, which entered service in 2003.

Turning to freight

The 777 family continues to sell and, if anything, there has been a small revival in the aircraft's fortunes. Boeing's official order list shows only 34 firm orders, of which all but two are for the freighter version. But there have been announcements/reports of commitments for about 30 more aircraft, again almost entirely for the freighter version. Similarities with the latter years of 747 production are clear to see.

Future developments

Boeing launched the 777-300ER's successors, the 777X family, in late 2013. The manufacturer offers two variants of the 777X. The 777-9 provides seating for more than 400 passengers in a two-class configuration and has a range of 7,600 nautical miles (14,075km). Boeing is targeting the end of 2019 entry into service for the -9. The second member of the family, the 777-8, will seat more than 350 passengers and offer a range capability of 8,700 nautical miles.

Istat appraisers' views

Collateral Verifications (CV)

Gueric Dechavanne, vice-president, commercial aviation services

In the past 12 months, CV has seen a modest decline in 777-300ER values of about 5%, with monthly lease rates dropping by between 5% and 10% depending on vintage. We are also starting to see increasing softness in the market because there are almost 40 aircraft potentially coming off lease in the next 24 months. It is our understanding, however, that some lessors who recently had leases expiring have been able to extend them with existing operators at reasonable rates.

The lack of a strong secondary market for the 777-300ER raises some concerns as to the potential impact on residual values and lease rates. As experienced with the 777-200ER, the reconfiguration and maintenance costs for this aircraft type can be substantial, which makes it challenging for new secondary operators to incorporate these aircraft into their fleets economically. Our understanding is that cabin reconfiguration costs for this aircraft can be in the $15 million to $20 million range, with engine overhauls costing about $13 million per engine, not including the replacement of any life-limited parts. For potential second-tier operators, this is a significant investment in addition to the acquisition cost of the aircraft. We believe this has slowed the development of the secondary market for the 777-300ER.

Despite Boeing's efforts, demand for new 777-300ERs has been dwindling, which raises further concerns about residual values. At the current production rate of 3.5 aircraft a month, the orderbook will keep the aircraft in production until late 2019, which is just shy of the manufacturer's targeted entry into service for the 777-9. This will most likely add some additional near-term pressure on values; however, aggressive pricing may not directly impact current values of aircraft with leases attached.

Another concern is the Airbus A350-1000, which entered service with Qatar Airways in February. The improved economics of the A350, which Airbus claims is 25% more efficient than the 777-300ER, may further slow orders for the Boeing aircraft. Additionally, once the 777-8 and -9 start to be delivered in large numbers in the 2020s, 777-300ER values will be impacted, although it is too early to tell when this will take place and how significant the impact will be. For the time being, we believe that the 777-300ER will continue to be a desirable and viable option for many current and near-term operators. Longer term, a freighter-conversion programme may be possible, combining the popular Boeing widebody volume with long range and complementing the factory-built 777F.

IBA

Jonathan McDonald, head analyst, commercial and ageing aircraft

It is nearly 15 years since the 777-300ER first entered service. In that time, the 300-plus-seat 777-300ER has established itself as the benchmark long-haul high-capacity twin jet, fitting just below the 500-plus-seat A380 and replacing many 747-400s, A340-300s and, indeed, A340-600s – a model that was once the Boeing aircraft's key rival.

To date, 791 777-300ERs have been delivered and the model is in service with 42 airline operators, including Emirates Airline with 139 aircraft (easily the largest operator), Air France with 43 aircraft and Cathay Pacific Airways with 52 aircraft. The type is well represented across all the key world regions, with particularly good representation in the Middle East with 251 aircraft (32% of the world fleet) and Asia-Pacific with 316 aircraft (40%).

Historically, storage and availability have been virtually non-existent, though the corresponding figures have crept up recently. As of the beginning of October, IBA understands there are seven stored aircraft and an additional one advertised as available. Since 2004, values and lease rates of the type have been predominantly buoyant. IBA has had base and market values at equilibrium or, in some cases, market value above base. This is partly because the 777-300ER has occupied a near monopolistic position in its market segment with little else in production to rival it.

Despite these positive attributes, there can be no escaping that the 777-300ER faces stiff competition from the much newer A350-1000, which has entered service with Cathay Pacific and Qatar – both major 777-300ER operators. Furthermore, Boeing's own successor, the 777-9, is just around the corner.

AIRCRAFT CHARACTERISTICS

Seating/range

Max seating	550
Typical seating	365 in three-class configuration
Max range	7,930nm (14,685km)

Technical characteristics

MTOW	351.5 tonnes (775,000lbs)
OEW	168 tonnes (362,000lbs)
MZFW	238 tonnes (529,000lbs)
Fuel capacity	181,200 litres (47,890 US gallons)
Engines	GE90-115B
Thrust	115,300lbf (512kN)

Fuels and times

Block fuel 1,000 nautical miles (nm)	15,610kg
Block fuel 2,000nm	29,840kg
Block fuel 4,000nm	60,900kg
Block time 1,000nm	152 minutes
Block time 2,000nm	277 minutes
Block time 4,000nm	525 minutes

Fleet data

Entry into service	2003
In service	783
Operators (current)	48
In storage	Fewer than 10
On order	40
Built peak year (2016)	88
Estimated production 2018	42
Average age	5.9 years

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

Indicative maintenance reserves

C-check reserve	$125-$130 per flight hour
Higher checks reserve	$90-$95/flight hour
Engine overhaul	$290-$295/engine flight hour
Engine LLP	$450-$455/engine cycle
Landing gear refurbishment	$165-$170/cycle
Wheels, brakes and tyres	$100-$165/cycle
APU	$105-$110/APU hour
Component overhaul	$410-$415/flight hour

Source: *Airfinance Journal research/analysis*

While a few secondary monthly lease rates have slipped into the $500,000 to $600,000 vicitinity for early 777-300ERs, there is insufficient trading data to show any real trends of value and lease rate downward movement. There is a general industry view that values and lease rates of 777-300ERs will decline more markedly around 2022, once the A350-1000 and 777-9 are more established.

Looking to the mid-term future, IBA would caution that, with nearly one-fifth of the fleet at Emirates, there will be some large-scale lease returns to contend with and it is unclear where all these aircraft will go. The 777-300ER tends to be operated by high-end carriers which have bespoke cabins and sophisticated buyer-furnished equipment. These features can contribute to expensive reconfiguration costs, potentially in excess of $20 million.

MBA

Alex Cosaro, senior analyst, asset valuations

With more than 800 orders since its launch in February 2000, the 777-300ER is the best-selling widebody aircraft to date. For most of its life, the 777-300ER never had a credible competitor, especially as rising fuel costs made its closest rival, the four-engined A340-600, uneconomical to operate. The aircraft's size and range capability, paired with the lower operating costs of a twin-engine aircraft, has enabled the 777-300ER to be an effective long-haul 747-400 replacement, while still remaining versatile enough to fly dense regional routes in South-East Asia.

Even though the aircraft has been successful for Boeing, MBA expects its market to soften in the coming years as a large number of aircraft come off lease as its replacement, the 777X, enters service and the newly in-service A350-1000 becomes more established. Assuming an average lease length of 10 to 12 years, MBA projects about 80 aircraft will come off lease over the next five years. With large widebody aircraft being difficult to place in the secondary market, this large influx will likely have an impact on market values and lease rates.

Additional concern stems from Emirates operating about 18% of the total fleet, and having an order for 150 777X aircraft due to be delivered in two years' time. Considering the operator's current 777-300ER fleet has an average age of 6.5 years, many of these aircraft, nearly half of which are on lease, are likely to hit the secondary market en masse in the mid-2020s.

However, it is not all doom and gloom for the type. For one, the 777-300ER has become the workhorse for legacy and flag carriers globally and, despite the introduction of the 777X, owned aircraft are likely to stay with the same operator for the duration of their economic life. Several operators, such as Air France, have recently exercised lease extensions on their 777-300ER fleet, which will stave off secondary market saturation and keep values stable in the near term. The 777-300ER also benefits from sole-sourced engines, which helps market liquidity. There is also potential for a cargo conversion, which may provide some value buoyancy for the type. Finally, CIS carriers have shown willingness to acquire used 777-300ERs, with Rossiya Airlines and Azur Air both taking several of the first used 777-300ERs to enter the market.

Though the aircraft shows promise, mid- to long-term values remain a concern. The first aircraft to enter the secondary market moved quickly, but the level of pricing that was required to attract operators resulted in market values falling below base for the first time in a decade. Much of the value resilience will depend on the appetite of current operators for holding onto aircraft, particularly those that are leased.

Values

Current market values ($m)

Build year	2010	2012	2014	2016	2018 (new)
CV view	84.5	96.0	110.0	129.4	159.4
IBA view	92.0	106.5	123.0	141.0	142.8
MBA view	86.7	99.5	114.0	130.8	158.1

Assuming standard Istat criteria.

Indicative lease rates ($000s/month)

Build year	2010	2012	2014	2016	2018 (new)
CV view	750	850	950	1,050	1,200
IBA view	725-880	810-1,000	123	1,000-1,200	1,150-1,350
MBA view	765-822	840-902	925-1,100	1,013-1,087	1,170-1,290

Bombardier takes on ATR

With responsibility for CSeries marketing moving to Airbus, Bombardier can focus more on the competition between its Q400 turboprop and the ATR72. **Geoff Hearn** looks at whether the Canadian manufacturer can regain some ground.

Bombardier and ATR have a long history of competition and the Q400 and ATR72 have gone head to head in a host of airline campaigns, but in recent years the Canadian manufacturer appears to have been more focused on its commercial jet products than on the success of its 70-seat turboprop.

ATR has had no such distractions as purely a turboprop manufacturer, and this may have been a factor in the European manufacturer's relative success. As the CSeries morphs into the Airbus A220 and Airbus takes on responsibility for sales of the single-aisle type, Bombardier's marketing department is left to focus on its CRJ regional jets and the Q400.

Bombardier Q400


ATR72-600

Bombardier Q400

The Q400 (original designation Dash8-400) is the only member of Bombardier's Dash8 family still in production. The original Dash8-100 (Series 100) entered service in 1984 and has a maximum capacity of 39 seats. The Series 200 has the same capacity but offers more powerful engines, the Series 300 is a stretched 50-seat version and the Series 400 is a further stretch originally seating a maximum of 78 passengers, which was subsequently pushed to 80, with a 90-seat configuration now in service.

All Series 400 delivered after 1997 are equipped with a cabin noise suppression system, and Bombardier adopted the designation Q (Dash8-Q400) to emphasise this development. The Dash8 prefix has since been dropped from the company's marketing literature – the aircraft is now generally referred to simply as the Q400.

The current version, introduced in December 2009, is designated by the manufacturer as the Q400NextGen and has an updated cabin and improved landing gear. The manufacturer says it also offers reduced fuel and maintenance costs compared with its immediate predecessor.

A defining characteristic of the Q400 is a cruise speed of more than 350 knots, which distinguishes it from slower conventional turboprops such as the ATR72. This speed and associated productivity advantage comes at the cost of extra fuel burn. The trade off between these two cost elements is at the heart of the debate on the merits of the two aircraft.

ATR72-600

The ATR72 is a twin-engined turboprop developed from the ATR42 to provide capacity for 70-plus passengers, by stretching the fuselage, increasing the wingspan and upgrading to more powerful engines. The original ATR72-100 variant entered service in October 1989, but was soon superseded by the -200 model. The aircraft was developed with a series of upgrades to maximum take-off weight and engine power, culminating in the ATR72-212.

The ATR72-500 (certificated as the ATR72-212A) is a major development of the aircraft, which incorporates six-bladed propellers in place of the original four-bladed configuration.

The ATR72-600 model replaces the -500 and is the current production standard. It offers further performance improvements and includes a redesigned cabin.

The latest development of the ATR72-600 is a high-density seating configuration, which can accommodate 78 passengers.

Markets

Manufacturers rarely like the term, but it is difficult to see commercial turboprops as anything other than a niche when market sizes are compared. In 2007, just over 100 turboprops were delivered by the combined efforts of Bombardier and ATR, which compares with more than 1,000 single-aisle aircraft delivered by Boeing and Airbus.

Nonetheless, the sector has proved remarkably resilient and in recent years ATR, in particular, has notched up some notable successes. The European manufacturer has dominated turboprop sales over the past five years, accounting for about 80% of the aircraft sold in the market segment. In terms of future deliveries, the ATR72-600 appears to be in a stronger position, with a backlog of 233 units compared with Bombardier's 67 unfilled orders.

There are some signs that Bombardier may be making something of a comeback, with 2018 sales more evenly split between the two manufacturers and, if anything, the Canadian manufacturer having more success in the year to date. Bombardier also registered a major milestone with the delivery of the first 90-seat Q400, which was received by Indian operator Spicejet, the launch customer of the high capacity variant, in September.

The acceptance by the market of the 90-seat variant is significant because it dispels the view of some in the industry that 90

Leading characteristics

Model	Entry into service	MTOW (tonnes)	Max pax	Typical pax	Range (nautical miles)	In service	On order	Operators
Bombardier Q400	1999	30.5	90	74	1,010	524	67	61
ATR72-600	2011*	23.0	78	68	825	409**	233	74

**1989 for original ATR72; **806 for all ATR72 models.*
Source: Airfinance Journal's Fleet Tracker 8 October 2018

seats was a nominal maximum that would not be genuinely viable. This appears not to be the case, at least not in the Asian market.

Bombardier points out that the increased passenger capacity equates to a 15% reduction of seat cost compared with the previous standard Q400. The availability of a 90-seat version of the Q400 does give some weight to the Canadian manufacturer's claims in terms of the additional capacity offered by the Q400 when compared with the ATR72-600. *Airfinance Journal* has previously considered that the Q400 has a six-seat advantage over the ATR72 in an equivalent configuration. The six-seat difference is the figure claimed by ATR and market feedback has supported this view.

However, the maximum capacity of the ATR72-600 is 78 seats – so for an airline that is looking to operate either aircraft in its maximum capacity (with a 28-inch seat pitch), the Q400 would have a 12-seat advantage. How often this will be the case remains to be seen but the Spicejet order suggests there is a market for such high-density models.

However, there is concern in the industry that the market may be over-supplied. About 40 ATR72-600s are reported to be inactive or between customers and the figure rises to more than 120 if all models of the ATR72 are considered. The Q400 fares better, but there are nonetheless more than 30 aircraft that are reported to be inactive, albeit this figure includes older aircraft which is not the case for the ATR72-600.

Indicative relative direct operating costs 200nm sector

	ATR72-600	Q400	Typical 70-seat RJ
Relative trip cost	Base	+19%	+34%
Relative seat cost	Base	+9%	+30%

Indicative relative direct operating costs 500nm sector

	ATR72-600	Q400	Typical 70-seat RJ
Relative trip cost	Base	+12%	+17%
Relative seat cost	Base	+3%	+13%

Assumptions: figures are based on Airfinance Journal's interpretation of manufacturer claims and published data. Fuel consumption, speed, maintenance costs and typical seating layouts are as per Air Investor 2018.

Operating cost

When comparing aircraft with significantly different speeds, generic comparisons of relative operating costs are highly influenced by assumptions relating to aircraft utilisation. Basing the comparison on a fixed number of hours tends to unduly favour the higher speed aircraft, while using a fixed number of flights gives no credit for the potential increased productivity of the faster aircraft. This dilemma is particularly acute when comparing jets with turboprops but the difference in the speeds of the Q400 and ATR72-600 is significant enough to make utilisation assumptions critical.

Airfinance Journal's cost model uses a technique adopted by the Association of European Airlines, which has the effect of crediting the faster aircraft with greater productivity gains as the sector length increases. *Airfinance Journal* has looked at a relatively long 500 nautical-mile (nm) sector as well as at a more typical regional route of 200nm.

On the 200nm sector, *Airfinance Journal*'s analysis indicates the Q400's direct operating cost (DOC) per trip is 19% higher than that of the ATR72-600. If the Q400 is assumed to have a six-seat capacity advantage, the Bombardier aircraft's DOC per seat on the relatively short sector is 9% higher than that of its rival. However, in the case of the high-density versions, the 12-seat advantage of the Q400 makes it significantly more competitive.

On the 500nm sector, the Q400 has a DOC per trip about 12% higher than the ATR72-600, with a seat-mile cost that is 3% higher if a six-seat advantage is assumed. On this longer sector, the high-density Q400 has a significant advantage in terms of total cost per seat over the equivalent ATR version – offering a 3% saving.

Airfinance Journal's findings for the shorter sector are broadly in line with the figures that ATR present to the market and the European manufacturer says there are very few ATR operations on 500nm sectors. Bombardier's analysis, however, shows a very different perspective. Bombardier's case is based on its interpretation of relative operating costs, but its main argument is that the Q400 is a much more capable aircraft in terms of speed, range and capacity and, as such, it is suitable for markets in which the ATR72 cannot compete. Bombardier says the aircraft's operational characteristics allow it to integrate much better with single-aisle aircraft operations/schedules.

In any case, Bombardier has a very different view of the relative operating costs, suggesting that on a 300nm sector the Q400 has about the same trip cost as an ATR72-600 but can carry up to 14 more passengers. The company says it is unrealistic to compare the aircraft operating at their respective maximum cruise speeds, because, in reality, airlines would operate the Q400 at lower speeds on the type of sectors that could be served by the ATR.

The advantage of turboprops over regional jets on shorter sectors is highlighted by *Airfinance Journal*'s analysis, which indicates that a typical 70-seat regional jet would have 34% higher operating cost on a 200nm sector than the ATR72-600. On a 500nm sector, the regional jet is more competitive and its costs approach those of the Q400. This analysis tends to confirm an industry view that the Bombardier turboprop is at its most competitive on sectors between 300nm and 400nm.

Market view on operating costs

Sources suggest that the relative costs obtained from *Airfinance Journal*'s analysis are broadly in line with market expectations, but that looking at costs alone can be misleading.

Chris Beer, managing director of regional aircraft specialists Skyworld Aviation, says the mix of an airline's routes is key. "Shorter sectors favour a pure turboprop such as the ATR72, whereas for longer sectors regional jets may be the best solution. For airlines that have a mix of routes, the Q400 becomes an attractive proposition," he says.

However, Beer thinks neither manufacturer should be complacent because there is another emerging source of competition – namely, very inexpensive 50-seat regional jets that have low capital costs compared with the current market values and lease rates of 70-seat turboprops, and for which there is a plentiful supply of spare engines and parts.

Current market value for selection of build years ($m)

	2012	2014	2016	2018
ATR72-600	11.95	14.06	17.05	20.55
Q400	14.83	17.50	20.42	23.47

Source: Airfinance Journal's Fleet Tracker/AVITAS

Rating agency unsecured ratings

Airlines

	Fitch	Moody's	S&P
Aeroflot	BB-(stable)	-	-
Air Canada	BB-(pos)	Ba2(stable)	BB(pos)
Air New Zealand	-	Baa2(stable)	-
Alaska Air Group	BBB-(stable)	-	BB+(stable)
Allegiant Travel	-	Ba3(stable)	BB-(stable)
American Airlines Group	BB-(stable)	Ba3(stable)	BB-(stable)
Avianca	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-(stable)
Hawaiian Airlines	BB-(stable)	Ba3(stable)	BB-(stable)
Jetblue	BB(pos)	Ba1(stable)	BB(stable)
LATAM Airlines Group	B+(pos)	Ba3(stable)	BB-(stable)
Lufthansa Group	-	Baa3(stable)	BBB-(pos)
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-(neg)
Turkish Airlines	-	Ba3(neg)	B+(stable)
United Continental Holdings	BB(stable)	Ba2(stable)	BB(stable)
US Airways Group	-	-	-
Virgin Australia	-	B2(stable)	B+(stable)
Westjet	-	Baa3(neg)	BBB-(neg)
Wizz Air	BBB(stable)	Baa3(stable)	-

Source: Ratings Agencies - 11 October 2018

Lessors

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

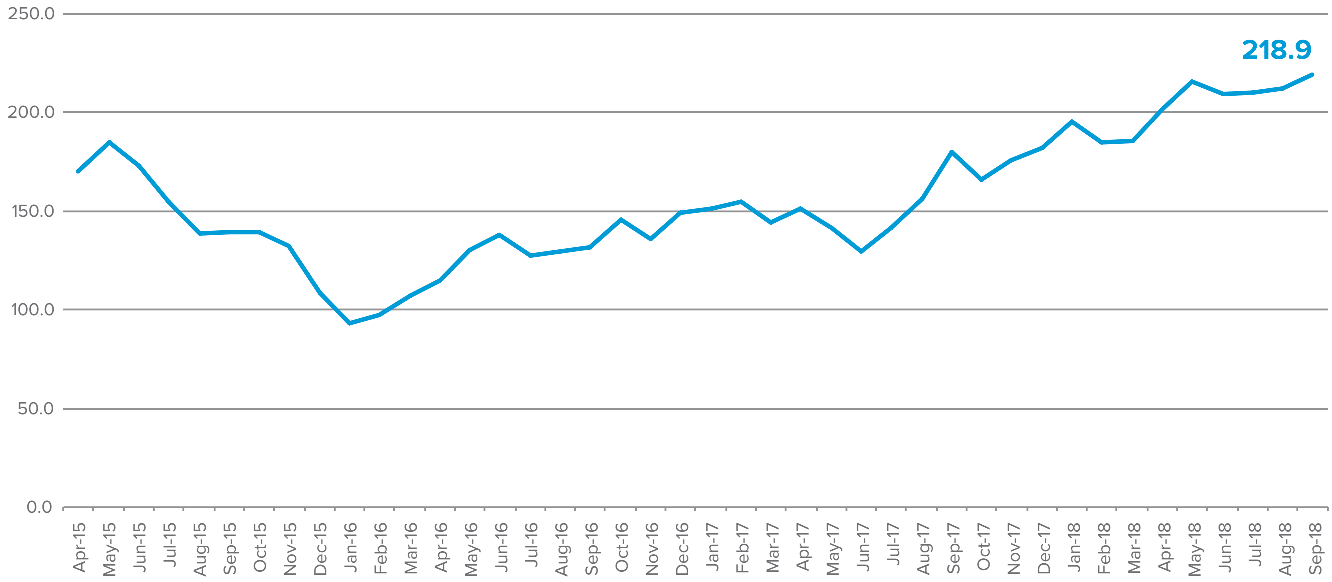
Source: Ratings Agencies - 11 October 2018

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(stable)	BBB(stable)
Rolls-Royce	A-(stable)	A3(neg)	BBB+(neg)
United Technologies	-	Baa1(stable)	A-(neg)

Source: Ratings Agencies - 11 October 2018

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



Source: US Energy Information Administration

Recent commercial aircraft orders (August 2018-October 2018)

Customer	Country	Quantity/Type
Kuwait Airways	Kuwait	8xA330-800
United Airlines	USA	9x787-9
Lufthansa	Germany	24xA320neo, 3xA321neo
Helvetic Airways	Switzerland	12xE190-E2
Air Peace	Nigeria	10x737 Max 8
Biman Bangladesh Airlines	Bangladesh	3xQ400
CIB Leasing	China	5xQ400, 5xCRJ900
BOC Aviation	Singapore	10xA330neo
CDB Aviation	China	22x737 Max 8

Based on *Airfinance Journal* research up to 15/10/2018

Aircraft list prices - new models

Model	$ millions
Airbus (2018)	
A220-100	81
A220-300	91.5
A319neo	99.5
A320neo	108.4
A321neo	127
A330-800neo	254.8
A330-900neo	296.4
A350-900	317.4
A350-1000	359.3
Boeing (2018)	
737 Max 7	96
737 Max 8	117.1
737 Max 9	124.1
737 Max 10	129.9
777-8X	394.9
777-9X	425.8
787-10	325.8
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)		
A220-100	79.5	32.5
A220-300	89.5	37.1
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
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			
A220-100	230	280	255
A220-300	280	310	295
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	1,050
A380	1,450	1,900	1,675
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	1,175
747-8 (freighter)	1,325	1,550	1,437.5
777-200F	1,150	1,350	1,250
777-300ER	1,050	1,350	1,200
787-8	850	975	912.5
787-9	950	1,100	1,025
Bombardier			
CRJ700	170	200	185
CRJ900	180	233	206.5
CRJ1000	190	255	222.5
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 (30 September)	311	55	256	1,109
Boeing (30 September)	803	172	631	912
Bombardier	68	42	26	70
Embraer	64	50	14	86
ATR	7	0	7	113

Based on *Airfinance Journal* research and manufacturer announcements until 15/10/2018

Speed, the final frontier and implications for the industry

In the first part of two articles, Adam Pilarski, senior vice-president at Avitas, explains why airlines' quest for speed will come back as a major technological drive in the years to come.

Humans have dreamt forever of being like birds and soaring in the air. Finally, more than 100 years ago, on 17 December 1903, the Wright brothers succeeded with a flight covering just 120 feet, about the length of a Boeing 737. Since then, big progress has been achieved: last year, for the first time in recorded history, the aviation industry carried more than four billion paying passengers (out of a population of 7.5 billion) over vast distances. This does not mean that half of all people fly annually (some of us fly many times) but the progress in a little over a century is still tremendous.

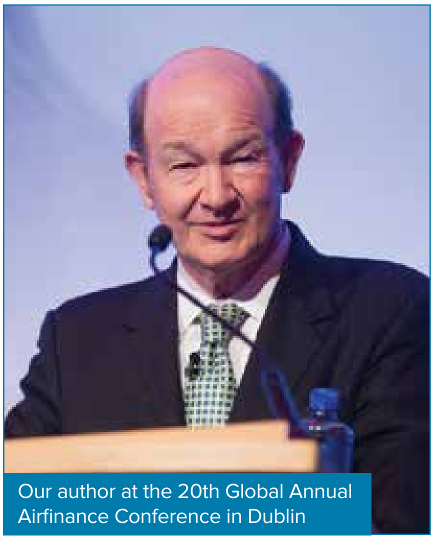
The Wright brothers' original flight in 1903 was not of a paying passenger. For that, we had to wait another decade when, on 1 January 1914, Tony Jannus flew the first paying passenger between St Petersburg and Tampa in Florida.

Progress manifested itself not just by the number of passengers. Tremendous advances were made in safety and flight comfort. Those readers who ever took a demonstration flight on a historic magnificent aircraft such as the Douglas DC3, with big seats and fancy food, can surely attest that such first-class flight falls short of even the cheapest low-cost carrier (LCC) flight of today.

The turbulence is difficult to stomach for people used to today's standard of comfort. Indeed, the cabin crew at the time were all registered nurses so they could help the air sick and to provide medical support to those injured in the frequent crashes. Safety and comfort (turbulence, not seat pitch) have advanced to very high levels deemed socially appropriate by our standards.

Speed was one of the parameters that many assumed would be pursued relentlessly after achieving safety. By the time of commercial passenger jets, about half a century after the first flight, the speed of flight increased about 10 fold compared with the early flights.

The next half a century, though, did not show any improvement in speed. Indeed, because of operational considerations, aircraft fly slower today than they did half a century ago. In the intervening years, we have shelved the desire to fly at ever-increasing speeds and moved into a period I would call "democratisation of flight". All technological improvements strive to bring aviation to the masses, not to please them but to make money.



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

> *Last year, for the first time in recorded history, the aviation industry carried more than four billion paying passengers.*

Starting with the introduction of widebody aircraft, all developments went to getting more revenue passenger kilometres from the same aircraft. New engines, new materials, weight reductions all point to the goals of airlines carrying more people a further distance at a price acceptable to existing income levels of the population. This explains the four billion passengers last year who could afford to fly.

We, the aviation aficionados, are unhappy with the direction technology has evolved because speed is sexy, efficiency less so. More people are flying as wealth has grown and spread across the world. Technology continues to advance to keep reductions in operating costs drifting lower. All this leads the industry to look for ways to expand traffic in order to increase profits, not only by flying more passengers but also by getting more per flyer.

Advances in first-class (now often called business-class) services are astounding. Those willing can create their own environment on an aircraft. Lie-flat beds are becoming standard for those up front.

Airlines have come up with showers, private suites and other luxuries that allow them to enhance their revenue. So why not go after the most basic essence of flight, namely the time it takes to arrive at a destination (speed)? By definition, this applies to those willing to pay more since they value their time the most. This explains the increase of talk about new supersonic passenger aircraft.

Some airlines (LCCs) still see it as their goal to expand traffic by reducing costs. Others are attempting to curtail demand and concentrate on increasing ticket prices (a strategy favoured by legacy carriers).

Better service or bigger seats sometimes can accomplish higher revenue per passenger. For many decades, though, airlines did not venture into the realm of speed – charge passengers more for reducing flying time.

I believe that the long forgotten quest for speed will come back as a major technological drive in the years to come. The aviation industry will move towards providing value to passengers by reducing flying time and charging the ever-wealthier population for it.

This inevitable development will open many opportunities. A fascinating future awaits us with many questions still not answered, such as at what speed will we fly and what is the future of first class?

AIRFINANCE JOURNAL

An *Airfinance Journal* special supplement

Leasing Top 50 2018

Lessors continue to **woo new investors**

The sector remains attractive, with data from the Leasing Top 50 showing that average return on equity in the leasing industry has nearly doubled over the past five years.

There were two major leasing industry announcements on the day *Airfinance Journal*'s Leasing Top 50 went to press. The first was US private equity house Carlyle Group agreeing to acquire 100% of Apollo Aviation Group from its owners, Robert Korn and Bill Hoffman. After the deal closes at the turn of the year, Apollo will become a new business line, operating as Carlyle Aviation Partners, within Carlyle's global credit segment.

The acquisition will allow Carlyle's global credit platform to offer long-duration exposure to commercial aviation markets through a variety of credit, equity and structured finance instruments.

Apollo was established in 2002 but it became solely owned by H&K entities controlled by Hoffman and Korn in December 2017. In late September, a few days before the Carlyle buyout was announced, the lessor acquired aircraft assets and management contracts from Dublin-based Aergen. The Aergen portfolio, held by various special purpose vehicles, included 30 in-production narrowbody aircraft.

The second major news story that became known on press day was Singapore's sovereign wealth fund GIC buying a minority stake in regional aircraft lessor Nordic Aviation Capital (NAC). The transaction will comprise a partial sale by the Swedish private equity EQI VI and new capital to strengthen further NAC's balance sheet.

EQT VI, a fund controlled by private equity group EQT, agreed to acquire a majority stake in NAC in October 2015 in a deal that valued the leasing company at $3.3 billion. The Swedish firm will remain the largest shareholder in NAC, while founder Martin Møller will also remain a significant shareholder.

Since 2015, NAC has more than doubled its operating lease income and added more than 30 new customers. Today, the company has a fleet of 468 regional aircraft and total assets of $8 billion. The GIC deal will add firepower to NAC's financial capabilities, allowing it to continue to expand.

As with many private equity models, EQT's involvement was expected to be short to medium term, meaning that it did not come as a surprise when *Airfinance Journal* reported in January that the Swedish company was reviewing strategic options for NAC.

What was surprising was that EQT did not sell its entire stake in NAC to GIC. When *Airfinance Journal* first reported interest in the EQT slice, a person familiar with EQT's plan hinted that the private equity house would exit NAC and indicated the interest in the regional aircraft lessor stemmed from "various global investors" and "a lot of non-Asian money". EQT's decision not to sell off its entire stake in NAC is good news for the lessor, because it retains a valuable shareholder in its structure.

Both the Apollo and the NAC announcements show that equity investors from different backgrounds are still attracted to aircraft leasing because of the strong risk-adjusted returns it offers.

The data within the Leasing Top 50 supports this. Over the past five years, return on equity for 23 lessors and their predecessors (whose financials have been continuously available) has doubled from 5.4% to 11%. Twelve lessors out of the 23 had a return on equity of more than 10% in their most recent financial years.

However, the data also shows there has been a drop in yields this year, showing that lessors are feeling the pinch of pricing pressures after a 12- to 18-month lag. In 2016/17, lessors had an average lease yield of 12.7%, but this fell to 12.3% in 2017/18. Fortunately, despite the Fed's interest rate increases, the survey sample achieved a further reduction in interest cost in 2017/18. The question is, how many 0.25% interest rate increases will we have to see before the flood of new equity begins to dissipate? Answers will vary, depending on which lessor you ask.

JACK DUTTON
Editor,
Airfinance Journal

Top 50 **managers by number of aircraft**

Rank	Lessor	Total	% change since last year	Turboprop	Regional jet	Narrowbody	Widebody
1	GECAS	**1,225**	↓ -3.8%	20	273	770	162
2	AerCap	**1,089**	↓ -2.9%	-	-	795	294
3	Avolon	**582**	↑ 1.7%	-	52	437	93
4	BBAM[1]	**450**	↑ 10.2%	-	2	327	121
5	Nordic Aviation Capital	**428**	↑ 5.8%	264	157	7	-
6	SMBC Aviation Capital	**408**	↓ -7.1%	-	3	362	43
7	DAE Capital	**327**	↓ -2.1%	51	-	217	59
8	Air Lease	**323**	↑ 13.9%	-	2	252	69
9	BOC Aviation	**297**	↓ -0.7%	-	-	246	51
10	Aviation Capital Group	**275**	↑ 0.4%	-	-	265	10
11	ICBC Leasing	**267**	↑ 6.4%	-	5	231	31
12	Aircastle	**240**	↑ 10.8%	-	6	199	35
13	ORIX Aviation	**232**	↑ 9.9%	-	-	207	25
14	Macquarie AirFinance	**195**	↓ -3.6%	-	3	181	11
15	Apollo Aviation Group	**192**	↑ 22.9%	-	-	162	30
16	CDB Leasing	**190**	↑ 5.8%	-	20	143	27
17	BOCOMM Leasing	**184**	↑ 37.5%	-	10	151	23
18	Castlelake	**182**	↑ 19.8%	14	14	126	28
19	Avmax	**172**	↑ 9.3%	80	79	11	2
20	Jackson Square Aviation	**151**	↑ 3.3%	-	-	133	18
21	Standard Chartered Bank	**135**	↑ 1.5%	-	-	123	12
22	Deucalion Aviation Funds	**123**	↑ 10.6%	-	-	94	29
23	Goshawk[2]	**115**	↑ 26.1%	-	1	108	6
24	China Aircraft Leasing	**112**	↑ 17.0%	-	-	106	6
25	Cargo Aircraft Management	**93**	↑ 5.4%	-	-	9	84
26	Tokyo Century Leasing	**92**	↑ 10.9%	-	6	67	19
27	CMB Financial Leasing	**79**	↑ 59.5%	-	4	57	18
28	Elix Aviation Capital	**77**	↓ -2.6%	77	-	-	-
28=	Falko	**77**	↑ 3.9%	17	56	4	-
30	CCB Leasing	**76**	↑ 5.3%	-	2	62	12
30=	Aircraft Leasing & Management	**76**	↑ 75.0%	-	15	51	10
32	FPG Amentum	**73**	↑ 39.7%	4	-	50	19
33	Transportation Partners	**71**	→ 0.0%	52	-	19	-
33=	VTB Leasing	**71**	↑ 54.9%	-	7	54	10
35	MC Aviation Partners	**69**	↑ 24.6%	-	-	65	4
36	VEB Leasing	**67**	↓ -22.4%	2	29	14	22
36=	Accipiter	**67**	↑ 20.9%	1	-	64	2
38	Fortress Transportation	**65**	↑ 38.5%	-	-	53	12
38=	GTLK Europe	**65**	↑ 66.2%	-	12	48	5
40	Sky Aviation Leasing[2]	**63**	↑ 9.5%	-	-	51	12
41	Sberbank Leasing	**62**	↑ 9.7%	-	20	36	6
41=	State Transport Leasing	**62**	↑ 16.1%	-	20	35	7
43	ALAFCO	**58**	↓ -12.1%	-	-	54	4
44	JP Lease Products & Services	**57**	↑ 59.6%	-	-	44	13
45	Minsheng Financial Leasing	**56**	↓ -5.4%	-	11	41	4
45=	GOAL	**56**	↓ -7.1%	13	10	30	3
47	Merx Aviation	**54**	↓ -9.3%	-	3	48	3
48	Altavair Airfinance	**53**	↑ 1.9%	-	-	21	32
48=	Aviation Finance & Leasing	**53**	↑ 77.4%	-	-	53	-
50	Skyworks Leasing	**52**	↓ -44.2%	4	-	26	22
	Total	**9,638**	↑ **6.7%**	**599**	**822**	**6,709**	**1,508**

Source: Lessors and *Airfinance Journal*'s Fleet Tracker as of 30 June 2018

[1] the table excludes the Airasia deal which started closing in August 2018

[2] the table excludes the Goshawk/Sky acquisition

Top 50 **managers by CMV**[3] **of fleet** ($m)

Rank	Lessor	Total	% change since last year		Turboprop	Regional jet	Narrowbody	Widebody
1	AerCap	**$36,831**	↑	4.7%	-	-	$18,490	$18,342
2	GECAS	**$26,713**	↓	-6.0%	$274	$1,762	$16,162	$8,514
3	BBAM[1]	**$22,350**	↑	11.8%	-	$33	$9,987	$12,330
4	Avolon	**$21,419**	↑	0.8%	-	$964	$13,408	$7,047
5	SMBC Aviation Capital	**$16,300**	↓	-6.7%	-	$52	$11,870	$4,378
6	Air Lease	**$15,994**	↑	13.9%	-	$40	$8,874	$7,080
7	BOC Aviation	**$14,219**	↑	2.5%	-	-	$9,163	$5,056
8	ICBC Leasing	**$12,019**	↑	2.0%	-	$126	$8,819	$3,074
9	DAE Capital	**$11,323**	↓	-2.9%	$791	-	$6,427	$4,105
10	Aviation Capital Group	**$8,812**	↑	3.9%	-	-	$8,107	$705
11	BOCOMM Leasing	**$8,281**	↑	30.6%	-	$262	$5,685	$2,334
12	CDB Leasing	**$7,296**	↑	4.2%	-	$425	$5,290	$1,580
13	ORIX Aviation	**$7,132**	↑	6.8%	-	-	$5,573	$1,559
14	Jackson Square Aviation	**$6,929**	↑	2.0%	-	-	$5,178	$1,751
15	Aircastle	**$6,533**	↓	-1.4%	-	$142	$4,432	$1,959
16	Nordic Aviation Capital	**$6,237**	↑	1.9%	$3,122	$2,881	$233	-
17	Amedeo	**$5,715**	↑	53.9%	-	-	$38	$5,677
18	Macquarie AirFinance	**$5,333**	↓	-9.2%	-	$48	$4,631	$654
19	Standard Chartered Bank	**$5,282**	↓	-5.6%	-	-	$4,578	$704
20	Goshawk[2]	**$4,914**	↑	28.4%	-	$22	$4,144	$749
21	China Aircraft Leasing	**$4,329**	↑	16.5%	-	-	$3,920	$409
22	CMB Financial Leasing	**$4,189**	↑	64.7%	-	$118	$2,235	$1,835
23	CCB Leasing	**$3,890**	↑	3.0%	-	$45	$2,533	$1,313
24	Tokyo Century Leasing	**$3,648**	↑	1.6%	-	$111	$2,282	$1,255
25	Deucalion Aviation Funds	**$3,463**	↑	23.0%	-	-	$1,731	$1,732
26	Apollo Aviation Group	**$3,399**	↑	20.5%	-	-	$2,547	$852
27	IAFC	**$3,251**	↑	26.7%	-	-	$1,088	$2,162
28	FPG Amentum	**$3,150**	↑	41.9%	$70	-	$1,605	$1,474
29	Novus Aviation	**$2,958**	↑	42.1%	-	-	$479	$2,479
30	Aircraft Leasing & Management	**$2,939**	↑	83.9%	-	$393	$1,638	$908
31	Castlelake	**$2,918**	↑	35.9%	$49	$103	$2,179	$588
32	Investec	**$2,875**	↓	-6.1%	$131	$113	$57	$2,574
33	Altavair Airfinance	**$2,825**	↑	3.3%	-	-	$543	$2,282
34	Doric	**$2,675**	↓	-4.5%	$57	-	$139	$2,479
35	MC Aviation Partners	**$2,572**	↑	34.8%	-	-	$2,271	$301
36	Aviation Finance & Leasing	**$2,415**	↑	77.5%	-	-	$2,415	-
37	VEB Leasing	**$2,398**	↓	-12.5%	$21	$574	$477	$1,325
38	ALAFCO	**$2,351**	↓	-18.4%	-	-	$1,832	$519
39	Accipiter	**$2,320**	↑	19.0%	$2	-	$2,173	$145
40	JP Lease Products & Services	**$2,193**	↑	76.7%	-	-	$985	$1,208
41	GTLK Europe	**$2,060**	↑	59.2%	-	$195	$1,323	$542
42	Sky Aviation Leasing[2]	**$2,056**	↑	12.8%	-	-	$1,309	$747
43	Yamasa	**$1,948**	↑	94.2%	-	-	$1,015	$932
44	VTB Leasing	**$1,918**	↑	85.3%	-	$11	$1,716	$191
45	Minsheng Financial Leasing	**$1,883**	↑	12.6%	-	-	$1,318	$565
46	Stellwagen Group	**$1,705**	↑	33.7%	-	-	$286	$1,419
47	GOAL	**$1,604**	↑	9.8%	$163	$181	$1,046	$215
48	SPDB Financial Leasing	**$1,584**	↑	85.7%	-	$23	$1,327	$233
49	Merx Aviation	**$1,579**	↓	-1.8%	-	$76	$1,264	$240
50	Transportation Partners	**$1,445**	↓	-7.3%	$739	-	$706	-
	Total	**$328,168**	↑	**10.7%**	**$5,419**	**$8,699**	**$195,531**	**$118,519**

Source: Lessors and *Airfinance Journal*'s Fleet Tracker as of 30 June 2018

[1] *the table excludes the Airasia deal which started closing in August 2018*

[2] *the table excludes the Goshawk/Sky acquisition*

[3] *per AVITAS Blue Book Q1 2018*

Top 50 beneficial owners by number of aircraft

Rank	Lessor	Total	Turboprop	Regional jet	Narrowbody	Widebody
1	GECAS	**1,176**	20	240	757	159
2	AerCap	**1,058**	-	-	765	293
3	Avolon	**532**	-	49	402	81
4	Nordic Aviation Capital	**422**	269	153	-	-
5	DAE Capital	**317**	50	-	210	57
6	BOC Aviation	**283**	-	-	240	43
7	Air Lease	**274**	-	1	210	63
8	ICBC Leasing	**267**	-	5	231	31
9	NBB Leasing	**265**	-	2	178	85
10	Aviation Capital Group	**252**	-	-	243	9
11	SMBC Aviation Capital	**249**	-	-	234	15
12	Aircastle	**228**	-	5	191	32
13	ORIX Aviation[1]	**202**	-	-	179	23
14	Apollo Aviation Group	**200**	-	-	168	32
15	Macquarie AirFinance	**195**	-	3	181	11
16	CDB Leasing	**190**	-	20	143	27
17	Castlelake	**179**	14	14	123	28
18	Avmax	**172**	80	79	11	2
19	BOCOMM Leasing	**150**	-	5	126	19
20	Jackson Square Aviation	**148**	-	-	132	16
21	Standard Chartered Bank	**126**	-	-	115	11
22	China Aircraft Leasing	**118**	-	-	112	6
23	Goshawk[2]	**107**	-	1	102	4
24	Deucalion Aviation Funds	**104**	-	-	83	21
25	Cargo Aircraft Management	**93**	-	-	9	84
26	Fly Leasing[3]	**85**	-	-	74	11
27	CCB Leasing	**76**	-	2	62	12
27=	Elix Aviation Capital	**76**	76	-	-	-
29	Merx Aviation[1]	**74**	-	7	64	3
30	Transportation Partners	**71**	52	-	19	-
30=	Fortress Transportation	**71**	-	-	58	13
30=	VTB Leasing	**71**	-	7	54	10
33	Accipiter	**67**	1	-	64	2
33=	VEB Leasing	**67**	2	29	14	22
35	JP Lease Products & Services	**65**	-	-	47	18
36	State Transport Leasing	**62**	-	20	35	7
36=	Sberbank Leasing	**62**	-	20	36	6
38	SKY Aviation Leasing[2]	**61**	-	-	50	11
39	ALAFCO	**58**	-	-	54	4
40	Vermillion Aviation	**57**	-	-	54	3
41	Fuyo General Lease	**54**	-	13	36	5
42	Aviation Finance & Leasing	**53**	-	-	53	-
42=	Minsheng Financial Leasing	**53**	-	11	41	1
44	GTLK Europe	**52**	-	10	38	4
45	IAFC	**50**	-	-	25	25
45=	Jetran	**50**	3	3	42	2
47	Tokyo Century Leasing	**48**	-	3	37	8
47=	Jet Midwest Group	**48**	10	-	22	16
47=	ACIA Aero	**48**	25	7	16	-
50	ASL Aviation Group	**47**	19	-	21	7
	Total	**8,833**	**621**	**709**	**6,161**	**1,342**

Source: Lessors and *Airfinance Journal*'s Fleet Tracker as of 30 June 2018

[1] Orix Aviation and Merx Aviation got credit for 50% each of the Kornerstone aircraft

[2] the table excludes the Goshawk/Sky acquisition

[3] the table excludes the Airasia deal which started closing in August 2018

Top 50 **beneficial owners by CMV[4] of fleet** ($m)

Rank	Lessor	Total	Turboprop	Regional jet	Narrowbody	Widebody
1	AerCap	**$36,370**	-	-	$17,979	$18,390
2	GECAS	**$26,243**	$274	$1,646	$15,866	$8,456
3	Avolon	**$19,939**	-	$960	$12,641	$6,338
4	NBB Leasing	**$15,340**	-	$33	$5,927	$9,380
5	Air Lease	**$14,322**	-	$22	$7,758	$6,543
6	BOC Aviation	**$13,372**	-	-	$8,950	$4,422
7	ICBC Leasing	**$12,019**	-	$126	$8,819	$3,074
8	DAE Capital	**$11,176**	$774	-	$6,314	$4,087
9	SMBC Aviation Capital	**$9,811**	-	-	$7,902	$1,909
10	Aviation Capital Group	**$8,192**	-	-	$7,605	$586
11	CDB Leasing	**$7,296**	-	$425	$5,290	$1,580
12	BOCOMM Leasing	**$7,167**	-	$161	$5,044	$1,961
13	Jackson Square Aviation	**$6,760**	-	-	$5,145	$1,615
14	ORIX Aviation[1]	**$6,603**	-	-	$5,061	$1,542
15	Aircastle	**$6,060**	-	$118	$4,216	$1,726
16	Nordic Aviation Capital	**$6,039**	$3,210	$2,829	-	-
17	Macquarie AirFinance	**$5,333**	-	$48	$4,631	$654
18	Standard Chartered Bank	**$4,942**	-	-	$4,251	$691
19	China Aircraft Leasing	**$4,569**	-	-	$4,160	$409
20	Goshawk[2]	**$4,383**	-	$22	$3,906	$456
21	CCB Leasing	**$3,890**	-	$45	$2,533	$1,313
22	Apollo Aviation Group	**$3,499**	-	-	$2,609	$890
23	IAFC	**$3,251**	-	-	$1,088	$2,162
24	Investec	**$2,875**	$131	$113	$57	$2,574
25	Castlelake	**$2,873**	$49	$103	$2,133	$588
26	Fly Leasing[3]	**$2,790**	-	-	$1,943	$847
27	Intrepid Aviation	**$2,636**	-	-	$38	$2,598
28	CMB Financial Leasing	**$2,445**	-	-	$1,554	$891
29	Aviation Finance & Leasing	**$2,415**	-	-	$2,415	-
30	VEB Leasing	**$2,398**	$21	$574	$477	$1,325
31	Deucalion Aviation Funds	**$2,396**	-	-	$1,451	$945
32	ALAFCO	**$2,351**	-	-	$1,832	$519
33	Accipiter	**$2,320**	$2	-	$2,173	$145
34	Vermillion Aviation	**$2,204**	-	-	$1,968	$236
35	Amedeo Air Four Plus	**$2,194**	-	-	-	$2,194
36	SKY Aviation Leasing[2]	**$2,055**	-	-	$1,308	$747
37	Fuyo General Lease	**$2,041**	-	$339	$1,169	$533
38	JP Lease Products & Services	**$1,939**	-	-	$1,044	$895
39	VTB Leasing	**$1,918**	-	$11	$1,716	$191
40	Novus Aviation	**$1,773**	-	-	$167	$1,606
41	GTLK Europe	**$1,734**	-	$189	$1,016	$529
42	FPG Amentum	**$1,690**	-	-	$1,155	$535
43	Merx Aviation[1]	**$1,627**	-	$128	$1,260	$240
44	Tokyo Century Leasing	**$1,617**	-	$51	$1,215	$351
45	Transportation Partners	**$1,445**	$739	-	$706	-
46	Sberbank Leasing	**$1,374**	-	$347	$756	$272
46=	Minsheng Financial Leasing	**$1,374**	-	-	$1,318	$56
48	Incline Aviation	**$1,335**	-	-	$782	$553
49	EMP Structured Assets	**$1,320**	-	-	-	$1,320
50	CMIG Aviation Capital	**$1,146**	-	$107	$317	$722
	Total	**$290,856**	**$5,199**	**$8,396**	**$177,665**	**$99,596**

Source: Lessors and *Airfinance Journal*'s Fleet Tracker as of 30 June 2018

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

[2] *the table excludes the Goshawk/Sky acquisition*

[3] *the table excludes the Airasia deal which started closing in August 2018*

[4] *per AVITAS Blue Book Q1 2018*

Top 50 **lessors' orderbooks**

Rank	Lessor	Total	Turboprop	Regional jet	Narrowbody	Widebody
1	GECAS	**415**	11	5	389	10
2	AerCap	**397**	-	50	301	46
3	Air Lease	**362**	-	-	274	88
4	Avolon	**309**	-	-	254	55
5	China Aircraft Leasing	**238**	-	30	208	-
6	SMBC Aviation Capital	**237**	-	-	236	1
7	CDB Leasing	**191**	-	-	183	8
8	BOC Aviation	**184**	-	-	169	15
9	Aviation Capital Group	**163**	-	-	159	4
10	ICBC Leasing	**133**	-	50	83	-
11	ALAFCO	**125**	-	-	117	8
12	Ilyushin Finance	**106**	2	30	73	1
13	AVIA Capital Services	**85**	-	-	85	-
14	VEB Leasing	**68**	-	7	61	-
15	Macquarie AirFinance	**60**	-	-	60	-
16	Jackson Square Aviation	**56**	-	-	54	2
17	Nordic Aviation Capital	**52**	35	17	-	-
18	China Construction Bank	**50**	-	-	50	-
18=	China Huarong Financial Leasing	**50**	-	20	30	-
20	Goshawk	**49**	-	-	47	2
21	ABC Financial Leasing	**45**	-	-	45	-
22	Everbright Financial Leasing	**33**	-	-	33	-
23	BOCOMM Leasing	**32**	-	-	32	-
24	Aircastle	**25**	-	25	-	-
25	Fly Leasing	**22**	-	-	22	-
26	Incline Aviation	**22**	-	-	22	-
27	Amedeo	**20**	-	-	-	20
27=	Lease Corporation International	**20**	-	3	17	-
27=	Comsys Aviation Leasing	**20**	-	20	-	-
30	State Transport Leasing	**19**	-	19	-	-
31	CITIC Group	**18**	-	-	18	-
32	Sberbank Leasing	**15**	-	-	15	-
33	Hong Kong Int. Av. Leasing	**10**	-	-	-	10
33=	Japan Investment Adviser	**10**	-	-	10	-
33=	CIB Leasing	**10**	-	10	-	-
33=	Aerolease Aviation	**10**	-	10	-	-
37	NBB Leasing	**7**	-	-	7	-
37=	DAE Capital	**7**	1	-	4	2
39	Willis Lease Finance	**6**	-	6	-	-
40	SPDB Financial Leasing	**5**	-	-	5	-
40=	Avia Capital Leasing	**5**	-	-	5	-
40=	IAFC	**5**	-	-	5	-
42	Minsheng Financial Leasing	**4**	-	4	-	-
42=	CMB Financial Leasing	**4**	-	-	4	-
42=	Avation	**4**	4	-	-	-
42=	CES International Financial Leasing	**4**	-	-	-	4
42=	GOAL	**4**	-	-	4	-
47	Falcon Aviation Services	**2**	-	-	2	-
47=	Accipiter	**2**	-	-	2	-
47=	Ping An	**2**	-	-	2	-
47=	Aerostar Leasing	**2**	2	-	-	-
47=	Global Aircraft Trading	**2**	-	-	2	-
	Total	**3,726**	**55**	**306**	**3,089**	**276**

Source: Lessors and *Airfinance Journal*'s Fleet Tracker as of 31 July 2018

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

Rank	Lessor	Total	Turboprop	Regional jet	Narrowbody	Widebody
1	Air Lease	**$33,599**	-	-	$18,509	$15,090
2	AerCap	**$27,583**	-	$1,003	$19,397	$7,184
3	GECAS	**$26,737**	$115	$110	$24,866	$1,646
4	Avolon	**$25,373**	-	-	$16,414	$8,960
5	SMBC Aviation Capital	**$14,933**	-	-	$14,758	$175
6	China Aircraft Leasing	**$12,888**	-	$660	$12,228	-
7	CDB Leasing	**$12,735**	-	-	$11,480	$1,255
8	BOC Aviation	**$12,472**	-	-	$10,133	$2,339
9	Aviation Capital Group	**$10,849**	-	-	$10,276	$573
10	ALAFCO	**$8,761**	-	-	$7,364	$1,397
11	Amedeo	**$4,902**	-	-	-	$4,902
12	ICBC Leasing	**$4,843**	-	$1,056	$3,787	-
13	AVIA Capital Service	**$3,909**	-	-	$3,909	-
14	Ilyushin Finance	**$3,866**	$35	$465	$3,345	$22
15	Jackson Square Aviation	**$3,741**	-	-	$3,431	$310
16	VEB Leasing	**$3,668**	-	$106	$3,562	-
17	Goshawk	**$3,365**	-	-	$2,962	$403
18	Macquarie AirFinance	**$3,230**	-	-	$3,230	-
19	Hong Kong Int. Av. Leasing	**$1,701**	-	-	-	$1,701
20	Fly Leasing	**$1,473**	-	-	$1,473	-
21	Incline Aviation	**$1,458**	-	-	$1,458	-
22	China Construction Bank	**$1,375**	-	-	$1,375	-
23	China Huarong Financial Leasing	**$1,265**	-	$440	$825	-
24	ABC Financial Leasing	**$1,238**	-	-	$1,238	-
25	Everbright Financial Leasing	**$994**	-	-	$994	-
26	Lease Corporation International	**$989**	-	$134	$856	-
27	BOCOMM Leasing	**$962**	-	-	$962	-
28	Sberbank Leasing	**$958**	-	-	$958	-
29	Japan Investment Adviser	**$644**	-	-	$644	-
30	Nordic Aviation Capital	**$641**	$333	$308	-	-
31	CES International Financial Leasing	**$581**	-	-	-	$581
32	DAE Capital	**$578**	$10	-	$258	$310
33	Aircastle	**$497**	-	$497	-	-
34	CITIC Group	**$495**	-	-	$495	-
35	Comsys Aviation Leasing	**$440**	-	$440	-	-
36	NBB Leasing	**$434**	-	-	$434	-
37	State Transport Leasing	**$293**	-	$293	-	-
38	AVIA Capital Leasing	**$281**	-	-	$281	-
39	IAFC	**$278**	-	-	$278	-
40	Aerolease Aviation	**$260**	-	$260	-	-
41	CIB Leasing	**$256**	-	$256	-	-
42	GOAL	**$243**	-	-	$243	-
43	CMB Financial Leasing	**$201**	-	-	$201	-
44	Groupe Dubreuil	**$175**	-	-	-	$175
45	Hong Kong Aviation Capital	**$145**	-	-	-	$145
46	SPDB Financial Leasing	**$138**	-	-	$138	-
47	Accipiter	**$130**	-	-	$130	-
48	Ping An	**$129**	-	-	$129	-
49	Global Aircraft Trading	**$111**	-	-	$111	-
50	Falcon Aviation Services	**$101**	-	-	$101	-
	Total	**$236,917**	**$493**	**$6,027**	**$183,230**	**$47,166**

Source: Lessors and *Airfinance Journal*'s Fleet Tracker as of 31 July 2018

[1] calculated as 55% of 2018 list price

Backlog analysis

The data in this section comes from Airbus and Boeing for their own orders and the OEM websites and internet search for the other manufacturers. It is presented in the tables in the two preceding pages and in Figures 1 to 6 on the next page.

Topping the list of lessor firm orders are four majors: GECAS, AerCap, Air Lease and Avolon. Perhaps surprisingly, CALC comes next on the list followed by three other Chinese-owned lessors.

Leading the way on widebody orders is Air Lease followed by Avolon and AerCap. GECAS has only 10 widebodies on firm order.

Regional jet orders are led by AerCap with firm orders for 50 Embraer E190/E195 E2 and ICBC Leasing with orders for 40 Comac ARJ21 700 and 10 Embraer E190 E2. Demonstrating further support for national aerospace programmes, China Aircraft Leasing has firm orders for 30 Comac ARJ21 700 and Ilyushin Finance Corporation has signed up for 20 Sukohoi Superjet 100 SSJ 95B/95LR and 10 Antonov AN158 200.

Announced turboprop firm orders are relatively scarce but are not unexpectedly led by Nordic Aviation Capital with 35.

Excluding any "unidentified" purchasers, the lessors had a total of 3,694 aircraft on firm order as of the end of August 2018 (i.e. including any firm orders placed at the Farnborough Airshow). These are shown in Figures 1 and 2. As expected, the vast majority are for narrowbody aircraft, though in dollar terms widebodies account for $46.1 billion of estimated cost.

The *Airline Analyst* despairs at press releases and news articles referring to contract values at list prices as it is well known that nobody pays full price. Somewhat arbitrarily we have decided to show the value of these firm order commitments at 55% of list prices. It will not be precise but will be more correct than the 100% values.

Based on this methodology we estimate the cost of the total lessor backlog at $234 billion headed by Air Lease at $34 billion. Amedeo remains on the list with its 20 firm order A380s that continue to slide to the right with estimated cost of $4.9 billion.

A breakdown by manufacturer is shown in Figures 3 and 4. These show a clear lead for Airbus over Boeing for announced lessor firm orders. It also shows the growing footprint for Comac and Irkut.

Figures 5 and 6 show firm orders by country of the lessor's parent (or equity owners if different). For example, SMBC Aviation Capital will show under Japan and not Ireland, while BOC Aviation will show under China and not Singapore. This shows that a full 34% of the global lessor backlog is committed to Chinese lessors followed by the US and Ireland.

The new BBAM fund, Incline Aviation, is well placed with $1.4 billion of orders. Other less well known names include Japan Investment Adviser, Everbright Financial Leasing, Comsys Aviation Leasing and CES International Financial Leasing.

Lessors that appear "under-ordered" relative to their current fleet size include DAE Capital and Aircastle, though of course they may additionally pursue the purchase and leaseback market for growth opportunities.

To dimension the order book, assuming it delivers over seven years the average annual purchases would be $33 billion. This roughly represents the current lessor share of annual deliveries though will be topped up by purchase and leasebacks. It corresponds to a 2.5x multiple of 2017/18 Ebitda of the lessors analysed in the "Trends" section, suggesting ample finance opportunities for the banks and capital markets.

Lessor firm orders

Figure 1: Firm orders by body type

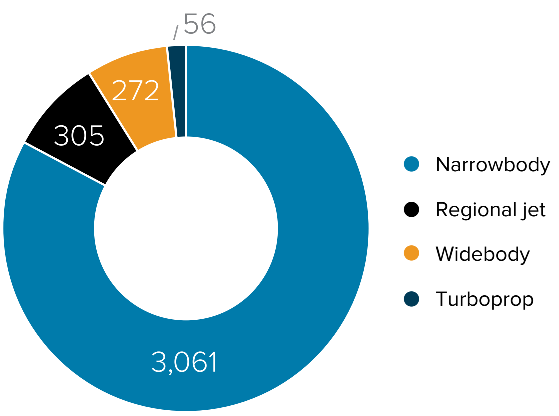


Figure 2: Firm orders by value by body type ($m)

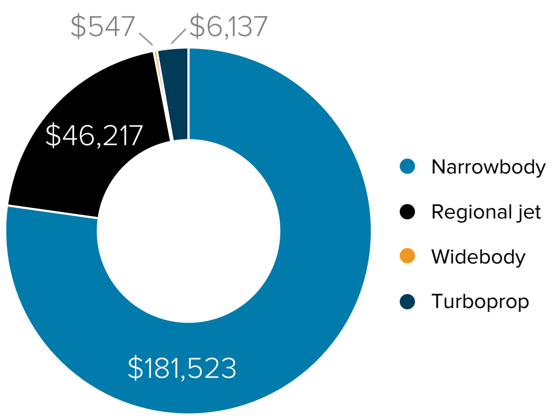


Figure 3: Firm orders by manufacturer

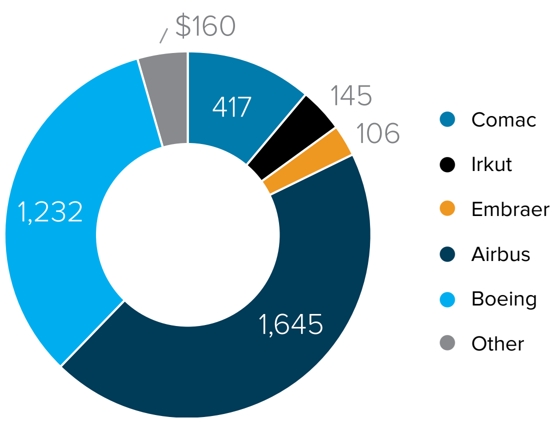


Figure 4: Firm orders by value by manufacturer ($m)

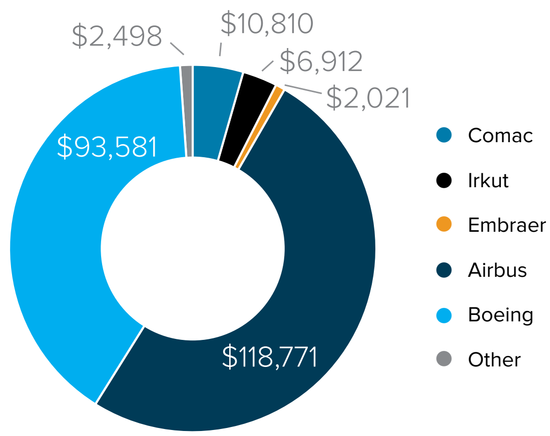


Figure 5: Firm orders by country of lessor

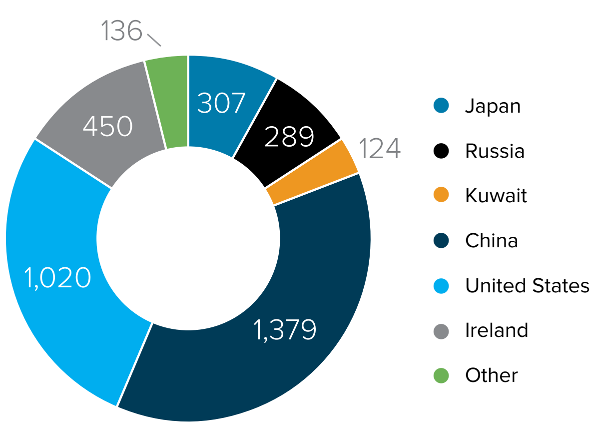
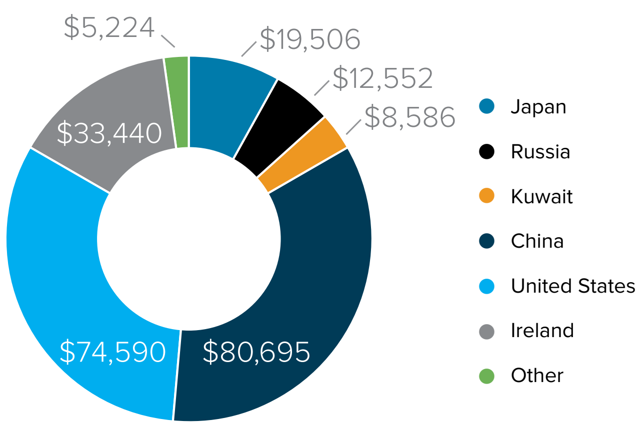


Figure 6: Firm orders by value by country of lessor ($m)



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

Trend analysis – An aggregate view of the global aircraft leasing industry

Figure 1 - Financial highlights[2]

$ billion	2013/14	2014/15	2015/16	2016/17	2017/18
Revenue in survey	14.1	13.6	16.3	16.9	17.8
GECAS	5.3	5.3	5.2	5.3	5.1
Total revenue	19.4	18.9	21.5	22.2	22.9
PP&E in survey	114.4	114.2	129.5	133.9	150.4
GECAS	36.2	34.9	30.6	34.3	31.8
Total assets	150.6	149.1	160.1	168.2	181.2
Net income in survey[1]	1.4	2.9	3.1	3.3	4.1
GECAS	0.9	1.0	1.0	1.4	1.3
Total net income[1]	2.3	3.9	4.1	4.7	5.4

Source: Company reports and *The Airline Analyst*

[1] *excluding major tax credits for ALC, ACG and BOC Aviation*

[2] *includes Avolon/CIT/AWAS/ILFC*

In addition to the "Lessor comparisons" financial analysis in the next section, we present here an analysis of the global financial trends for the industry as a whole. The survey group includes seven of the ten largest lessors (the exceptions being GECAS, BBAM (though it includes FLY) and Avolon – though Avolon's headline numbers are included in Figure 1). DAE Capital and DP Aircraft 1 are included for the first time. ILFC, AWAS and CIT are included for the periods their financials were available. Unfortunately, a number of

lessors with December year-ends have not yet filed their 2017 accounts, which reduces the scope of the survey. Nevertheless, the data enables us to review the industry's growth rate, the trend in yields and financing costs, capital structure and profitability.

Growth

Firstly, growth rate. Figure 1 shows the key financials for the approx. 20 lessors whose financials have been continuously available (we have made some estimates to fill a couple of gaps) over the last five years (or were start-ups during the period). Total property, plant and equipment assets for the population were $181 billion in their most recent financial years, revenues were $22.9 billion and net income was a record $5.4 billion. We have included the values for GECAS, which are available from GE annual reports and investor presentations to get a more comprehensive view of the market's size.

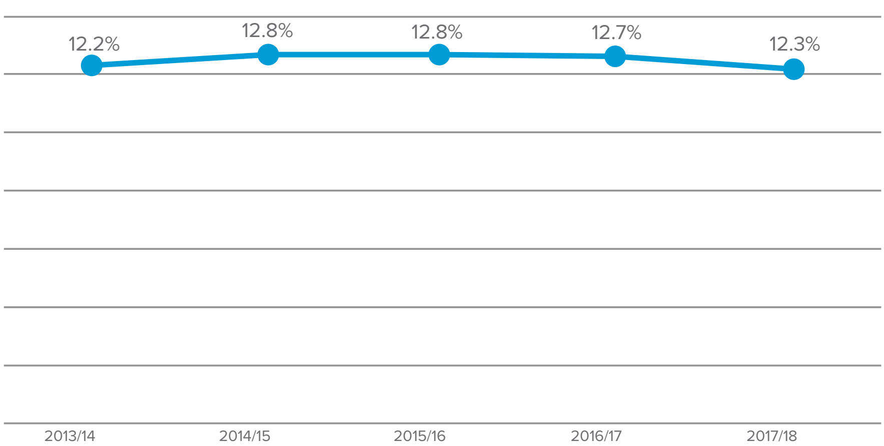
As we can see, the value of property, plant and equipment assets among our survey group increased significantly in 2017/18 despite the relatively high rate of asset sales among some of the larger lessors who are included in the survey. These sales have been to other leasing companies, into structured ABS deals or side-cars. Major purchasers of assets have included the Chinese leasing companies but not all could be included due to lack of financial disclosure.

Yield

Figure 2 shows the yield trend over the last five years. This year we see a noticeable decline which tells us the pricing pressure in the marketplace has started to move the aggregate needle after a 12-24 month lag.

Continued on page 44 >>>

Figure 2: Lease yield



Source: Company reports and *The Airline Analyst*

2017/18 data excludes Avolon

It would therefore appear that the large lessors have not been immune to the pricing reductions though the pain may have been felt more by the new entrants to the market.

Gearing

Gearing for the lessors in the survey has trended up from 2.5x to 2.9x over the last five years as shown in Figure 3. This nevertheless remains a conservative capital structure supported by a significant increase in retained earnings. The typical 4x or higher of the last cycle is only evident in a few cases, though obviously this aggregate value is comprised of some very low and some quite high levels of gearing as presented in the "Lessor comparisons" section.

Debt structure

There has been a major shift in favour of unsecured debt funding as shown in Figure 4. Secured debt has declined, while unsecured debt has doubled over the period. And, taking advantage of continuing low interest rates and declining spreads, we can see that average debt cost has continued to decline as shown in Figure 5. However, as shown in the next section, some lessors have achieved rates below 3%.

Interest cost

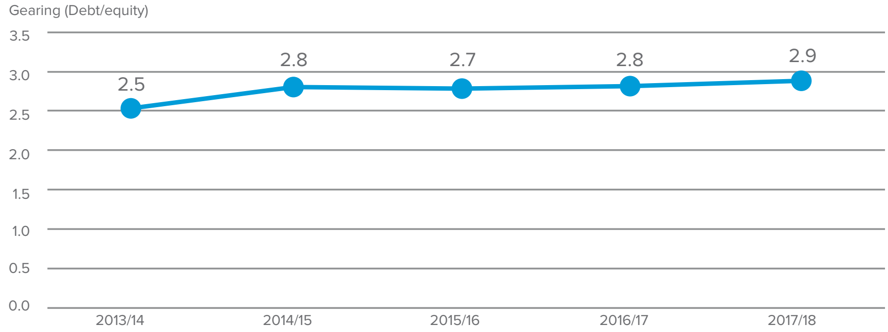
Clearly one of the objectives of the lessors is to maximise the yield-interest cost spread. The downward movement in average interest cost matched the reduction in yield presented above and was good for profitability in 2017/18. Going forward, with interest rates expected to increase, it will be a challenge for lessors to maintain their margins and profitability.

Return on equity

As a whole, the group has achieved a return on equity increasing from 9.0% to 11.1% over the last three years, after a recovery from the impairment-hit 2013/2014 year. Coming in a low Libor environment, these are attractive returns. We will continue to see new entrants attracted to the industry by these returns.

Companies included in the latest period are listed in Figure 1 in the next section. In addition we included ILFC, AWAS and CIT as appropriate in historic years in order to make the data as consistent as possible.

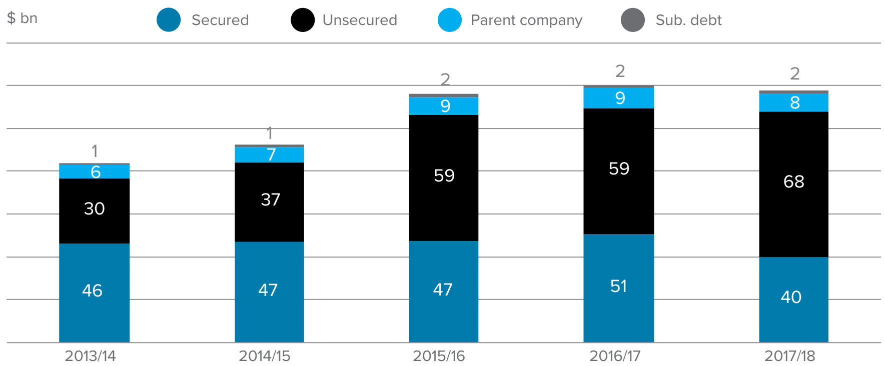
Figure 3: Gearing (Debt/equity)



Source: Company reports and *The Airline Analyst*

2017/18 data excludes Avolon

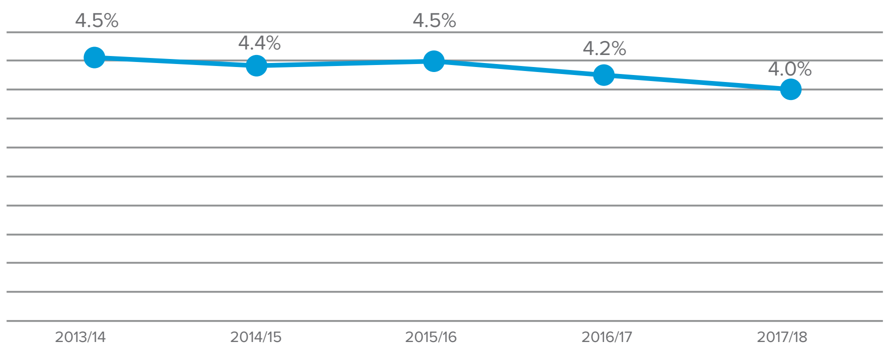
Figure 4: Debt structure



Source: Company reports and *The Airline Analyst*

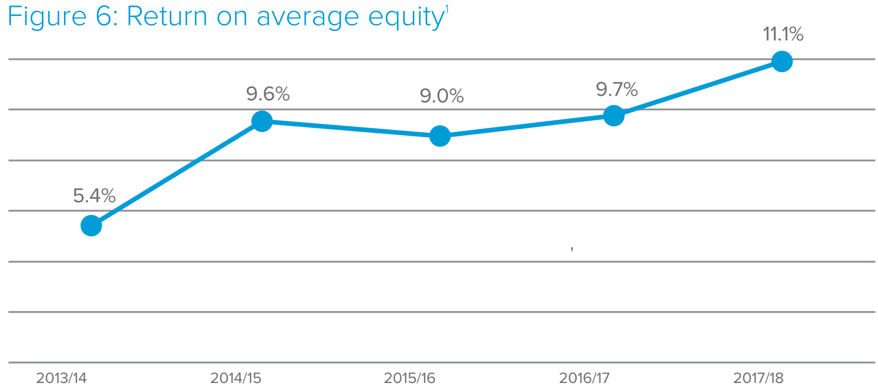
2017/18 data excludes Avolon

Figure 5: Average interest cost



Source: Company reports and *The Airline Analyst*

Figure 6: Return on average equity[1]



Source: Company reports and *The Airline Analyst*

[1] after adjusting for large tax credits for ALC, ACG and BOC Aviation

2017/18 data excludes Avolon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Lessor comparisons – 2017/18

This study offers a comparison of the financial performance and capital structures of the aircraft leasing companies based on their most recent available financial statements (ending either in 2017 or 2018)

To make this report as comprehensive as possible, we have reached beyond the publicly listed lessors to the public filings of lessors in Ireland, Singapore, Denmark and Kuwait.

Figure 1 identifies the entities included in the study. In total we have been able to source the financials for 22 leasing companies. Financials are not available for GECAS, but some headline numbers are available in the GE Annual Report. The same applies for Avolon's 2017 financials where we use headline numbers from their press release and parent Bohai Capital's annual report. In addition to the obvious major players, we include AviaAM from Lithuania (listed in Poland) and Avation from Singapore (listed in the UK). Most of the lessors in the study are incorporated in the USA or Ireland, though two of the largest, AerCap and BOC Aviation, are incorporated in the Netherlands and Singapore, respectively. The abbreviations used to refer to the lessors through the rest of this study are indicated in Figure 1.

In aggregate, the lessors included in the study represent a total current fleet of 5,676 aircraft or 50% of the 11,456 aircraft analysed in the "Analysis of global leased fleet" section of this supplement. The significant absences from our coverage include Avolon (only headline numbers available for 2017) and Macquarie (which does not file financial information publicly other than a few headline numbers). We include DAE Capital for the first time, but financials are not available for BBAM (though we do include FLY). Some lessors that we have included previously are not included as they had not filed their 2017 financial statements at the date of preparing this compilation. These include BOCOMM Leasing, Goshawk, ICBC Leasing, Jackson Square Aviation, Vermillion, Pembroke Capital and Triangle (Falko). We have included Transportation Partners and DP Aircraft I for the first time.

Figure 1: Lessors included in the study

Lessor	Country	FYE	Abbreviation
Accipiter	Ireland	31-Dec-17	Accipiter
AerCap NV	Netherlands	31-Dec-17	AerCap
AerDragon	Ireland	31-Dec-17	AerDragon
Air Lease	USA	31-Dec-17	ALC
Aircastle	USA	31-Dec-17	Aircastle
ALAFCO Aviation Lease & Finance	Kuwait	30-Sep-17	ALAFCO
Amedeo Air Four Plus	UK	31-Mar-18	AA4+
Avation	UK	30-Jun-18	Avation
AviaAM Leasing AB	Lithuania	31-Dec-17	AviaAM
Aviation Capital Group	USA	31-Dec-17	ACG
Avolon[1]	Ireland	31-Dec-17	Avolon
Banc of America Leasing	Ireland	31-Dec-17	BOA
BOC Aviation	Singapore	31-Dec-17	BOC Aviation
CCB Aviation	Ireland	31-Dec-17	CCB
CDB Aviation Lease Finance	Ireland	31-Dec-17	CDBL
China Aircraft Leasing Group	China	31-Dec-17	CALC
DP Aircraft I	UK	31-Dec-17	DP
Dubai Aerospace Enterprise (DAE)	UAE	31-Dec-17	DAE
FLY Leasing	Ireland	31-Dec-17	Fly
Fortress Transport & Infrastructure[1]	USA	31-Dec-17	Fortress
GECAS[1]	USA	31-Dec-17	GECAS
MCAP Europe	Ireland	31-Mar-17	MCAP
Nordic Aviation Capital	Denmark	30-Jun-18	NAC
SMBC Aviation Capital	Ireland	31-Mar-18	SMBC AC
Transportation Partners	Singapore	31-Dec-17	TP

[1] *Key data only*

Note that for some lessors, the entities analysed do not represent the entirety of their global leasing business and may be impacted by internal funding arrangements and inter-company transactions. This applies particularly to some Chinese lessors, MCAP and SMBC AC who have been heavily funded by shareholder loans, so please interpret their numbers accordingly. Over the last two years, however, SMBC AC has partially funded itself from external sources.

Adjustments

In order to enhance comparability in treatment and presentation of the financial statements, we have made some adjustments as described in Figure 2.

Figure 2: Adjustments to enhance comparability

Item	Treatment
Gain on sale of aircraft	Net gain included in revenue
Recognition of "excess" maintenance reserves	Included in lease revenue but not seperately disclosed by every lessor
Maintenance and transition costs	Recognised under its own heading when disclosed, but not disclosed by every lessor
Staff cost, including stock-based compensation	Included in SG&A expenses
Interest income	Included in other revenue
Impact of major change in tax legislation	Large one-off tax credits excluded from net income[1]
Unrealised FX translation gains/losses	Excluded from net income

Source: Company reports and *The Airline Analyst*

[1] *Affects BOC Aviation, ACG, ALC*

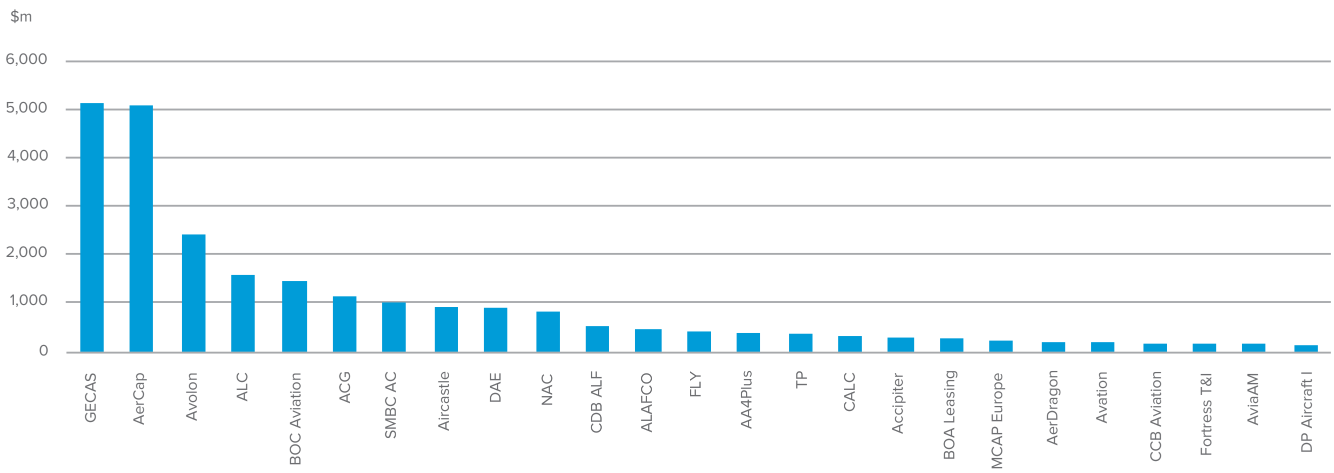
Profitability

Figures 3 and 4 show the lessors ranked by revenue and net income. The revenue range of the lessors in the study is from $5.1 billion for GECAS to $53m for DP Aircraft I. Despite Avolon's acquisition of CIT Aerospace it remains less than half the size of GECAS and AerCap. ALC, BOC Aviation and SMBC AC come in fourth, fifth and sixth position.

As mentioned in the previous section, aggregate yield for all lessors in the study declined from 12% to 11.1%. Some of the lessors bucked the trend and squeezed some growth in yield, most notably BOC Aviation, ACG, FLY and AviaAM. Avolon announced a significant improvement in yield but we were unable to reconcile the data with the prior year's figures. The biggest declines were for AerCap, NAC, SMBC AC and CALC.

In aggregate the profit generated by the lessors in the study (and including GECAS) was $5.4 billion, a $700 million increase on the previous year's $4.7 billion

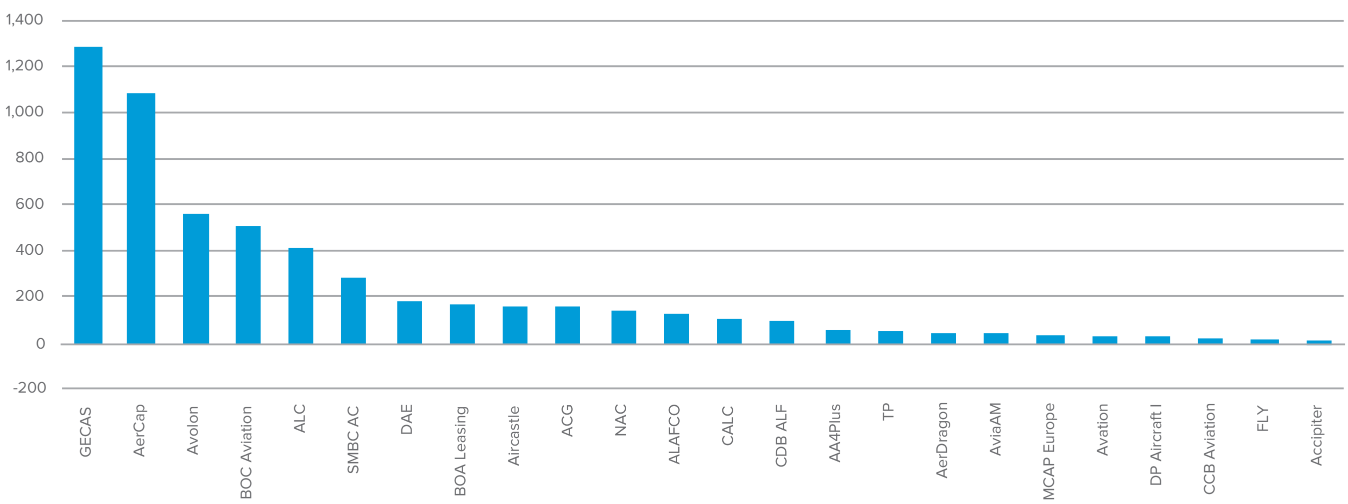
Figure 3: Total revenue ($ million)



Source: Company reports and *The Airline Analyst*

Figure 4: Net income ($ million)

These values are after adjusting for large tax credits for ALC, ACG and BOC Aviation



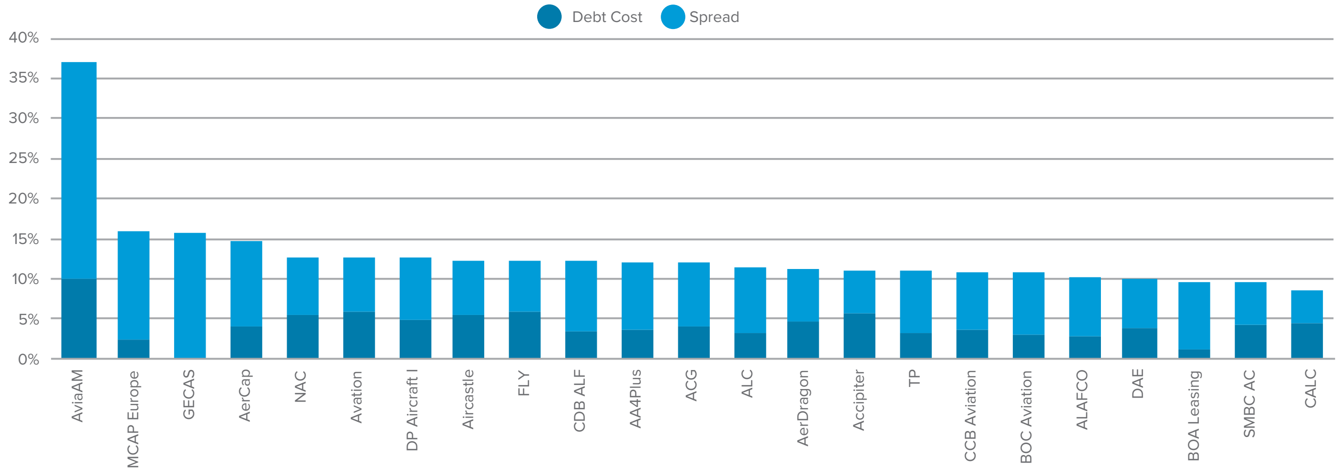
and up from $2.3 billion in 2013/14. Net income was headed by GECAS at $1.3 billion followed by AerCap at $1.1 billion and Avolon at $550 million. Coming fourth in profitability were BOC Aviation followed by ALC. Please note that AA4 Plus's net income included an unrealised FX gain of $259.3 million as it reports in GBP and had to translate its USD debt into GBP. We have adjusted reported net income by this figure.

Among the key drivers of lessor profitability is the spread between lease yield and debt cost of funds. Figure 5 shows all three, ranked in descending order of yield.

AviaAM leads on this measure. MCAP Europe comes second with yield of 16%, followed by GECAS at 15.7% and AerCap at 14.8%. FLY and Aircastle also generate attractive yields but their relatively high debt costs result in lower margins. BOC Aviation comes sixth bottom of the lease yield ranking at 10.7% but makes it up with one of the lowest debt finance costs of 2.9%, resulting in a spread of 7.8%.

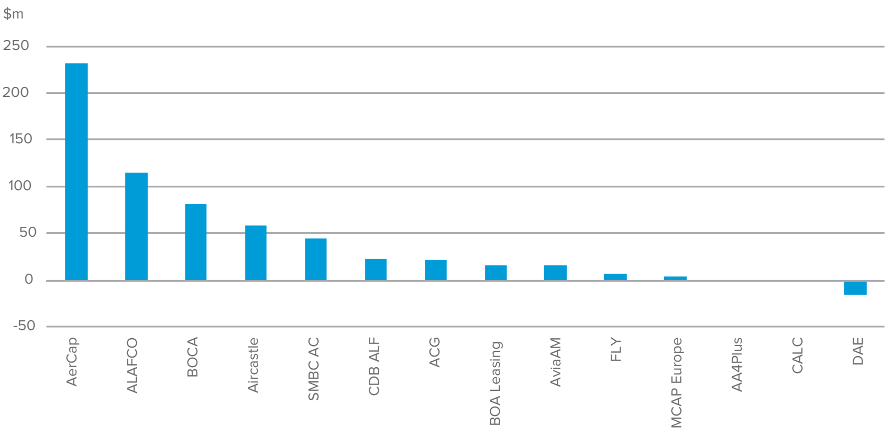
Commercial finance costs range from ALAFCO's and BOC Aviation's 2.9% to AviaAM's 10.1%. Other listed lessors at the low end of the scale include ALC at 3.1% and AerCap at 4%. MCAP and SMBC AC have a low debt cost but both have large amounts of shareholder provided debt. At the higher end are Aircastle, Avation, FLY and Accipiter.

Figure 5: Yield, spread and debt cost



Source: Company reports and *The Airline Analyst*

Figure 6: Gain (loss) on disposal of aircraft



Source: Company reports and *The Airline Analyst*

Gains/losses on sales

Aggregate plant, property and equipment for the lessors in the study (including Avolon and GECAS) is $181 billion. Gains booked were $581 million, 26% up on 2016/17, and 15% of reported net income. Gains from aircraft sales made a significant contribution to the profitability of a number of lessors as shown in Figure 6.

Financial flexibility

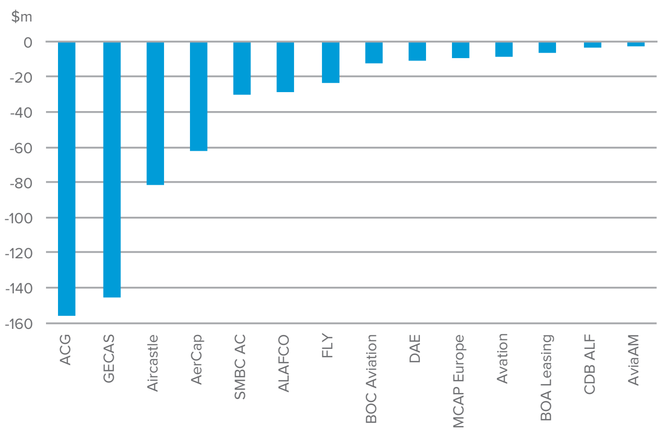
Impairments
Impairments totalled $537 million, down from $918 million the prior year. They were not universal but material values were reported by ACG, GECAS and Aircastle, as shown in Figure 7. Overall, however, they were only 0.3% of opening net book value.

We assess four elements of financial flexibility – leverage as measured by the debt/equity ratio, level of secured debt relative to tangible assets, Ebitda interest coverage and liquidity.

Leverage
The debt/equity ratio is the simplest measure of capital structure and is understood by aircraft financiers. Some of the lessors use significant amounts of inter-company debt. The chart in Figure 8 shows leverage calculated assuming inter-company debt is debt and also assuming inter-company debt is equity. As the chart shows, the majority of lessors are in a range of 2x-4x on this latter measure with two lessors significantly above this range.

Debt Structure
Borrowing unsecured has many attractions, being more flexible and having lower transaction costs than borrowing on a secured basis, though at the cost of higher coupons or margins. The ratings agencies generally cite low levels of secured debt as being a key consideration in granting investment grade ratings to lessors. AerCap regained their investment grade ratings in late 2015. The other lessors with investment grade ratings from the three

Figure 7: Asset impairment



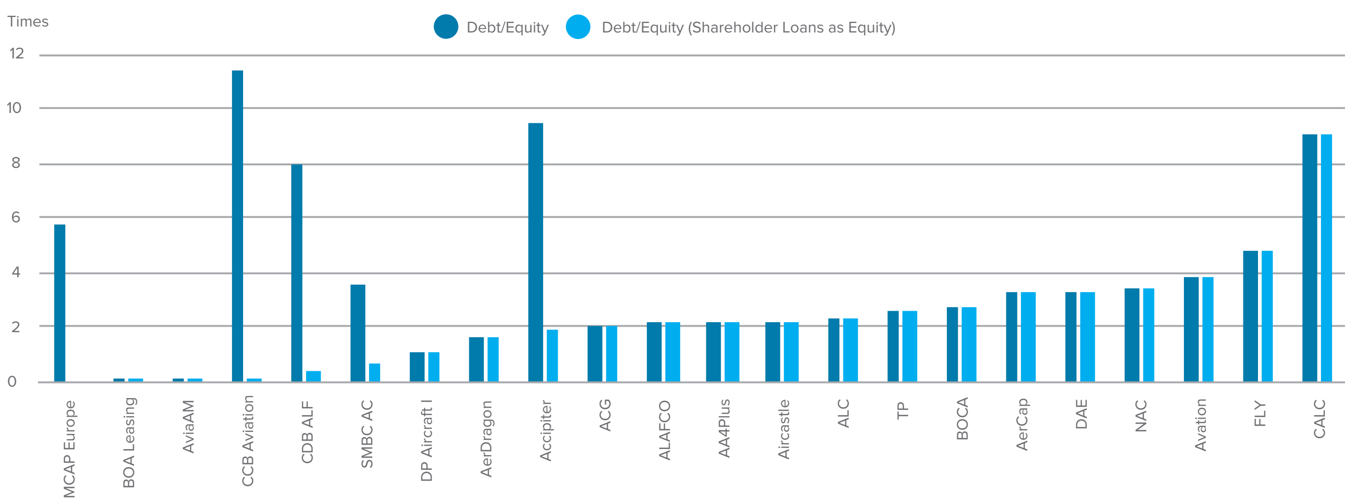
Source: Company reports and *The Airline Analyst*

Figure 9: Lessor unsecured credit ratings

	Fitch	Moody's	S&P	Kroll
AerCap	BBB-(stable)	-	BBB-(stable)	-
ALC	BBB(stable)	-	BBB(stable)	A-(stable)
Aircastle	BBB-(stable)	Baa3(stable)	BBB-(stable)	-
Avation	BB-(stable)	-	B+(pos)	-
ACG	BBB+(pos)	-	A-(stable)	-
Avolon	BB(pos)	Ba2	BB+(stable)	BBB+(stable)
AWAS	-	Ba3(pos)	BB+(stable)	-
BOC Aviation	A-(stable)	-	A-(stable)	-
DAE	-	Ba2(pos)	BB+(stable)	BBB+(stable)
FLY	-	Ba3(neg)	BB-(stable)	BBB(stable)
ILFC	BBB-(stable)	Baa3(stable)	-	-
Park Aerospace (Avolon)	BB(pos)	Ba3	-	-
SMBC AC	A-(stable)	-	BBB+(stable)	-

Source: Ratings Agencies - 11 October 2018

Figure 8: Debt/equity ratio



Source: Company reports and *The Airline Analyst*

major agencies are Aircastle, ALC, SMBC AC, ACG (who benefit from their ownership by Pacific Life) and BOC Aviation who benefit from their Bank of China ownership. Kroll rates ALC, Avolon, DAE and FLY investment grade. S&P cite a ceiling of a BB+ unsecured rating for private equity owned lessors due to financial policy concerns.

Figure 10 shows the debt structures on a proportional basis for the lessors ranked in order of the highest proportion of unsecured debt at the top to least at the bottom. The chart also shows shareholder loans and other loans. As discussed in the "Trends" section there has been a significant increase in unsecured funding by the industry as a whole, reaching 57% of total debt in 2017/18. The lessors with the highest percentage of external unsecured funding are ALC, ACG, Aircastle and BOC Aviation.

Figure 10: Debt structure

Source: Company reports and *The Airline Analyst*

Financial flexibility

Figure 11 shows secured borrowing as a percentage of tangible assets which indicates the level of protection available for unsecured creditors. The data for MCAP, BOA Leasing and SMBC AC reflects their heavily shareholder funded debt structure. The other lessors on the left of Figure 11 represent the strongest position for unsecured creditors. Those at the right hand side demonstrate the least protection for unsecured creditors.

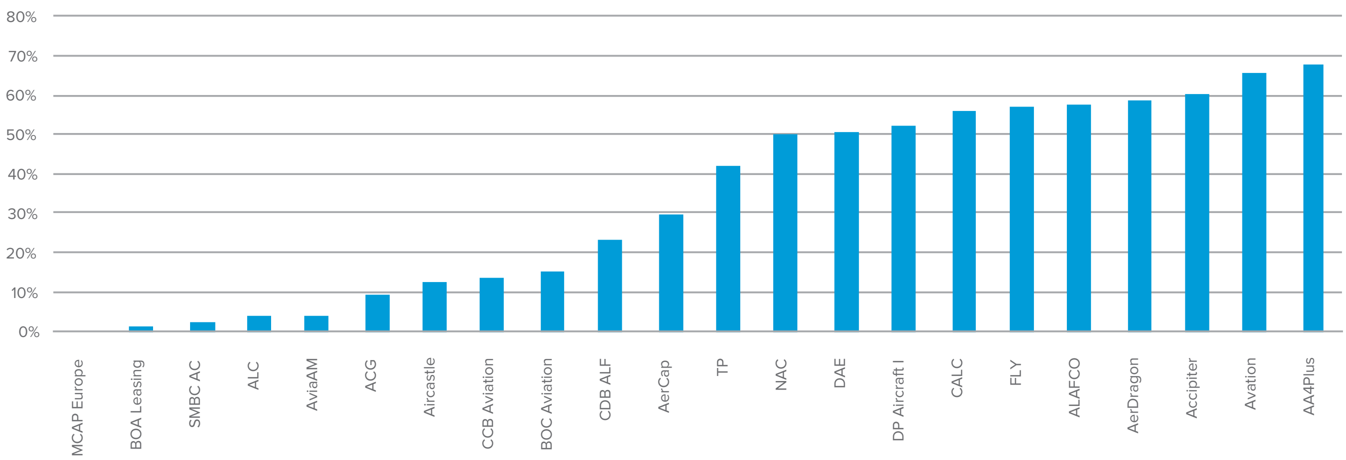
Interest Coverage

Interest coverage measured as Ebitda/finance costs is another key aspect of financial flexibility. From Figure 12 we see that the majority of lessors covered by the study have a healthy coverage of at least 2x and many have much better coverage than that, particularly ALAFCO, ALC and BOC Aviation.

Liquidity

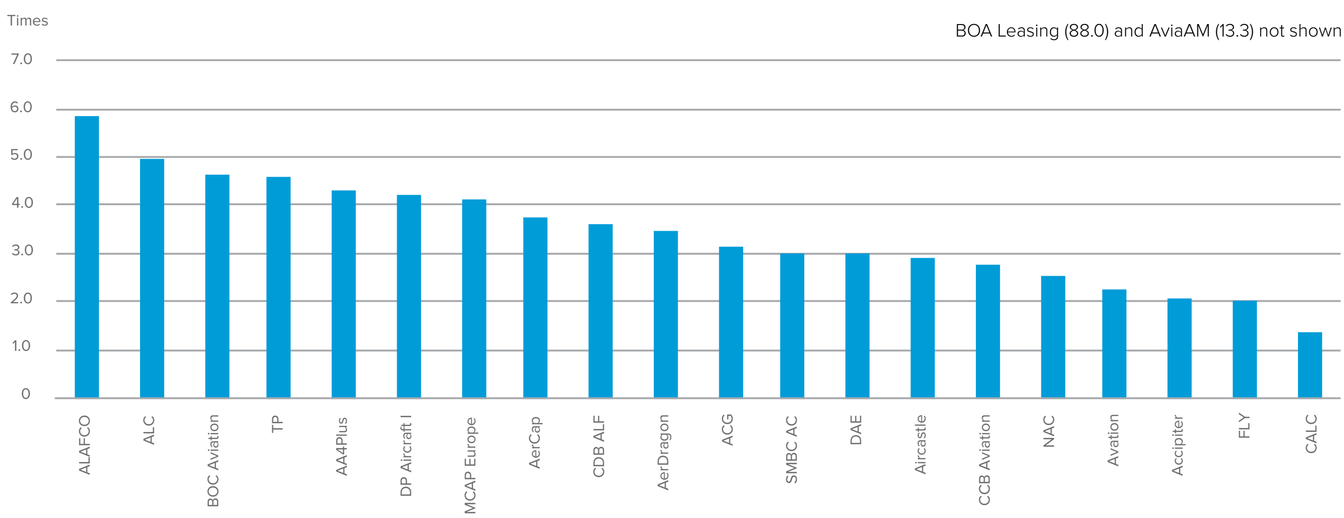
Figure 13 shows unrestricted cash liquidity

Figure 11: Secured debt/gross tangible assets



Source: Company reports and *The Airline Analyst*

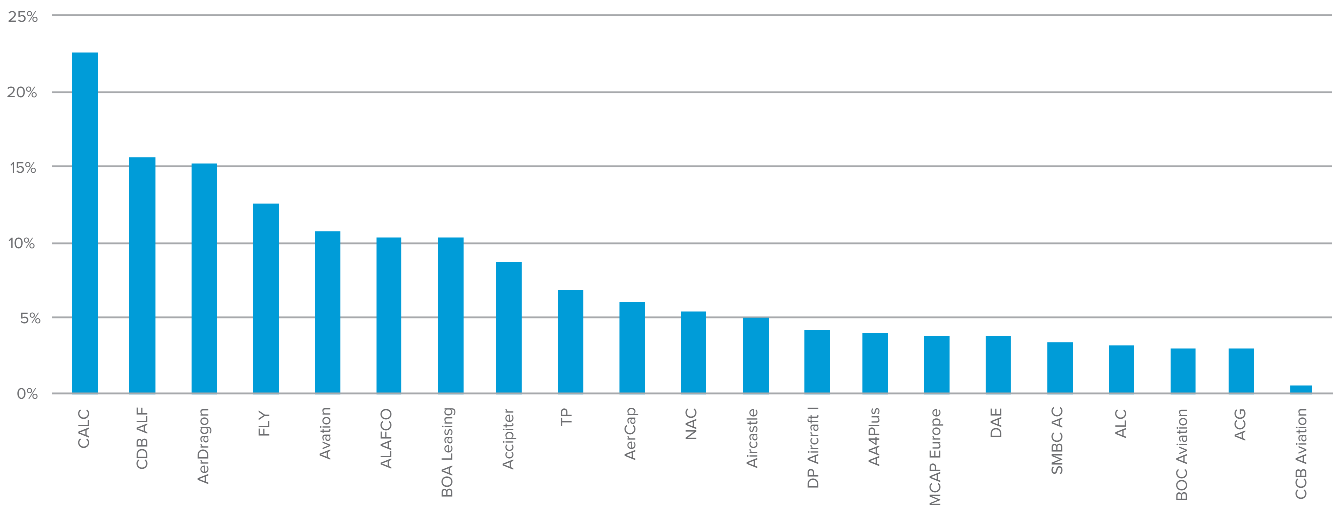
Figure 12: Ebitda/total finance costs



Source: Company reports and *The Airline Analyst*

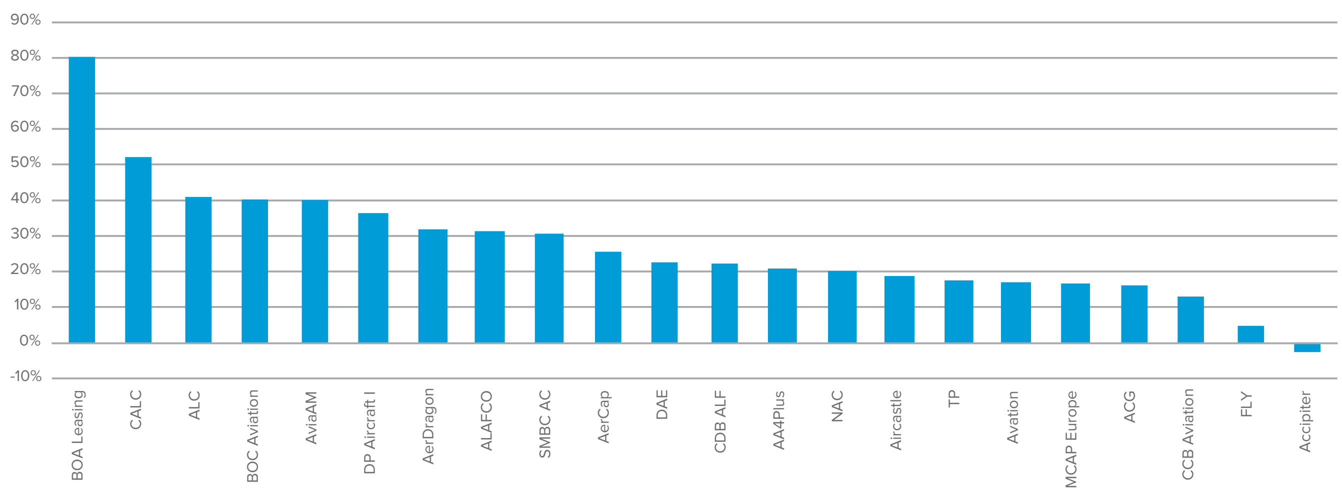
as a percentage of total borrowings. At the extremes of the range were AviaAM at 263% and CCB Aviation at 0.3%. The latter has access to inter-company funding. The next three strongest are all Chinese-owned lessors. For the remainder, this measure ranges from a low of 3% for ACG, BOC Aviation, ALC and SMBC (which has access to parent funding) to a high of 22% for CALC. Some of the lessors additionally have committed bank facilities. For example BOC Aviation had $3.7 billion of undrawn lines as of 31 December 2017, Aircastle had $635 million of unsecured revolving credit capacity and ALC had a $3.8 billion unsecured revolving bank facility. ACG had $1.465 billion available under its unsecured revolving credit facilities and AerCap had approximately $6.7 billion undrawn lines of credit under its credit and term loan facilities.

Figure 13: Cash/total debt



Source: Company reports and *The Airline Analyst*

Figure 14: PBT margin



Source: Company reports and *The Airline Analyst*

Returns

Profit before tax
As an overall measure of profitability, we have assessed profit before tax as a percentage of total revenue as shown in Figure 14. This suggests that the lessors at the left side of the chart have a favourable combination of lease yield, funding cost, SG&A costs and leverage – as well as factors not assessed in this study – fleet utilisation and maintenance/ transition costs.

The larger lessors with high margins were ALC and BOC Aviation. At the other end of the scale of the traditional lessors were ACG and Aircastle which were both impacted by impairment charges and relatively high debt costs in Aircastle's case.

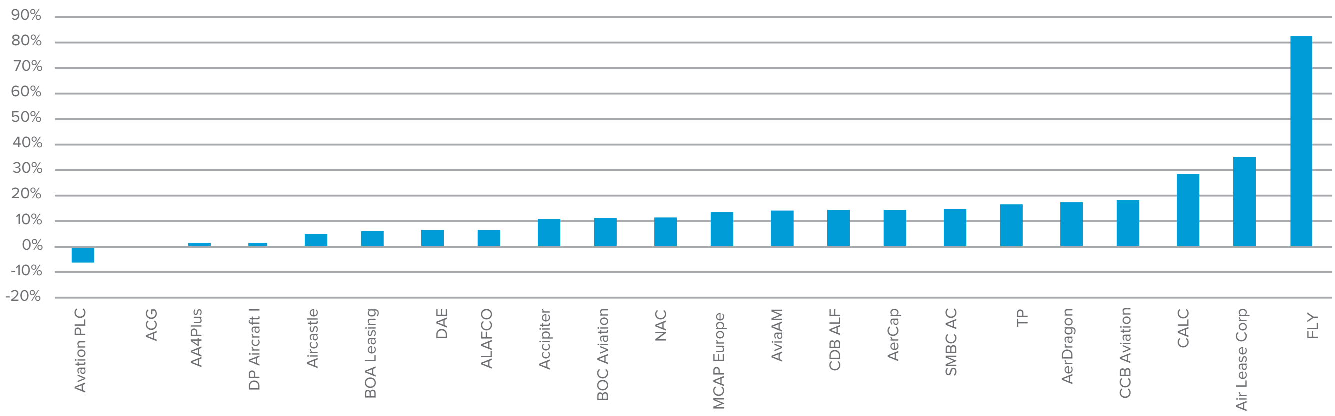
Tax Charge
One of the drivers of net profitability is the tax rate on profits. Figure 15 shows that, with three exceptions, tax charges were all below 20% of profit before tax. So it is not just Ireland and Singapore that would appear to offer attractive fiscal regimes for aircraft operating lease companies. However prima facie, the US does not look a very attractive jurisdiction.

Return on equity
Return on average of opening and closing equity is shown in Figure 16. More than half of the lessors delivered a return on equity in excess of 10%. BOC Aviation with 16.3% arguably generated the best returns of the group for those lessors with a more normal balance sheet structure. Other lessors like SMBC AC, CCB Aviation and AerCap generated solid mid-teens returns.

Conclusion
This study has shown some of the key dynamics affecting aircraft lessors' business models which are more varied than would appear the case at first inspection. Lease yield, debt cost, asset selection, asset utilisation and re-marketing capabilities are all critical components of the aircraft operating leasing business. Get these right, and the aircraft leasing business can offer substantial "Libor-plus" returns to equity investors as demonstrated by some members of the study group. Please direct any questions or comments to **mduff@theairlineanalyst.com**.

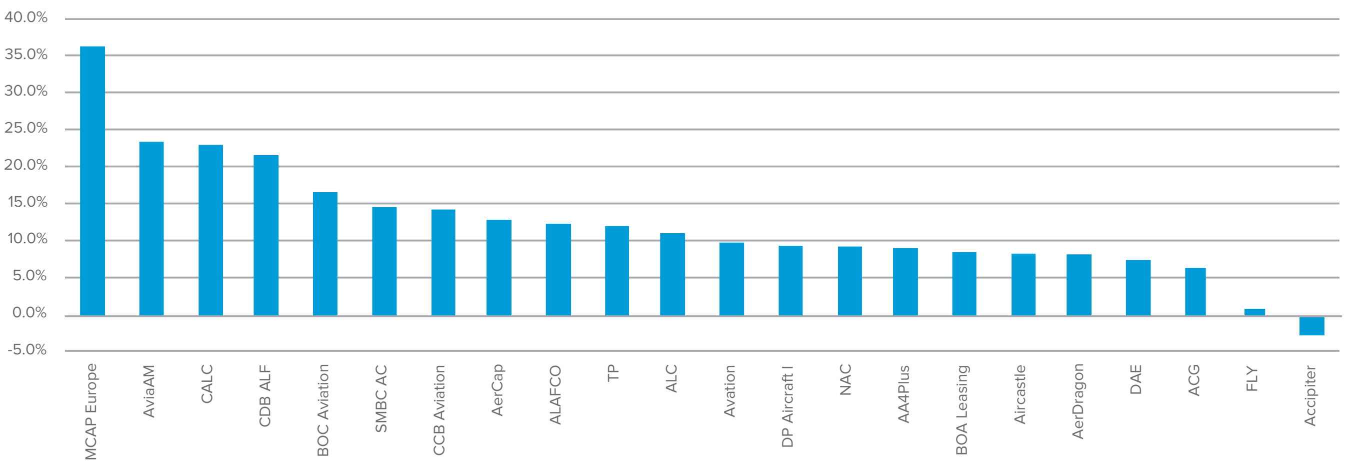
Figure 15: Tax rate

These percentages are tax charge as a percentage of profit before tax after adjusting for large tax credits for ALC, ACG and BOC Aviation



Source: Company reports and *The Airline Analyst*

Figure 16: Return on average equity



Source: Company reports and *The Airline Analyst*

Analysis of the **global leased fleet**

The *Airfinance Journal* Fleet Tracker database includes 11,456 aircraft, leased by 116 commercial lessors with at least 10 aircraft to 837 airlines in 157 countries (data as of June/July 2018). Aircraft leased by "captive" lessors such as Synergy and Aircraft Purchase Fleet and by the OEMs are excluded. Aggregate orders by the commercial lessors total 3,481 aircraft. The average age of the existing leased fleet is 10.4 years and 572 aircraft (5.0%) are reported as being in storage.

The industry is heavily concentrated. The top 10 lessors (4,846 aircraft) account for 43% of the total lessor fleet count and 49.4% by value (top 10 value – $166.8 billion). Nevertheless, the smaller lessors provide value to the market place in dealing with older or more specialised aircraft. They also may be prepared to do business with some of the more challenging regions of the world or have leading positions in their niche markets.

Airlines with the most leased aircraft

Figure 1 shows the top 20 lessees by number of aircraft. Just as the leasing industry is heavily concentrated in a relatively small number of players, the airlines to whom they are leasing are forming increasingly concentrated groups. Such concentration could reduce the ability of the lessors to diversify their portfolio risks due to concentrations of exposure. American Airlines is by far the largest lessee with 377 leased aircraft. This leading position is a result of the merger of American with US Airways who were also a large user of leased aircraft.

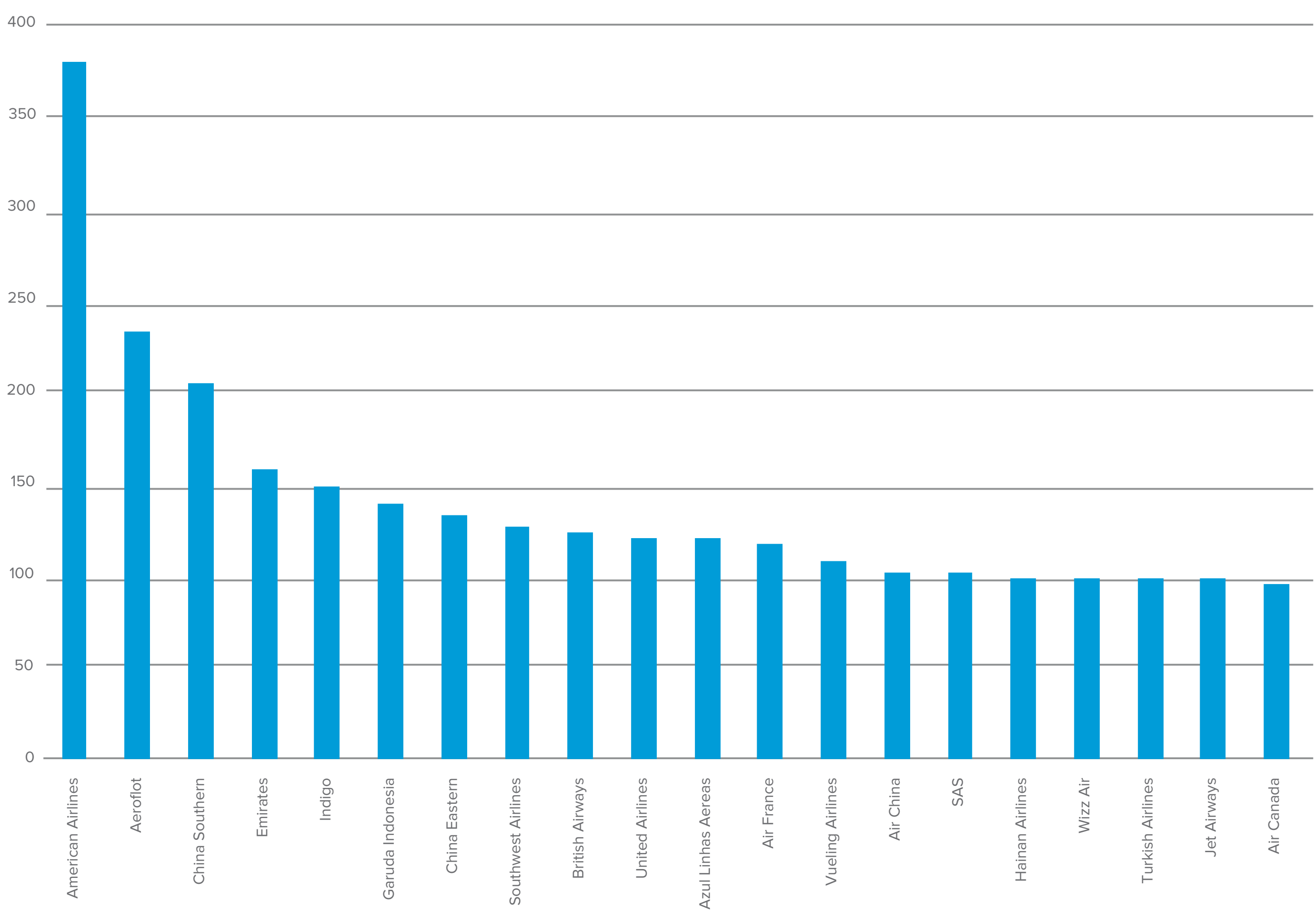
Geographic distribution of leased aircraft

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

Breakdown of leased fleet

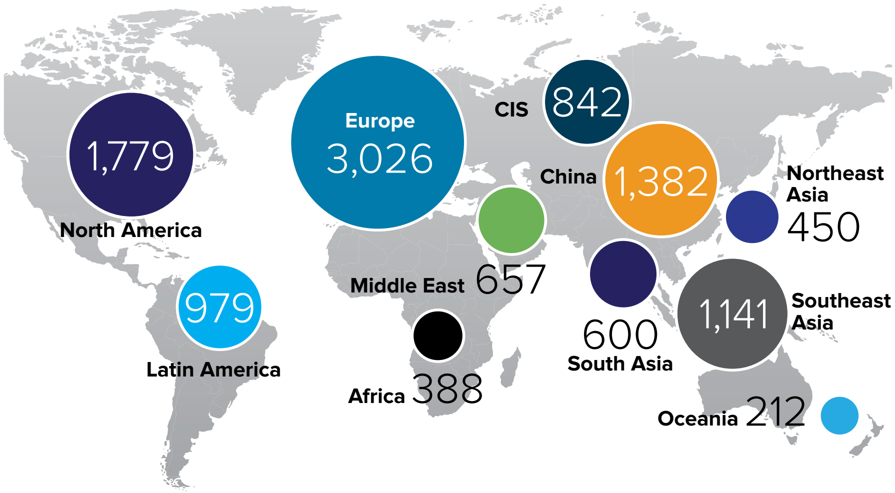
Figure 3 shows a breakdown of the leased fleet by body-type of aircraft. A full 66% of the leased fleet is in the narrowbody

Figure 1: Biggest lessees by number of aircraft



Source: *Airfinance Journal*'s Fleet Tracker

Figure 2: Geographic distribution of leased aircraft



Source: Airfinance Journal's Fleet Tracker as of 30 June 2018

category split mostly between the A320 and 737 families. Only 17% is widebody, though in value terms their share would be much more significant, especially with the A350 and 787 finding a lot of favour among lessors.

Regional Jets

The most significant development over the last several years has been the reduction in size of the GECAS portfolio. As can be seen, however, GECAS remains the largest player with NAC in second place, having increased its fleet to 156. Avolon (which absorbed the 33 aircraft that CIT Aerospace had), Avmax and Falko, are other significant lessors in this segment. Chorus Aviation's recently established leasing business makes it to number 10 in the ranking.

Turboprops

Turboprops are a significant niche market, dominated by one lessor, Nordic Aviation Capital. However, other lessors including Elix, Avmax, Transportation Partners and DAE Capital have a significant presence, as shown in Figure 5, attracted by the relatively higher yields. TrueNoord Capital, backed by its investors, Blackrock and Aberdeen Standard may also be expected to increase its exposure. ALC exited the market with the 25-aircraft portfolio sale to NAC two years ago.

Figure 3: Leased aircraft body type

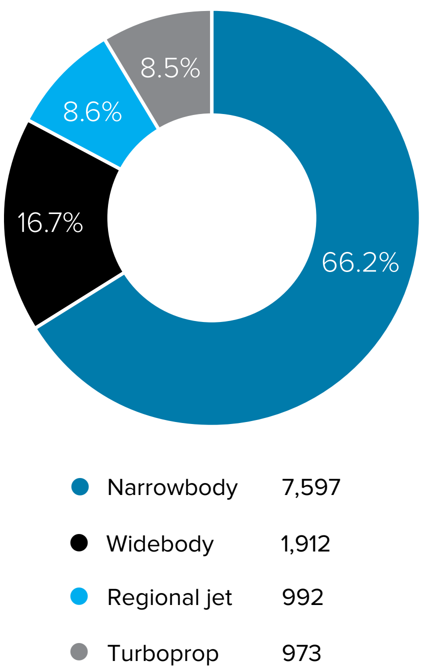
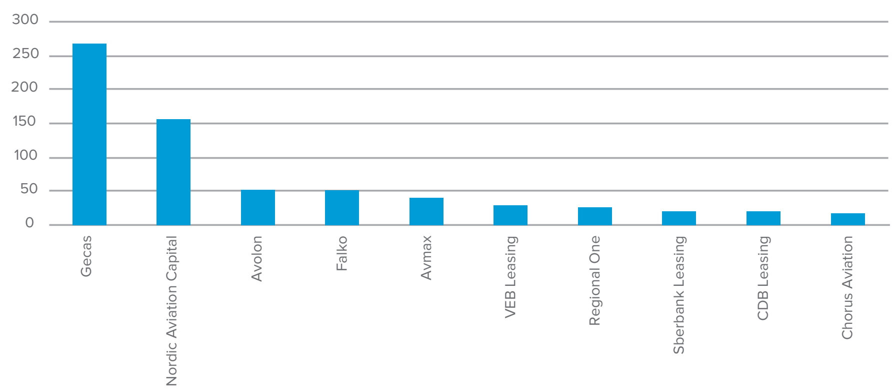
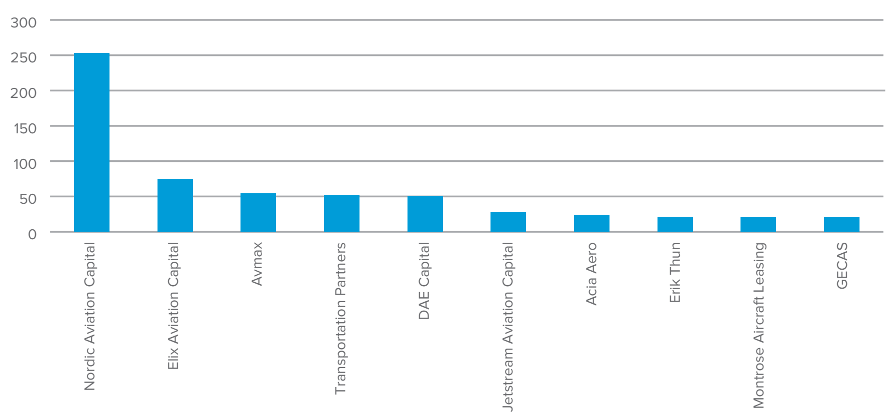


Figure 4: Top 10 lessors of regional jets



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

Figure 5: Top turboprop lessors



1 GECAS

Since its merger with Guinness Peat Aviation in the early 1990s, General Electric's aircraft leasing arm, GECAS, has maintained its position as number one lessor.

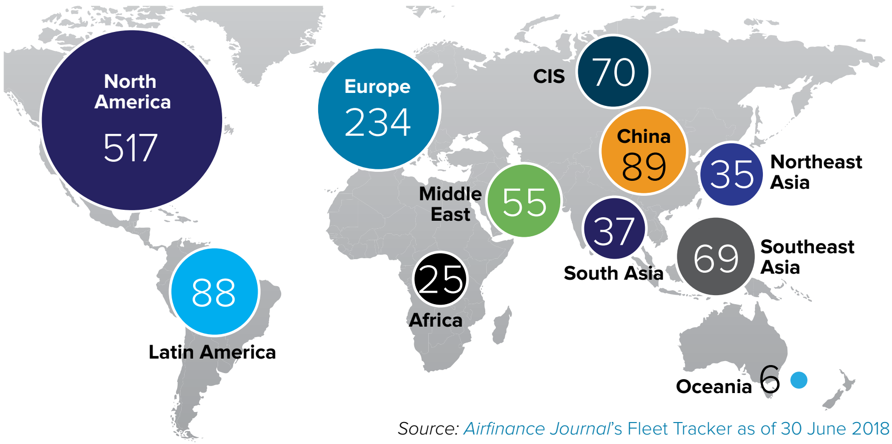
GECAS's history mirrors the development of the industry. Many of the current crop of aircraft leasing chief executive officers were initially at GPA, or at GECAS. The initial success of GPA is arguably one reason why Ireland remains the centre for aircraft leasing. GECAS, along with its close rivals, helped place aircraft for countless start-ups across the emerging markets, and GECAS has played a large role in helping to establish the portfolio of many Chinese lessors.

The lessor has been taking advantage of market conditions and has sold aircraft annually for the past three years, which has resulted in a gradual decline in the size of its balance sheet.

However, speaking with *Airfinance Journal*, its president and chief executive officer, Alec Burger, says GECAS plans to resume growth over the next two to three years.

"For the past few years GECAS has taken advantage of the tremendous sellers' market that has existed, but as we move forward we are targeting growth. Over the next two to three years our balance sheet will expand again after a period in which we were selling almost as much as we were originating. We weren't alone in that, however – in recent years other large lessors have taken advantage of the sellers' market to reduce their fleet sizes and clean up their portfolios."

GECAS fleet by region of lessee



Source: *Airfinance Journal*'s Fleet Tracker as of 30 June 2018

Burger says GECAS is looking to deploy between $6 billion and $7 billion of capital this year alone.

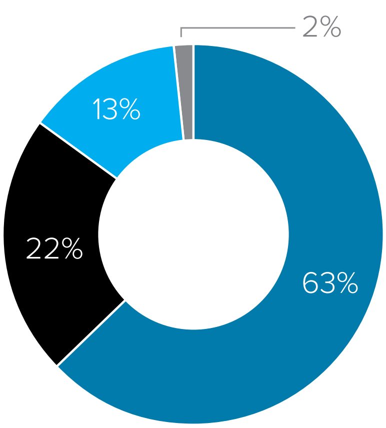
The overall growth plan is a combination of sale and leaseback with the appropriate risk/reward balance and direct order plays. "We may consider other portfolios," he says.

"On the OEM [original equipment manufacturer] side, our orderbook is heavily skewed towards narrowbodies. We have 10 Boeing 787s on order and the rest are Airbus A320s or Boeing 737s. When we look at supply and demand characteristics, we are very comfortable with that position," says Burger. But he does not write off a widebody order. "We will continue to monitor changes in the market to evaluate if a widebody new order makes sense for us in the future. Buying new aircraft from airlines makes less sense for narrowbodies, though, because the sale-and-leaseback market has become extremely competitive, resulting in fewer opportunities that will generate the profits we require."

According to *Airfinance Journal*'s latest Leasing Top 50, widebodies represent 13% of GECAS's owned and managed fleet at 30 June 2018. The lessor's fleet also includes 20 turboprops, 273 regional jets and 770 narrowbodies.

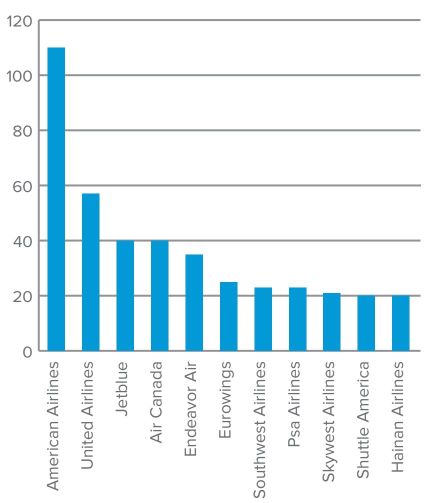
GECAS remains the top lessor by owned and managed fleet sizes with 1,225 aircraft at the end of June.

GECAS fleet by aircraft type



Narrowbody	770
Widebody	273
Regional jet	162
Turboprop	20

GECAS top lessees



GECAS Key facts

Name: GE Capital Aviation Services (GECAS)

Country: USA and Ireland

Founded: 1993

Ownership: General Electric

Company head office: Shannon, Ireland, and Norwalk, Connecticut, USA

Number of employees: circa 540

Size of fleet: circa 1,200

Average age of fleet: about 8 years

Number of customers: about 260

Orderbook: 415 aircraft

2 AerCap

AerCap's $7.6 billion acquisition of ILFC changed the leasing landscape and created a leasing firm which can challenge GECAS as the world's largest operating lessor.

The lessor listed on the New York Stock Exchange in 2006 and acquired rival company ILFC from AIG in May 2014.

The Irish lessor has 1,089 owned and managed aircraft with 27% in Europe and 18% in North America. A year ago its 1,110 portfolio was with European carriers (27%) and North American lessees (19%). Asian exposure has grown to 25.8% of the portfolio from 25.4%.

The lessor's orderbook includes 205 Airbus A320neo-family aircraft, 104 Boeing 737 Max family, six A350s, 46 787s and 50 Embraer E2 jets.

AerCap is entering a period of high capital expenditure (capex) and asset growth. It took delivery of 27 new aircraft in the first half of 2018 and plans to take another 50 in the second half of the year. Its 2018 capex is estimated at $6 billion.

Between 2019 and 2022 the lessor will acquire, through its orderbook or purchase-and-leaseback deals, about 330 aircraft.

The lessor continues to maintain a strong liquidity position as it prepares for a growth period. AerCap had $11.7 billion at 30 June: $1.6 billion in unrestricted cash, a $4 billion unsecured revolver facility and $6.1 billion of other facilities.

On the trading side, AerCap remains an active seller of mid-life and older aircraft. During the first half of this year it disposed of 50 aircraft from its owned portfolio with an average age of between 12 and 13 years.

"We've done an awful lot of selling over the course of the last four years and the portfolio is in very good shape now. I don't expect then the same level of sales as we've seen over the last several years to be occurring as we go forward," says Aengus Kelly, chief executive officer, AerCap.

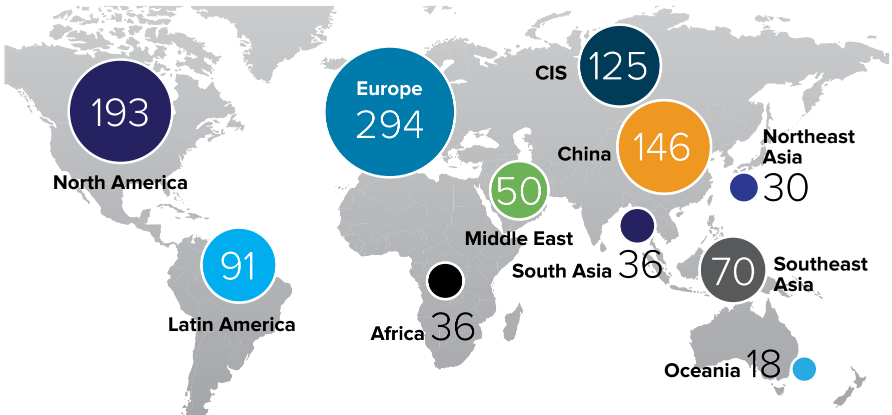
The delivery of new-technology aircraft, coupled with the sales of mid-life and older aircraft, has reduced AerCap's average age to 6.6 years, down from 7.3 years in June 2017. AerCap plans to continue this strategy and targets an average age in the low six years by the end of 2020. Average remaining lease term was 7.1 years, at 30 June.

AerCap is the number one lessor for the 787 types but remains bullish about placing widebody aircraft in the secondary market with airlines, despite market concerns about the backlog of A330s and 777s coming off leases in the next few years.

The Irish lessor has placed all 10 of the A330-200s it had with insolvent carrier Air Berlin, which went bankrupt in August 2017, with new lessees. AerCap also placed four used 777-200ERs with Ukraine International Airlines.

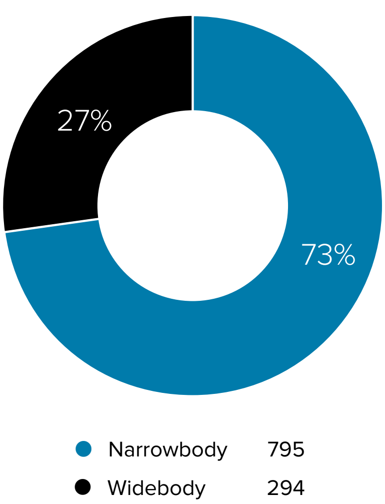
Kelly says there are many secondary widebody placement opportunities with airlines operating at congested airports, spilling traffic.

AerCap fleet by region of lessee

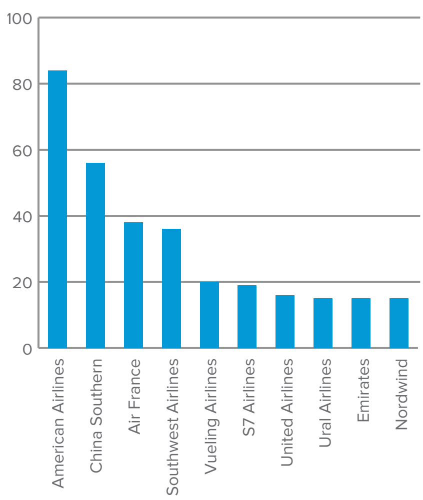


Source: *Airfinance Journal*'s Fleet Tracker as of 30 June 2018

AerCap fleet by aircraft type



AerCap top lessees



AerCap Key facts

Name: AerCap

Country: Ireland

Founded: 1995

Ownership: Public company listed on the New York Stock Exchange

Head office: Dublin, Ireland

Number of employees: 407 (31 December 2017)

Size of fleet: 1,060 owned and managed

Average age of fleet: 6.6 years

Number of lessees: 200 lessees in 80 countries

Orderbook: 411 fuel efficient aircraft (as of 30 June 2018)

Unsecured credit ratings: Fitch Ratings: BBB-

Total assets: $42 billion (owned and managed)

Net income: $519.6m (six months ended 30 June, 2018)

3 Avolon

Dublin-based Avolon's trajectory has been impressive since it started trading in May 2010. As of 30 June 2018, the lessor had 582 owned and a managed aircraft in its fleet with more than 300 aircraft orderbook with Airbus and Boeing.

Avolon was founded by Domhnal Slattery and a team from RBS Aviation Capital, including John Higgins, Dick Forsberg, Tom Ashe, Andy Cronin, Simon Hanson and Ed Riley. The lessor had developed a portfolio of 227 owned, managed and committed aircraft when it listed on the New York Stock Exchange in December 2014.

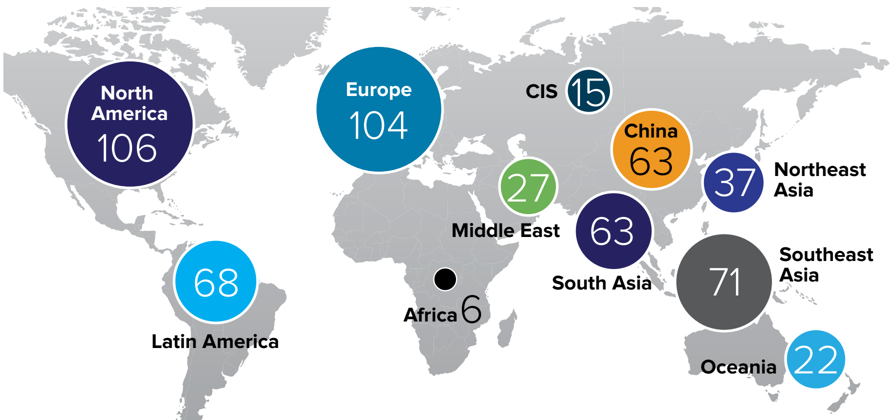
In January 2016, Bohai Leasing, the Chinese leasing and financial services company affiliated with HNA Group, completed a cash offer for 100% of Avolon's common shares. Hong Kong Aviation Capital, a leasing entity also owned by Bohai Leasing, is now managed under the Avolon brand.

The following year, Avolon completed the acquisition of the CIT Group aircraft leasing business creating the world's third-largest aircraft leasing company with a 31 March 2017 fleet of 850 aircraft with a value of more than $43 billion.

After a period of acquisitions under its parent company Bohai Capital, Avolon is going through some shareholder changes.

In August, Japanese lessor ORIX Aviation agreed to pay $2.2 billion for a 30% stake in the lessor. The deal provided Bohai with a deleveraging opportunity, to help its cash-strapped parent HNA Group clean up its balance sheet.

Avolon fleet by region of lessee



Source: *Airfinance Journal*'s Fleet Tracker as of 30 June 2018

"ORIX is a strong, investment-grade institution with a proven track record in the leasing sector over multiple industry cycles," says Avolon's chief executive officer Dómhnal Slattery, adding: "We will benefit from ORIX's experience and relationships as we continue to build Avolon's financial strength and industry franchise."

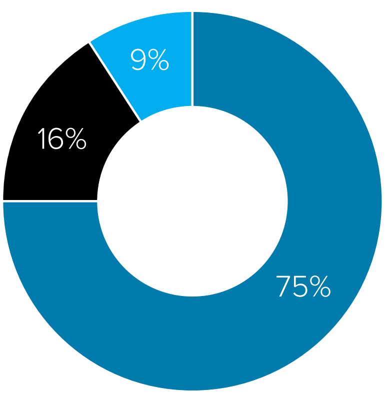
One benefit of the deal may be greater market share in Japan.

"Our new shareholder structure and the associated enhancements to our governance framework will also accelerate our momentum towards an investment-grade rating – a key objective for our business," says Slattery. Year-on-year, its in-service and managed aircraft portfolio slightly increased but more recently Avolon deleveraged with a 30-aircraft portfolio sale. The aircraft, which were added through the CIT Aerospace acquisition, were sold to the former CIT employees who formed Zephyrus Aviation Capital.

Avolon has similar exposure to North America and Europe with 18% each, while South-East Asia represents 12% of the number of aircraft. South Asia, China and Latin America account for 11% each.

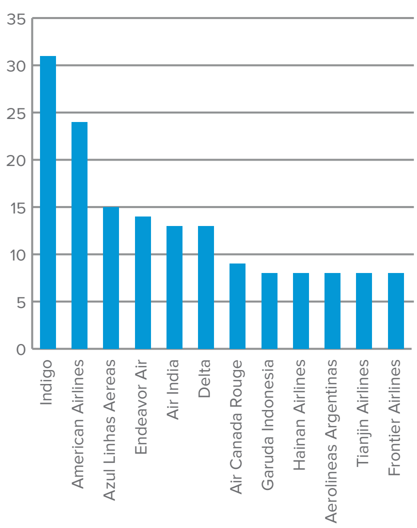
Indigo Airlines is Avolon's largest operator with 31 aircraft.

Avolon fleet by aircraft type



Narrowbody	437
Widebody	93
Regional jet	52

Avolon top lessees



Avolon Key facts

Name: Avolon

Country: Ireland

Founded: 2010

Ownership: Bohai Capital

Head office: Dublin, Ireland

Number of employees: 250

Size of fleet: 890 owned, managed and committed fleet

Average age of fleet: 5.1 years*

Number of lessees: 528*

Orderbook: 319 aircraf*

Unsecured credit ratings: Fitch Ratings: BB (Positive); Moody's: Ba2 (Review for Upgrade); S&P Global Ratings: BB+ (Stable); KBRA: BBB+ (Stable)

Total assets: $28 billion*

Net income: $550 million profit after tax (As of 31 December 2017)

*As of 30 September 2018

4 BBAM

BBAM is the largest independent aircraft manager with more than 400 aircraft under management. It is a privately held company.

The company sources and remarkets aircraft for Fly Leasing and Nomura Babcock & Brown. Alongside Nomura Babcock & Brown, BBAM has become the largest arranger of Japanese equity capital to the airline industry, having financed more than 300 aircraft with Japanese operating lease deals.

In March, BBAM announced its participation, with its long-term partner Nomura Babcock & Brown, in an $870 million transaction combining senior secured enhanced equipment trust certificates (EETC) and Japanese operating lease with call option (Jolco) equity for 11 aircraft: two Boeing 787-8s, two 787-9s and seven Airbus A320neos.

"BBAM structured the Jolco element of this transaction and we are delighted to further build on our strong relationships with British Airways and IAG. The combination of EETC and Jolco equity is an innovative structure that we have helped develop to provide our clients with flexible financing solutions," says BBAM's chairman and chief executive officer Steve Zissis.

Fly Leasing has changed its tone on the potential exercising of the 20 A320neo-family options it has as part of the Airasia transaction. When it first announced the transaction this year, the lessor left the door open as to whether it would exercise the 20 options. The options are on the purchase-and-leaseback transaction for 20 A320neo-family aircraft, which have an average 0.77% lease rate factor but, in March, Fly said it had to get better lease rate factors.

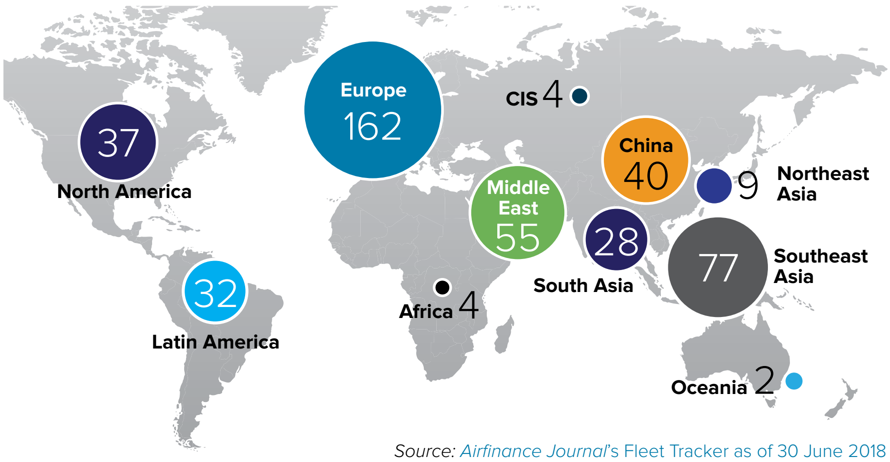
On BBAM'S second-quarter earnings call, Zissis said: "Fly will evaluate the auction to acquire the 20 aircraft as it falls due based on the demand from airlines for leased aircraft and the availability of attractive financing at the time. At this point in time, these options are certainly attractive and we would expect to exercise on."

Fly Leasing reported a $24.3 million net income for the second quarter of this year, up from last year's $2.9 million. Total revenues reached $102.6 million for the quarter, up from $79.8 million in last year's corresponding period. Net income for the six months ending 30 June was $34 million compared with a $7.9 million net income for the first six months of 2017.

At 30 June, Fly had transferred 13 A320 aircraft from the initial Airasia portfolio. It expects to transfer the remaining 20 A320s and seven engines on operating leases to Airasia and its affiliated airlines, and one A320 aircraft on operating lease to a third-party airline, by October.

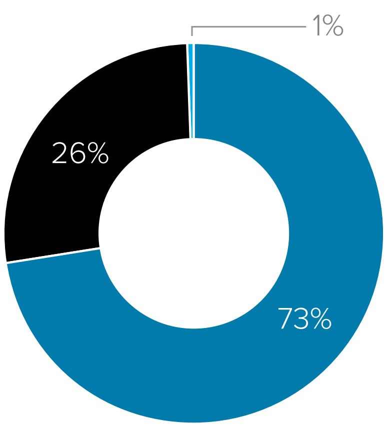
Fly's total assets were $3.6 billion, including investment in flight equipment totalling $3 billion, as of 30 June. Total cash was $466.1 million, of which $406.5 million was unrestricted.

BBAM fleet by region of lessee



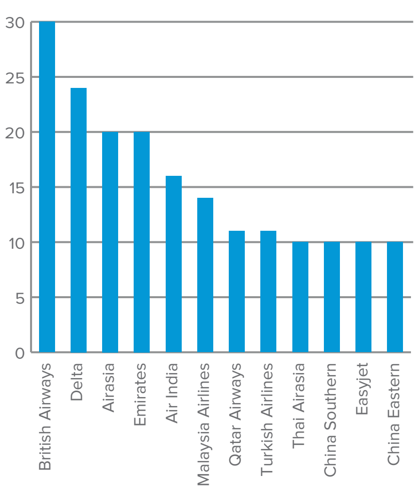
Source: *Airfinance Journal*'s Fleet Tracker as of 30 June 2018

BBAM fleet by aircraft type



Narrowbody	327
Widebody	121
Regional jet	2

BBAM top lessees



BBAM Key facts

Name: BBAM

Country: USA

Founded: 1991

Ownership: ONEX 35%, BBAM 35%, GIC 30%

Head office: San Francisco

Number of Employees: 152

Size of fleet: 571 (managed)

Average age of fleet: 7.3

Number of lessees: 108

Orderbook: 0

Delivery commitments: N/A

Net income (as of 30 June 2018): N/A

5 Nordic Aviation Capital

Nordic Aviation Capital (NAC) is the world's largest regional aircraft trading and leasing company, founded in 1990 by aviation entrepreneur Martin Møller. Since then, it has evolved from a one-aircraft business to a company that has a fleet of more than 468 aircraft, with a value of $7.8 billion.

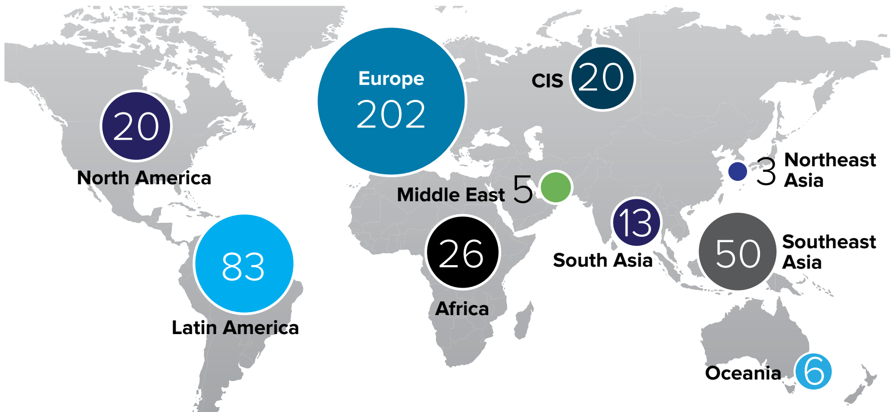
At the beginning of 2018, NAC ordered 15 additional ATR 600 series aircraft valued at $330 million. It was NAC's fourth order with ATR since 2011. NAC is the largest owner and lessor of ATR aircraft in the world and the recent order increased its ATR fleet to more than 200 aircraft.

In March, NAC completed the placement of $486 million of unsecured debt financing through two issuances. It issued a $381 million private placement and placed a $105 million unsecured offering in the Schuldschein market. NAC used the proceeds to refinance aircraft in its portfolio.

At 30 June, the group had total assets of $7.8 billion, including aircraft worth $6.3 billion. Equity was $1.54 billion, up from $1.4 billion in the 2017 fiscal year.

The lessor enjoyed a 7% increase in total revenues in its 2018 fiscal year, ending 30 June. Lease revenues increased 12% to $780 million from $690 million in the previous fiscal year. Europe represents 43% of NAC's lease revenues. Asia-Pacific comes second with 25% of the lessor's lease revenues. Latin America represents 16%, followed by North America with 10% and Africa 6%.

NAC fleet by region of lessee



Source: *Airfinance Journal*'s Fleet Tracker as of 30 June 2018

At the end of NAC's fiscal year to 30 June, the lessor had a $6.3 billion portfolio of 426 aircraft with 71 clients. It managed also a further 12 aircraft and had purchase commitments for 85 additional units. The lessor's fleet comprises a mix of regional assets including ATR42, ATR72, Bombardier Q400, CRJ900, CRJ1000, Embraer 170, E175, E190, E195 and Airbus A220-300 aircraft.

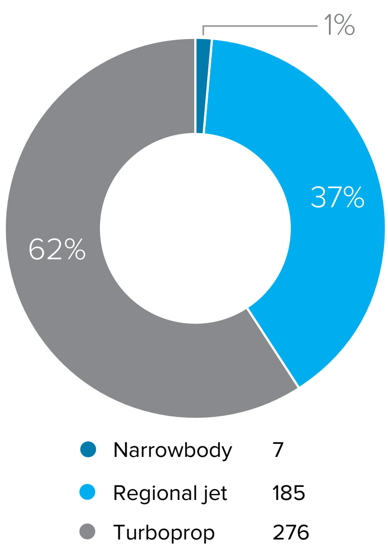
The aircraft portfolio had a weighted average age of 6.5 years and a weighted average remaining lease term of 5.2 years.

"In 2018, we completed a significant number of transactions from single aircraft to large portfolio acquisitions. We took delivery of 20 new aircraft and purchased 59 second-hand aircraft. We added additional regional jet customers to our portfolio and increased our lease revenue from regional jet aircraft, which now accounts for 44% of our total lease revenue," says NAC's chief commercial officer Jim Murphy.

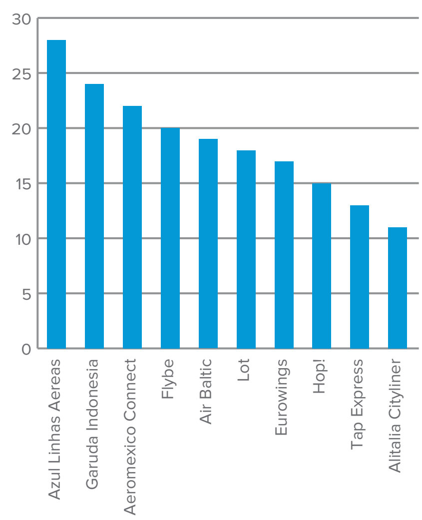
In early September, NAC entered into an agreement with BeauTech Power Systems for the purchase of some of the 25 remaining Embraer E190 aircraft operated by Air Canada.

"We are investing heavily in growing the business through strategic acquisitions such as this one with Air Canada," says NAC chairman Møller. "NAC's investment in this attractive portfolio of assets underlines our confidence in the long-term growth prospects of the regional jet market."

NAC fleet by aircraft type



NAC top lessees



NAC Key facts

Name: Nordic Aviation Capital

Country: Ireland

Founded: 1990

Ownership: Martin Møller, EQT

Registered office: Limerick, Ireland

Number of employees: 219

Size of fleet: 437 (owned and managed)

Average age of fleet: 6.5 years

Number of lessees: 71

Orderbook: 50

Unsecured credit ratings: Kroll BBB+/BBB

Total assets: $7.8 billion

Business performance net income: $160 million

*All figures are at end of September 2018

6 SMBC Aviation Capital

Dublin-based SMBC Aviation Capital is owned and supported by a consortium of Japanese institutions, including Sumitomo Mitsui Banking (SMBC), Sumitomo Mitsui Finance and Leasing (SMFL) and Sumitomo Corporation.

The Dublin-based lessor says 2017/18 was a "positive year for sale-and-leaseback activity". It signed letters of intent for 50 sale-and-leaseback aircraft contracted during the year ended 31 March 2018, compared with 21 sale and leasebacks during the year ended 31 March 2017.

Last year, the lessor sold 50 aircraft from its owned portfolio, including the sale of a 19-aircraft portfolio to Aircastle, one of the largest bilateral trades in the market that year, with 22 aircraft also sold from SMBC Aviation Capital's managed portfolio.

Earlier this year it sold an eight-narrowbody portfolio to Genesis Aircraft Services. The lessor's focus remains on the liquid narrowbody and widebody aircraft, including the Airbus A320neo, Boeing 737 Max, the 787 and A350 models.

SMBC Aviation received a boost in November 2017 when its shareholders, Sumitomo Mitsui Financial Group and Sumitomo, said they would inject capital of about $1 billion into the company by 31 March 2019.

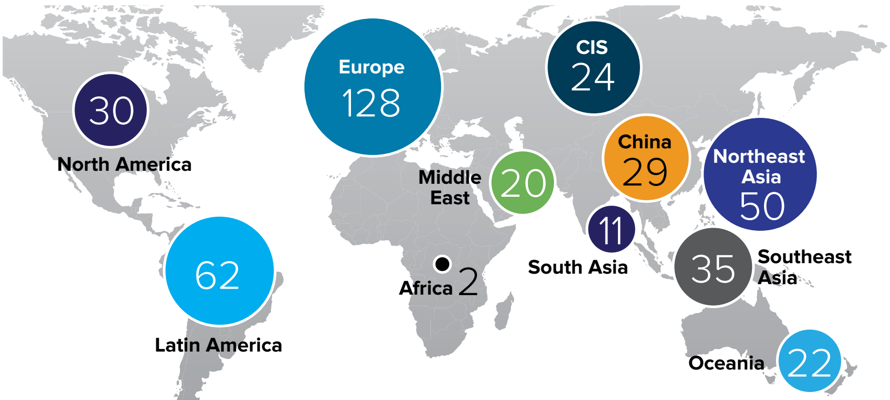
The funding will consist of $700 million of equity capital from SMFL and SMBC, plus a $300 million subordinated loan from SMBC. The equity will aid SMBC Aviation's growth and purchases of new aircraft that it plans to bring on stream from 2019. "This capital is further evidence of the continuing support of our shareholders and of the strategic importance of SMBC Aviation Capital to their growth strategy," Peter Barrett, chief executive officer of SMBC Aviation Capital, said at the time. "This capital ensures that we are well-positioned to deliver on our own growth plans by enabling us to offer our customers innovative aircraft financing solutions. It also further enhances our integration with our shareholder, a key differentiator for us in this industry."

SMBC Aviation's revenue and other operating income rose 11% year-on-year to $1.162 billion for the 12 months ending March 2017, propelled by investments in young aircraft and strong aircraft trading activity. Its fleet size was 670 aircraft at the end of that period.

The company made its debut in the bond market in July 2016, with a $500 million issuance. Its last appearance in the offshore loan market was in March 2017, when it completed, amended and extended a $600 million revolver. Earlier this year, SMBC Aviation returned to the market with five-year $500 million senior unsecured notes priced at 4.125%.

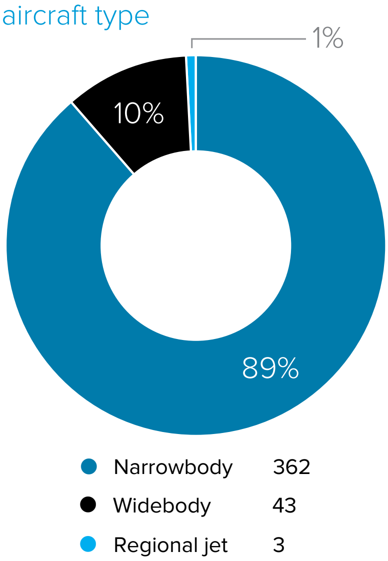
It also closed a five-year $600 million syndicated financing transaction for general corporate purposes. The deal comprised a $200 million term loan and a $400 million revolving credit facility with a consortium of primarily Asian banks.

SMBC Aviation Capital fleet by region of lessee

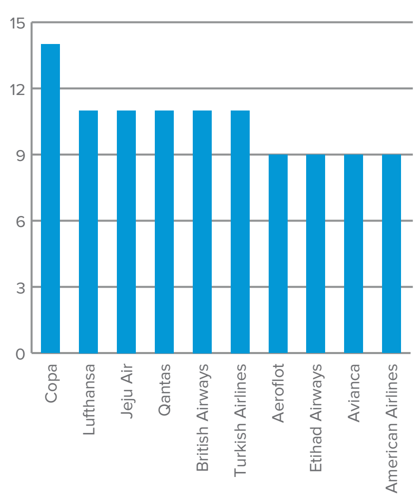


Source: *Airfinance Journal*'s Fleet Tracker as of 30 June 2018

SMBC Aviation Capital fleet by aircraft type



SMBC Aviation Capital top lessees



SMBC Aviation Capital Key facts

Name: SMBC Aviation Capital
Country: Ireland
Founded: 2001
Ownership: SMBC, SMFL and Sumitomo Corporation
Head office: IFSC House, Dublin, Ireland
Number of employees: 180
Size of fleet: 675
Average age of fleet: 4.5 years
Number of lessees: 100 airline customers in 50 countries
Orderbook: 116 Airbus A320neo aircraft, 90 Boeing 737 Max 8 aircraft
Unsecured credit ratings: Fitch Ratings A-; S&P Global Ratings: BBB+
Total assets (owned and managed): Aircraft related assets stood at $10.7 billion
Net income: Revenues $1.03 billion, Operating Profit $595 million (31st March 2018)

7 DAE Capital

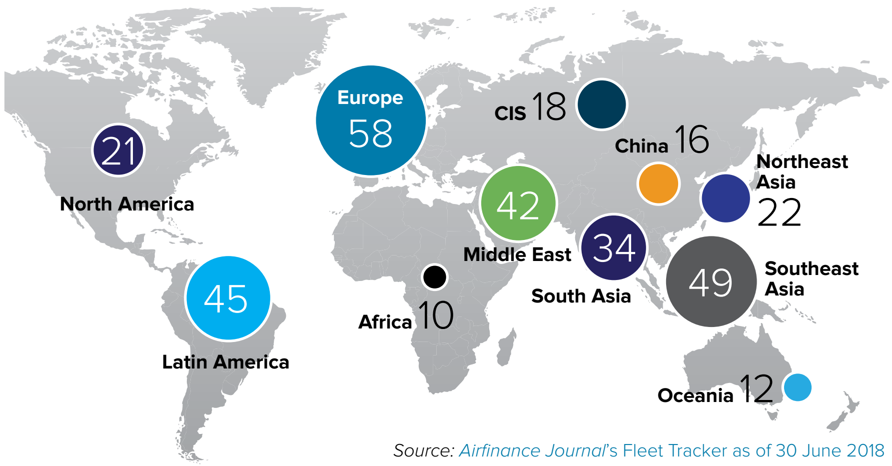
DAE Capital has been a top-10 lessor since August last year, when it climbed 21 positions to become the world's seventh-largest leasing company by number of aircraft. The UAE company's acquisition of Irish lessor AWAS, which closed on 20 August 2017, was the main reason for this jump in ranking. The deal was one of the biggest aviation M&A transactions of the past decade, with DAE taking on an extra $7.5 billion in aircraft assets.

The AWAS deal aside, the lessor still had a very busy year. It launched its third-party aviation asset management unit (DAE Aircraft Investor Services) in January – targeting assets under management of $5 billion. The unit seeks to provide investors "a single-point of contact dedicated to championing their interests within the wider DAE platform, and ensure a best-in-class standard of care for investors' assets," DAE said at the time.

During 2017, the lessor also sold a 16-aircraft portfolio valued at about $900 million with three counterparties. Those covered by these agreements include Boeing 737 and Airbus A320, A330 and A350 aircraft, which had an average age of two years and are currently on lease to 11 airlines in 11 countries.

The lessor also signed an unsecured revolving credit facility with conventional and Islamic tranches of up to $800 million, and became a launch customer for Rolls-Royce's LessorCare for the lessor's existing and future fleets of Rolls-Royce Trent-powered aircraft.

DAE fleet by region of lessee



Source: *Airfinance Journal*'s Fleet Tracker as of 30 June 2018

Over the next year, the lessor plans to continue growing its fleet, through sale and leasebacks and other channels. DAE also looks to issue additional unsecured liquidity to increase financial flexibility including the possible issuance of a benchmark sukuk, an Islamic bond. DAE also wants to grow its asset-backed securities portfolio through DAE Aircraft Investor Services.

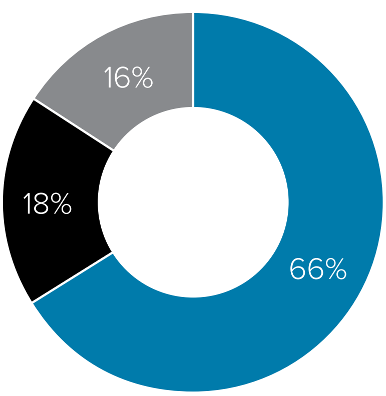
Commenting on the leasing industry, Firoz Tarapore, DAE Capital's chief executive officer, says: "We clearly are in a strong part of the cycle. Strong investor interest given the relative returns to aircraft assets compared with other assets makes it likely there will be some additional leasing entrants in the space."

However, Tarapore sees some challenges for lessors ahead, including being able to manage through "an intense competitive environment with some participants seeking market share over returns", as well as managing a rising interest rate cycle.

The consolidated lessor has a fleet of about 375 owned, managed and committed aircraft, on lease to 110 lessees. It has an average fleet age of 6.1 years and an orderbook of 18 aircraft.

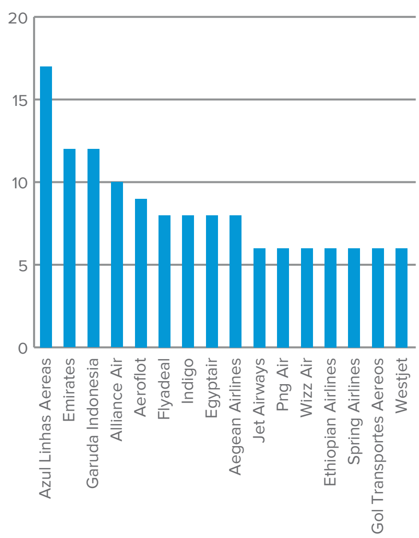
Although its head office remains in Dubai, after the AWAS acquisition, it can now go to market in six locations: Dubai, Dublin, Singapore, Miami, New York and Bellevue, Washington.

DAE fleet by aircraft type



Narrowbody	217
Widebody	59
Turboprop	51

DAE top lessees



DAE Key facts

Name: Dubai Aerospace Enterprise (DAE)

Country: United Arab Emirates

Founded: 2006

Ownership: Investment Corporation of Dubai (about 96%)

Head office: Dubai, UAE

Number of employees: about 140

Size of fleet: 375 (owned, managed and committed)

Average age of fleet: 6.1 years

Number of lessees: 110

Orderbook: 18

Unsecured credit ratings: Ba2 (Moody's) BB+ (S&P)

Total assets ($): $14.2 billion

Net income: N/A

8 Air Lease

Air Lease Corporation (ALC) was founded by former ILFC executives led by Steven Udvar-Hazy in 2010. It went public on the New York Stock Exchange the following year. ALC continues to grow its fleet and has added about 100 net aircraft since 2014. The California-based lessor has an owned and managed fleet of 323 aircraft, compared with 278 last year.

The lessor continues to have one of the largest orderbooks in the industry with 441 aircraft under commitments, of which 391 are on firm order at 30 June. Those include 146 Airbus A320-family narrowbodies, 202 Boeing 737 Max-family narrowbodies, as well as 92 widebodies: 20 A350-900/-1000s, 29 A330-900neo aircraft and 43 787-9/-10s.

The lessor says it has experienced "robust demand" for its orderbook, resulting in 87% aircraft deliveries placed with customers through 2020.

Its assets have grown to $17.3 billion as at 30 June 2018, up from $10.7 billion in 2014. ALC is rated A- by Kroll Bond Rating Agency and BBB by both Standard & Poor's and Fitch Ratings.

Its orderbook aircraft profile has also changed over the past few years. Early in the decade, ALC ordered Embraer and ATR aircraft, but those have been sold with leases attached to Nordic Aviation Capital.

In an interview with *Airfinance Journal* at the 2018 Farnborough Airshow, John Plueger, the lessor's chief executive officer, showed some interest in the recently rebranded Airbus A220.

"We've always liked the airplane from day one, but it hasn't had enough customers and frankly it's been too expensive," he said. "To the extent that Airbus's involvement changes those two elements – and I suspect that it will over time – it's an airplane that we're watching closely. And again, given the right economic terms and the development of that marketplace, of course we will seriously continue to evaluate it."

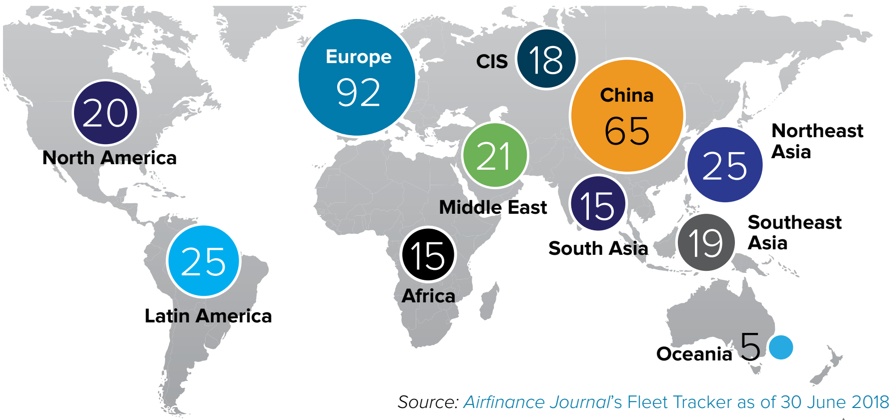
In August, Udvar-Hazy echoed Plueger's comments, saying that Air Lease is keeping its eye on the regional market.

"We're further evaluating smaller-gauge aircraft, in the 120-to-160-seat category, under the umbrella of Airbus, and we anticipate soon Boeing. More specifically, the A220 and the Embraer E2 jets are being carefully analysed," he said. But Hazy also indicates that ALC is evaluating those models as part of the long-term future of global air transportation and ALC.

ALC's largest market is Europe with 27%, followed by China, which accounts for 20% of its business by number of aircraft. North-East Asia, Southeast Asia and South Asia represent a combined 19.5% of the ALC portfolio. Latin America and North America account for 7.7% and 6.8%, respectively. Middle East and the CIS account for 6.8% and 6.1%, respectively.

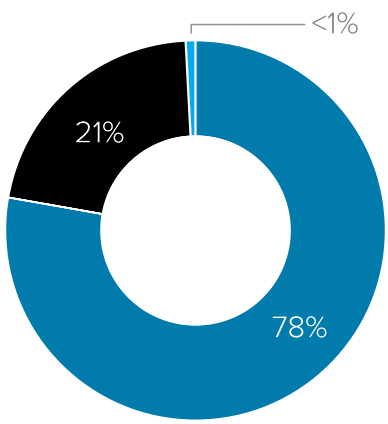
China Southern Airlines is ALC's largest operator with 20 aircraft.

ALC fleet by region of lessee



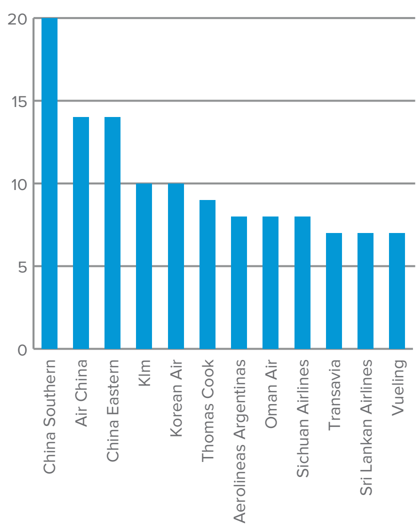
Source: *Airfinance Journal*'s Fleet Tracker as of 30 June 2018

ALC fleet by aircraft type



Narrowbody	250
Widebody	68
Regional jet	2

ALC top lessees



ALC Key facts

Name: Air Lease

Country: USA

Founded: 2010

Ownership: Public company listed on the New York Stock Exchange

Number of employees: 90

Head office: Los Angeles, CA, USA

Size of fleet: 271 owned aircraft; 49 managed aircraft

Average age of fleet: 3.8 years

Number of lessees: 93 airline customers in 56 countries

Orderbook: 391 aircraft (includes firm orders only)

Delivery commitments: $28.5 billion

Unsecured credit ratings: S&P: BBB (Stable); Fitch Ratings: BBB (Stable); Kroll: A- (Stable)

Total assets: $17.3 billion (as of 30 June 2018)

Net income: $796 million (12-month trailing)

9 BOC Aviation

With two years as a public company under its belt, Singapore-based and Hong Kong-listed BOC Aviation has continued its strong growth. The company raised its first-half profit by almost a quarter to $297 million, and increased revenues by 23% to $825 million as it grew its asset base by 19% to $17.1 billion. Net profit for full-year 2017 was $587 million for the year ended 31 December, up from $418 million in 2016.

In July, BOC Aviation said it would add 17 new-generation Airbus A320neo and A321neo aircraft, delivering in 2020 and 2021, as part of a $2.2 billion deal with Airbus. In the second quarter ending 30 June, the company signed 16 lease commitments and took delivery of 15 aircraft. The lessor has also been active in aircraft trading: in May, it sold 15 aircraft to an undisclosed lessor, including 14 narrowbodies and one widebody. That same month, it also delivered its first Boeing 737 Max to Turkey's Corendon Airlines.

In the capital markets, BOC Aviation issued $350 million senior international bonds on the Singapore Stock Exchange in May. That transaction came after a $500 million unsecured issuance in April.

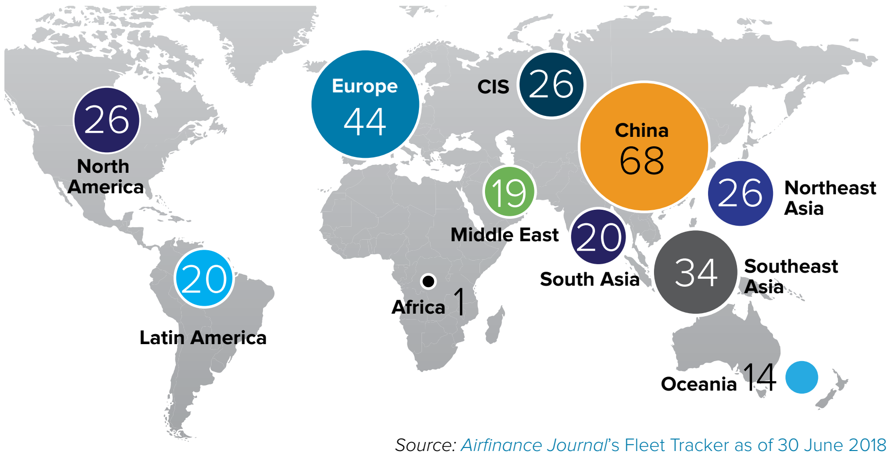
"We are differentiated from many of our competitors on the basis of the youth of our fleet (one of the youngest in the industry), the length of our average remaining lease period (one of the longest in the industry), our high level of liquidity (close to $4 billion in cash and undrawn committed facilities) and our key shareholder relationship (BOC is a strong and committed shareholder)," BOC Aviation chief executive officer Robert Martin tells *Airfinance Journal*.

Martin, who has been with the lessor for more than 20 years, is bullish on the Chinese market.

"China remains one of the fastest-growing major markets in the world and is the greatest component of the global aircraft orderbook. Historically, its lessor community has been underdeveloped and has been looking to gain market share over the last decade. We expect PRC [People's Republic of China] lessors and investors to continue to commit capital to aircraft ownership as its aviation industry builds," he says.

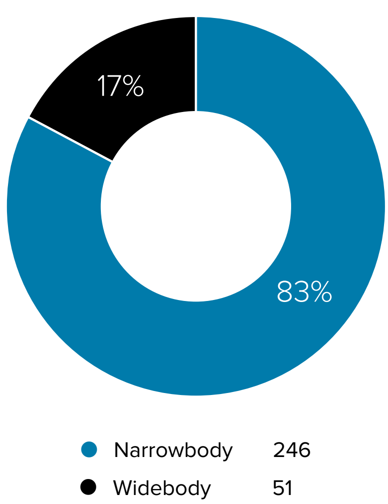
Despite being bullish on the Chinese market, none of the lessor's top six lessees are Chinese, according to *Airfinance Journal*'s Fleet Tracker. Vistara and Southwest have the highest count of aircraft with BOC Aviation, 12, followed by Jetstar Airways with 10 aircraft.

BOC Aviation fleet by region of lessee

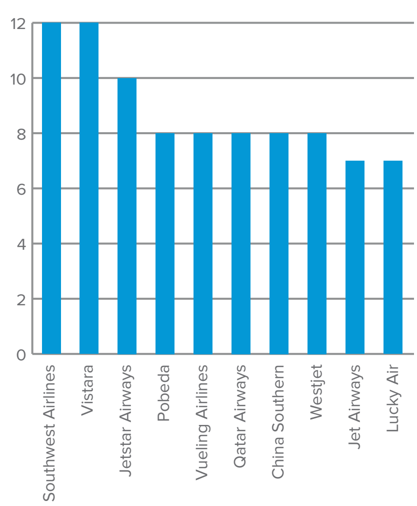


Source: *Airfinance Journal*'s Fleet Tracker as of 30 June 2018

BOC Aviation fleet by aircraft type



BOC Aviation top lessees



BOC Aviation Key facts

Name: BOC Aviation Limited

Country: Singapore

Founded: November 1993, as Singapore Aircraft Leasing Enterprise

Ownership: Public company listed on the Hong Kong Stock Exchange; 70% owned by Bank of China

Head office: Singapore

No of employees: 158 (as of 30 June 2018)

Size of fleet: 324 aircraft: 295 owned and 29 managed (as of 30 June 2018)

Average age of owned fleet: 3.0 years

Number of lessees: 88 airlines in 35 countries

Orderbook: 193 (as of 30 June 2018)

Unsecured credit rating: A- by Fitch and A- by S&P

Total assets: $17.1 billion

Net income: $297 million

10 Aviation Capital Group

Aviation Capital Group (ACG) has been constantly profitable since its foundation in 1989. In 2017, the US lessor reported a $146 million pre-tax income on revenues of $874 million.

Khan Tran has been chief executive officer of ACG since 2016 and under his leadership the lessor has opened its shareholder base. He was previously president of the company's parent, insurance business Pacific Life.

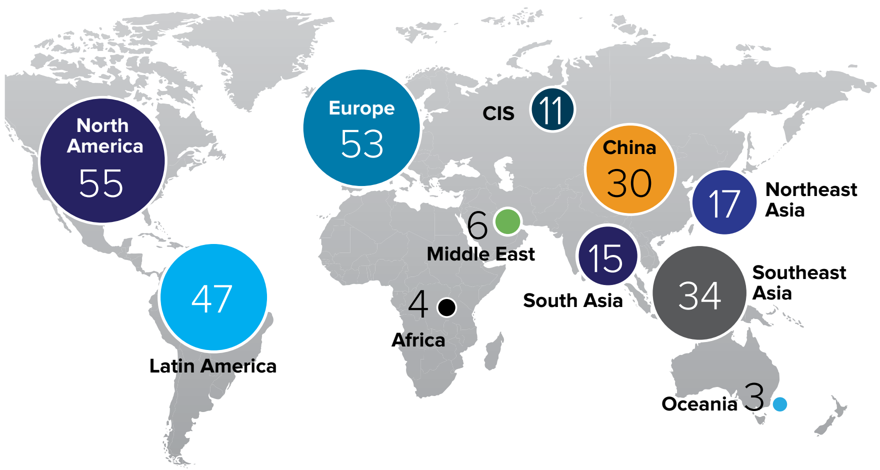
In December 2017, Japanese company Tokyo Century finalised a 20% stake in the lessor for about ¥67 billion ($595 million). ACG says its new shareholder will provide additional capital – on top of its 20% equity investment – to help accelerate the lessor's business expansion and create incremental business opportunities. Tokyo Century says it could further increase its shareholding in the US lessor.

In October 2014, the Japanese publicly held company established an aircraft leasing joint venture with CIT Group with 33 aircraft. However, it acquired 30% of the joint venture from CIT, becoming the sole owner of the portfolio last year.

On the corporate side, the Newport Beach-based ACG has also made significant progress over the past 12 months.

Last December, Kroll Bond Rating Agency assigned an A rating to Aviation Capital Group. Standard & Poor's rates it as A-. In July, Fitch Ratings Services raised its rating on the operating lessor to BBB+ from BBB.

ACG fleet by region of lessee



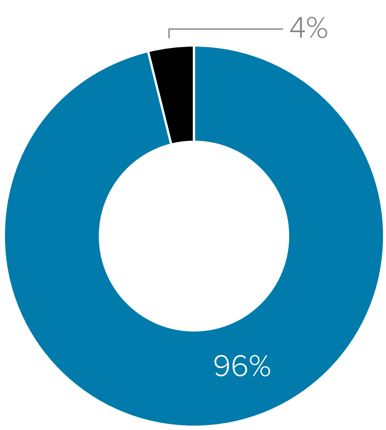
Source: *Airfinance Journal*'s Fleet Tracker as of 30 June 2018

ACG's portfolio has not changed much since last year's Leasing Top 50. It has 275 aircraft in service: 265 narrowbodies and 10 widebodies.

Over the past year, ACG has placed orders for 20 Boeing 737 Max 8 aircraft and 20 737 Max 10s, complementing an order for 60 Max aircraft placed in 2012. It also has an orderbook for 60 Airbus A320neos and 10 A321neo aircraft.

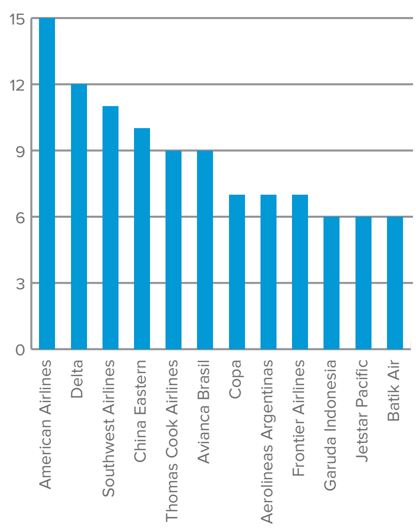
ACG's exposure is equally spread between North America (20%), Europe (19%) and Latin America (17%). South-East Asia represents 12% and China 11% of its in-service fleet. American Airlines is ACG's largest operator with 15 aircraft.

ACG fleet by aircraft type



- Narrowbody 265
- Widebody 10

ACG top lessees



ACG Key facts

Name: Aviation Capital Group

Country: USA

Founded: 1989

Ownership: Pacific Life Insurance

Head office: Newport Beach, California, USA

Number of employees: 105

Size of fleet: 301 (owned and managed)

Average age of fleet: 5.6 years

Number of lessees: 94

Firm orders and commitments: 191 orders and commitments (as of July 2018)

Delivery commitments: $9.25 billion

Unsecured credit ratings: Kroll Bond Rating Agency: A (Stable); S&P Global: A- (Stable); Fitch Ratings: BBB+ (Positive)

Total assets: $8.65 billion

Net income: $134m (six months ended 30 June, 2018)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