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ALAN GERAGHTY
IRELAND
ageraghty@wilmingtontrust.com
+353 1 612 5551

CAROLINE MAGEE
IRELAND
carolinemagee@wilmingtontrust.com
+353 1 792 0711

CHRIS SPONENBERG
UNITED STATES
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Contents

Correction: The last issue of the editor's letter contained inaccurate IATA. This has been corrected in the online version.

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

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

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

Consulting editor
Geoff Hearn

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

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

Group sub editor
Peter Styles Wilson

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

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

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

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

Senior marketing manager
Andrew Rolland
+44 (0)207 779 8364
andrew.rolland@euromoneyplc.com

Divisional CEO
Jeffrey Davis

Production editor
Tim Huxford

Subscriptions / Conferences Hotline
+44 (0)207 779 8999 / +1 212 224 3570
hotline@euromoneyplc.com

Customer Services
+44 (0)207 779 8610.
8 Bouverie Street, London, EC4Y 8AX

Board of Directors: Leslie van de Walle (chairman), Andrew Rashbass (CEO), Tristan Hillgarth, Jan Babiak, Imogen Joss, Lorna Tilbian, Colin Day and Wendy Pallot.

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Where are we in **the cycle**?

Amid challenging macro-economic conditions and rising global tensions, are the good times finally coming to an end, asks **Oliver Clark**.

As the year draws to a close, a sense of uncertainty permeates the industry. The airline sector has had a turbulent time. IBA estimates that 19 airlines globally have failed so far this year, with Germania, Wow Air, Jet Airways and Tajik Air just some of the carriers which have disappeared from the skies.

In Europe alone, four carriers – Thomas Cook Airlines, XL Airways, Aigle Azur and Adria Airways – collapsed in the space of two months this autumn.

Lessors should have little difficulty finding new homes for their aircraft, especially the narrowbodies, and it should be noted that most of the carriers which have gone were relatively small players. But the casualty rate must be a cause of concern if taken as an indicator of the financial health of the airline industry.

A year ago, the International Air Transport Association (IATA) was predicting the airline industry would achieve $33.8 billion in profits, a 12% downgrade from an earlier forecast, meaning the 2018 net profits were to translate into a 4.1% net margin, the lowest recorded by the airline industry since 2015.

The grounding of the Boeing 737 Max, which has entered its eighth month, is a source of continued disruption and uncertainty for lessors and airlines.

Dennis Muilenburg, the Boeing chief executive officer, was recently quoted by *Bloomberg* as saying that the US manufacturer was in the "endgame" of preparing the 737 Max to return to commercial service, although no date for this has been set.

Macro-economic factors remain a cause of concern. The US-China trade war shows little sign of abating and to this can be added new tariffs that the USA can impose on EU goods after a ruling by the World Trade Organization (WTO) that the country could seek damages for state subsidies supplied to Airbus.

The tariffs, which cover $7.5 billion of goods, include Airbus aircraft parts. The EU has vowed to retaliate in kind, and the WTO is due to rule next year on what tariffs the bloc can impose on the USA over state subsidies to Boeing.

IATA has warned that falling global cargo volumes are a result of the effects of the US-China trade war and the "weakness" in some of the key economic indicators and rising political uncertainties worldwide.

Demand measured in freight-tonne kilometres contracted by 3.9% in August 2019, compared with the same period in 2018. This marks the 10th consecutive month of year-on-year decline in freight volumes, the longest period since the global financial crisis in 2008.

The US Federal Reserve's two rate cuts this year and speculation about a third this month suggests that, while the US economy is still performing well, there are concerns about future economic uncertainty.

Oil prices have been fairly subdued this year. Brent Crude has tracked at between $60 and $70 a barrel for most of the year, peaking at a high of $74 in April. Compare this with 2018, when the price of oil steadily rose through the year to peak at $84 a barrel.

The outcome of Brexit also remains uncertain.

As *Airfinance Journal* went to press, it was unclear whether the UK government's planned 31 October exit date would occur and under what terms the UK will depart the bloc.

But while conditions seem uncertain, *Airfinance Journal*'s Leasing Top 50 reveals a leasing sector in robust health.

The major lessors achieved record revenues in 2018/19 totalling $26.1 billion, up from $24.3 billion the previous year. Net income reached $6.3 billion from $6 billion.

Lessors held a record $197.9 billion of assets on their books in the period, up from $186.7 billion in 2017/18.

Other metrics were less rosy. There was a continued decline in lease yields, falling to an average of 12.2% from 12.7%, which reflected high market liquidity.

Gearing remained benign at 2.9x times, from 3x previously. There was a marked increase in unsecured debt, which rose to $94 billion from $72 billion. Secured debt fell to $47 billion from $53 billion.

There has been an uptick in average debt cost. Return on average equity fell during the period, but remains at an attractive level of 11.5%.

Despite having to contend with the impact of the 737 Max grounding and Airbus production delays, John Plueger, Air Lease Corporation (ALC) chief executive officer (CEO), is upbeat in an interview with *Airfinance Journal*. He points out that, despite the challenges, ALC outperformed its sales targets and grew its revenues by 18.5% to $471 million for the quarter ended 30 June, driven by continued fleet growth.

Subdued global economic data has so far failed to ignite the global recession that some market analysts have long predicted.

So, could we be facing an imminent downturn? In an interview in this issue, SMBC Aviation Capital CEO, Peter Barrett, describes the current market cycle as having had "a good run".

He points out that recent global recessions have all been triggered by a major extraneous event, as occurred after the 1990/91 Gulf War, the 9/11 terror attacks on the US and the 2007/08 financial crisis.

Barrett chooses, probably wisely, not to predict when the next shock event is likely to come.

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

O'Hare joins **WFW** from Milbank


Pete O'Hare

Watson Farley & Williams (WFW) has hired aviation finance expert Pete O'Hare as a partner in its London office. He took up his position on 25 September. O'Hare was previously an associate at Milbank.

O'Hare has broad aviation finance experience, with particular expertise in the lessor and debt capital markets sector. Over the past decade, he has advised on some of the largest and most complex aviation finance transactions worldwide.

London-based WFW aviation sector co-head Jim Bell says: "Pete is a fantastic new addition to our aviation team, with a wealth of experience and an enviable reputation in the key London and Dublin markets in particular."

Burke leaves **Standard Chartered**

Leasing veteran Garry Burke has left Standard Chartered Bank after seven years.

He says: "The Standard Chartered teams in aviation finance and shipping finance are fantastic groups of people and well positioned to continue to grow, especially in Asia, the Middle East and Africa. I intend to continue to have an involvement in leasing and in asset management."

Burke was previously the chief executive officer of Pembroke Capital for 11 years between 2001 and 2012. Before that, he worked for two years at GECAS as senior vice-president.

He started his career as an auditor at KPMG and moved to Guinness Peat Aviation as senior vice-president in 1993.

HFW hires Das to London practice

Law firm HFW continues to grow its aviation finance practice with the appointment of partner Asheesh Das.

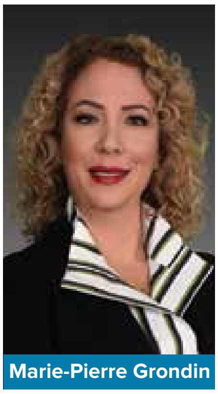
Das specialises in asset and project financing in the transportation and energy sectors, and joins HFW's London office from Elix Aviation Capital, where he was head of legal.

He previously spent almost 25 years in private practice at firms including Freshfields Bruckhaus Deringer, Norton Rose Fulbright and Clifford Chance, and was a partner at Stephenson Harwood for almost eight years in London and Singapore.

He has more than 25 years' experience advising airlines, lessors and financial institutions on acquisition, financing, management, maintenance and leasing of moveable assets. His practice covers tax, structured and operating leases, portfolio refinancing and export credit agency financing of aircraft, rolling stock and industrial equipment such as turbines.

Das has also advised sponsors, commercial lenders and government institutions on landmark infrastructure projects in the energy, power and land transportation industries.

K&L Gates appoints duo for US offices


Marie-Pierre Grondin


Elizabeth Evans

K&L Gates has appointed Elizabeth Evans and Marie-Pierre Grondin in the law firm's New York and Miami offices, respectively, as partners in its aviation practice. Both joined the firm from Reed Smith.

Evans has nearly 30 years' experience representing financial institutions, investors, export agencies and leasing companies on aviation, project and satellite finance, equipment leasing and related transactional and compliance matters, including private debt and equity placements, structured finance arrangements, asset-based financings, leveraged leasing, bankruptcy matters, privatisations and Federal Aviation Administration and Department of Transportation compliance.

She also advises a variety of clients regarding commercial space law, including joint ventures, capital raises and related space regulatory matters.

Grondin focuses her practice on aviation finance, matters of space law and transactional matters such as whole aircraft and engine purchases and financing, as well as engine and equipment leasing, maintenance, repair and overhaul (MRO) contracts, liability risk analysis, company credit facilities and general corporate and compliance matters.

She previously served as a vice-president and general counsel for a diverse aviation, leasing and MRO company and its subsidiaries, where she was responsible for all legal aspects of the company's global operations.

Wings Capital names new treasurer

Wings Capital Partners, beefed up its team in late summer with the addition of Jakob Gallagher as vice-president treasurer and capital markets.

Before joining Wings, Gallagher served as vice-president on the MUFG aviation team and covered originations for the Americas.

He previously worked at Aircastle where he focused on capital markets and joint ventures. He raised secured and unsecured financings for its platform (recourse and non-recourse) and managed investor relations. Before joining Aircastle, Gallagher held a role at Deloitte in the securitisation consulting practice.

Wings Capital Partners also announced during the summer that Gerry Burke had been promoted to vice-president, marketing, Wings Capital Partners Aviation Ireland. John Hoopes was promoted to head of technical services.

In May, the lessor launched a new operating entity in Singapore, headed by Stephen Lynch, managing director of Wings Capital Partners Singapore and the lessor's vice-president of marketing.

Wings Capital Partners recently returned to the asset-backed securitisation market with a $678 million three-tranche issuance with proceeds covering the acquisition of 23 aircraft.

Staying close to home with Chinese aircraft

SPDB Financial Leasing's president, Bin Yang, talks to **Elsie Guan** about the lessor's experience in developing its ARJ21 leasing business.

SPDB Financial Leasing (SPDB FL), which was established in Shanghai in April 2012, has developed its strategy around the Chinese-manufactured COMAC ARJ21 model. The lessor was the first Chinese leasing company to take delivery of the ARJ21 aircraft under a purchase and leaseback transaction with Chengdu Airlines.

SPDB FL's main shareholders are Shanghai Pudong Development Bank (61.02%) and COMAC (20.34%). Shanghai State-owned Asset Operation, a subsidiary of Shanghai State-owned Asset Supervision Administration Committee and Shanghai Longhua International Aviation Investment, a subsidiary of Civil Aviation Administration of China (Eastern Bureau), also own 10.17% and 8.47%, respectively. COMAC and Shanghai Longhua International Aviation Investment have aviation-related backgrounds, while SPDB and Shanghai State-owned Asset Operation provide SPDB FL with financial-related backgrounds.

In an exclusive interview with *Airfinance Journal*, SPDB FL's president, Bin Yang, says the shareholder structure of SPDB FL is unique. "It makes SPDB FL different from other financial leasing companies in China," he says, adding that supporting Chinese-manufactured aircraft was SPDB FL's "initial goal" when it was established.

In November 2015, Chengdu Airlines took delivery of the first ARJ21. The aircraft, configured with 90 all-economy seats, was financed under an eight-year sale and leaseback transaction with SPDB FL. The deal was structured through a special purpose vehicle in the Tianjin Dongjiang free trade zone.

SPDB FL was the first lessor to complete a sale and leaseback transaction for the ARJ21 model and the deal marked the beginning of cooperation between COMAC, SPDB FL and Chengdu Airlines.

Under its ARJ21 programme, the Chinese lessor started to negotiate with COMAC and the launch customer – Chengdu Airlines – about leasing structures on offer, contracts and legal documents covering the deliveries. "We want to make full use of our accumulated experience over the past few years to help the whole leasing process become more professional and international," says Yang.

> *"We want to make full use of our accumulated experience over the past few years to help the whole leasing process become more professional and international."*
>
> **Bin Yang**, president, SPDB Financial Leasing

SPDB FL has the largest ARJ21 exposure among Chinese lessors. The lessor signed a purchase agreement with COMAC for 30 aircraft of the type in November 2018. The agreement consisted of 15 firm orders and 15 purchase options. As at 8 October 2019, SPDB FL had delivered five ARJ21s to Chengdu Airlines, while the remaining three units are expected before the end of this year.

In September, SPDB FL and Ex-Im Bank of China signed a strategic financing agreement covering ARJ21 deliveries. Yang tells *Airfinance Journal* that seeking funding for Chinese-manufactured aircraft is not a problem because many investors and financial institutions are interested in the sales and leases of ARJ21s.

"SPDB FL sees lots of opportunities as more 'Made in China' aircraft such as the C919 and ARJ21 enter the market. The lessor believes that it will benefit from more favourable interest rates from local banks on Chinese-built aircraft," says Yang.

He adds that Chinese leasing companies have more natural advantages than overseas lessors in terms of language, culture, environment, operation and other supporting systems in ARJ21 financing.

Yang expects the ARJ21 model to be a more mainstream aircraft and its acceptance will not only be limited to leasing companies but aircraft appraisers when it enters a mature stage.

He points out that the ARJ21 aircraft is designed to operate complex routes in the western plateau areas, and meet China's western airports' demands in terms of take-off and landing operations. "The ARJ21 aircraft will become a reliable aircraft for operators which focus on the plateau route network." says Yang.

According to COMAC, the ARJ21 model has attracted more than 600 orders, while there are more than 800 C919 orders. Yang says that SPDB FL will keep looking at market opportunities and continue to negotiate with COMAC closely about new aircraft orders.

As of 8 October, SPDB FL owned and managed a fleet of 44 aircraft, including ARJ21s, Airbus A320s, A330s, Boeing 737s, 787s and helicopters. The lessor has 56 aircraft on order. The total asset value of its current fleet was about Rmb12 billion ($1.7 billion).

Aircraft on operating lease account for 85% of the lessor's fleet, while aircraft on finance lease account for the remaining 15%. Operating lease is viewed as a significant business sector for SPDB FL at this stage.

To that effect, the lessor has established a set of operational procedures for its aircraft-leasing business, including purchasing an aircraft evaluation database, adding employees with experience in aircraft leasing, aircraft disposal and engineering and technology.

SPDB FL acknowledges market competition in the aircraft-leasing business, as well as a decline in the domestic sale and leaseback market.

"For SPDB FL, they way we set up a team of professional talents is a key point in the company's development," says Yang, adding that the lessor is also planning to establish overseas platforms to develop and accelerate its international presence.

Chinese leasing market **enters new chapter**

Increased activity in Chinese lessor portfolio churn is well timed amid upcoming consolidation, says professor **David Yu**, CFA, ISTAT certified aviation appraiser.

An increase in portfolio trading activity in China is no coincidence. Since the start (or restart – modern leasing onshore in China started in 1979 and was subsequently closed) of the aircraft leasing industry about 10 years ago (2007 law allowed for the establishment of bank-owned leasing companies), the first generation of leases is about to come due.

From almost a clean slate, domestic Chinese lessors have increased their portfolios to more than 2,000 aircraft, and six firms are now in the top 20 global lessors with an orderbook of more than 1,000 aircraft.

In the initial years, Chinese investors and lessors focused on growth. Optimising size and market share, rather than profitability, was the motto of the new entrants in global aircraft leasing. Mostly, this consisted of buying assets and portfolios with existing leases attached and conducting sale and leaseback transactions with airlines, which developed into speculative new aircraft orders.

More recently, as their aircraft orderbooks have started to deliver, lessors have focused on new aircraft placement for their primary growth goals instead of acquiring third-party assets. The main reasons for this strategy shift are decreasing yields and increased aircraft pricing. This has not dented appetite for onshore sale and leasebacks but there has been some retreat in activity for offshore transactions. Newer entrants are still attracted to sale and leasebacks because they would not have the benefit of new orders for some years. There is some reluctance for widebody aircraft given the volatility in values and greater difficulty in transitions.

There are many headwinds that are now affecting the industry, including the trade war, global uncertainty and the general economic slowdown both in China and elsewhere.

There have been more than 20 Chinese companies which have failed to meet international bond or loan repayments. Even though this represents a very small segment of overall lending, it has spooked investors in the Chinese capital markets. These have caused increases in funding costs along with increased interest rates, but lately, there is further talk of US Federal Reserve interest rate cuts to mitigate this.

There have also been domestic policy reforms such as the recent bank rate reform of the loan prime rate, which has steered lower funding costs for firms with market-based adjustments along with others such as increased SME (small and medium-sized enterprises) borrowing reforms.

The industry is entering a period where Chinese lessors are working on more active management planning of their existing portfolios. This involves more in-depth credit, risk and market analysis and the need to sell and trade aircraft.

There are numerous portfolios for sale. *Airfinance Journal* has reported on CMIG's sale of its 23-aircraft portfolio to Castlelake. In addition, about 40 ICBC Financial Leasing aircraft and Bocomm Leasing's portfolio of about 20 aircraft are on the market. These are about 10% of their respective portfolios based on *Airfinance Journal*'s Fleet Tracker data.

Increased trading volumes could be the norm in the future. Many of these aircraft are traditional Irish structures but also some are onshore structure entities such as in Tianjin Dongjiang's free trade zone (FTZ) to take advantage of the tax breaks for local lessees. There are other aircraft available for sale but not to this scale.

Up until now, there has not been much activity in terms of selling and transitioning assets. The Chinese market is entering a new chapter with the players fully aware of the risks and rewards and disciplined approach going forward.

The Tianjin Dongjiang FTZ government has put emphasis here on this issue of increased secondary trading as the latest iteration of its industry conference, saw the supported launch of the first aviation asset management platform, DFTP Aircraft Asset Management, as well as the first valuation advisory firm in China – China Aviation Valuation Advisors – specifically to address and support the upcoming remarketing and trading needs.

In addition to trading, more emphasis on new aircraft placement overseas has

Professor David Yu

continued, especially as the Chinese domestic traffic market has weakened. There are now cases of airlines, more private ones, trying to optimise their fleet planning by trading their owned aircraft.

While the traditional big three airline groups will take the majority of the aircraft locally, this means that more and more portions of the lessors' orderbooks need to look abroad for homes than they previously did.

There are darker clouds – with the increased number of airline bankruptcies especially in Europe such as Thomas Cook Airlines. Carriers will have pressures from increased costs such as increasing oil uncertainty. These questions will continue to emphasise a premium for enhanced lessee selection and portfolio risk standards.

Airline bankruptcies are a normal part of the leasing business but having a sound technical and transition base is wise for a longer brighter outcome.

All opinions expressed are the author's own. The author is an investor turned full-time finance professor at New York University Shanghai, where he teaches and focuses on cross-border investing, financing and real assets. He is also chairman of China Aviation Valuation Advisors. His research website is www.davidyuda.com and he can be reached at david.yu@nyu.edu.

Tokyo Century buyout rattles ACG ratings

The news that Tokyo Century will acquire all of Aviation Capital Group made the headlines worldwide, but concerns remain, writes **Dominic Lalk**.

The majority shareholder of California-based Aviation Capital Group (ACG), Pacific Life Insurance, has agreed to sell all of its outstanding interest in the lessor to fellow shareholder Tokyo Century for about $3 billion.

The book value of Tokyo Century's stake as of 30 June was about $3.6 billion, so Tokyo Century has agreed to pay a premium of about 10% although, the firm advises that the final purchase price is subject to advisory and other fees that have yet to be determined.

In 2017, Tokyo Century initially acquired a 20% equity stake in ACG and has since contributed additional capital to the lessor, increasing its ownership to 24.5%, to help accelerate its business expansion.

With its acquisition of the remaining interest in ACG, Tokyo Century plans to improve its aviation business value chain through collaboration among its own aviation financing business, which is driven by Japanese operating lease products and aircraft aftermarket-related businesses that leverage GA Telesis' (GAT) expertise in used aircraft and parts.

Tokyo Century has a 49.2% shareholding in Florida-based GAT and, in 2019, set up an engine leasing joint venture with All Nippon Airways Trading, and GAT.

The ACG transaction is expected to close in the fourth quarter of 2019.

"Tokyo Century has been a valuable partner since 2017 and this acquisition of the remainder of ACG demonstrates a commitment to the growth and success of the ACG platform and the aircraft leasing industry," says Khanh Tran, ACG president and chief executive officer.

Tokyo Century will acquire the remaining stake in ACG via SKY-U, its wholly owned subsidiary in the US.

Mitsubishi UFJ Morgan Stanley Securities and Mizuho Securities acted as financial advisers for this transaction. Rating agencies fear that Tokyo Century's acquisition of ACG could result in downgrades.

"Through this acquisition, Tokyo Century aims to expand business further and reinforce its franchise in aircraft leasing, a growth area it is focusing on," says Rating & Investment Information (R&I).

In March, R&I changed the outlook for Tokyo Century from stable to positive, because its risk resilience was expected to improve through profit accumulation. After the buy-out, the agency placed Tokyo Century on the rating monitor with a view to downgrading its A status.

"Taking full control of ACG will have a material impact on Tokyo Century's risk profile, asset composition and debt structure, as ACG's asset size is equivalent to around 30% of that of Tokyo Century," says R&I.

Japan Credit Rating Agency (JCR) believes the impact of the transaction on Tokyo Century's creditworthiness will be limited over the medium term.

"Along with the increase of the company's holdings of ACG's shares, risks from owning aircraft will significantly increase. JCR sees that the downward pressure on the rating will be stronger in a phase of changing aircraft market," says the rating agency. JCR also highlighted risk control implications, although it was encouraged by Tokyo Century's involvement with ACG's management since its acquisition of part of ACG's shares in December 2017.

JCR maintains Tokyo Century's long-term issuer rating at AA-.

Standard & Poor's (S&P) Global Ratings is more sceptical. It says: "ACG's current standalone credit profile is BBB-, based on its satisfactory business risk profile and significant financial risk profile. However, we consider it strategically important to Pacific Life, and thus assign three notches of uplift from its standalone credit profile, resulting in an issuer credit rating of A-."

> *"Tokyo Century has been a valuable partner since 2017 and this acquisition of the remainder of ACG demonstrates a commitment to the growth and success of the ACG platform."*
>
> **Khanh Tran**, president and CEO, ACG

This will likely change with the anticipated November closing of the buy-out. "When the transaction closes, we would expect to maintain ACG's BBB- standalone credit profile. However, based on publicly available information on Tokyo Century, we don't believe Tokyo Century's credit quality is as strong as that of Pacific Life. Hence, we expect to lower the ACG issuer credit rating and unsecured debt rating to BBB- from A- and to lower the short-term rating to A-3 from A-2 when the transaction closes," says S&P.

In the interim, Fitch says it may lower the lessor's rating to BBB or BBB- from BBB+.

ACG has reported a net profit of $145 million on revenues of $558 million for the six months ended 30 June. Its net margin was 26%.

Net profit was up 8% on the same period last year, while revenues were up 18%. Net margin was down slightly from the year earlier 28%. Operating lease revenues were $502 million, up 11% and representing 90% of total revenues. Net interest margin was 3.8%, down slightly from 4.1% a year earlier.

The privately owned lessor has a strong track record, reporting profits every year since it was founded in 1989.

As of 30 June, ACG owned 267 aircraft with a net book value of $9.7 billion, up from $9 billion at the end of 2018. It managed another 49 aircraft for third parties.

The 316-strong portfolio comprised 154 Airbus A320-family aircraft, six A330s, one A350, 133 Boeing 737s, six 787s and 16 747/757/767/777 aircraft. The owned fleet had a weighted average age of 5.3 years and a weighted average remaining lease term of 6.8 years (both based on the net book value of aircraft).

At the end of June, ACG had commitments to purchase 165 aircraft scheduled for delivery through 2025. These included 66 A320s and 97 737s.

Autumn **fall**

Four European airlines have collapsed this autumn as competitive market conditions continue to take their toll, writes **Oliver Clark**.

Autumn is traditionally the season for European airline failures. As the peak summer period gives way to the leaner months before winter, revenues run low and airlines run out of cash.

This year has been no exception with four carriers folding in the space of two months.

In September, one of Europe's biggest travel businesses, Thomas Cook Group, collapsed after last-minute talks with creditors and banks failed to secure a much needed £1.1 billion ($1.4 billion) recapitalisation of the indebted company.

While a cash crunch was the immediate cause of Thomas Cook's failure, commentators have pointed to long-term challenges for the company, most notably the dwindling demand for traditional package tour holidays in Europe.

To this can be added the strong competition it faced from low-cost carriers in key leisure markets such as Greece, Italy, Spain and Turkey.

In many respects, the collapse of Thomas Cook mirrors that of fellow UK carrier Monarch Airlines in 2017, when an inability to find lucrative high-yield markets proved to be the carrier's downfall.

"The whole tour operator model is finished," Ryanair Group chief executive officer (CEO) Michael O'Leary said of Thomas Cook's demise during a Reuters Newsmakers interview in London on 1 October.

"Increasingly as you have the travelling public, people under 40 don't buy packages, they go to travel agents, they don't do tour operators," says O'Leary.

"The tour operator model only ever worked in a market where you had monopoly legacy carriers charging outrageous scheduled air fares. So you had an outrageous scheduled air fare and the tour operator arrived in and they had a lower air fare but it was hidden in a package with a combination of transfers.

"It's exposed once you move into a marketplace now where the internet allows you to disintermediate. You can put together a low air fare, low-cost accommodation, Airbnb, etc – you can do your own transfer," he adds.

While Thomas Cook Airlines UK has been grounded, Denmark-based Thomas Cook Scandinavia and German carrier Condor escaped the fate of their parent company and continue operating.

The French market has also had a torrid time with both Aigle Azur and XL Airways filing for insolvency. Aigle Azur declared itself insolvent on 2 September and ceased

Aigle Azur filed for insolvency in September

XL Airways had a fleet of five A330s

flights later that month after no new buyers for the carrier could be found.

A similar fate was in store for XL Airways. The carrier declared itself insolvent on 23 September with CEO Laurent Magnin stating the airline needed €35 million ($38.5 million) to continue operations. It went into liquidation in early October after failing to attract new investment.

In an interview with French radio station *RMC*, Magnin spoke about the challenging air transport context in France, which is exacerbated by competition from airlines such as Ryanair and Norwegian.

"French companies are in an unsustainable competitive situation," he said. "The French state knows the financial situation of French airlines like Air Austral, Corsair, XL Airways and the French sector is in majority in deficit. Air France has the worst financial results of the top three European carriers."

He added: "There is a structural cost problem in France that does not belong to us. Employment taxes are extraordinarily high compared with the rest of the world. I'm ashamed that in Europe, the most profitable carrier is Ryanair, a company that has not had a union representation for 19 years. We are a country with social rights but we are competing with airlines that don't observe them."

John Strickland, a consultant with JLS Consultancy, said it was important to emphasise that while both airlines were based in France, they had very different business models and challenges.

"XL Airways had adopted a long-haul, low-cost carrier model and there is no more difficult a market to make that work than the French market in terms of the higher social costs of having a French workforce and an environment of high airport and ticket taxes," says Strickland.

"IAG owned Level has indicated that they have found the Paris market difficult and to this can be added the challenge of having a low-cost, long-haul operation without a local feed. These were the main drivers behind the problems at XL Airways.

"Aigle Azur had historically been a North African/Algeria market specialist then they went through a change of investors when David Neeleman and HNA came in as shareholders and the strategy changed to reflect this new shareholding.

"They abandoned a solid demand flow between France and Algeria, a natural flow thanks to the large Algerian community in France, in favour of a strategy of flying to long-haul markets like China and Brazil, which was a too diverse and high risk move," adds Strickland.

Another casualty this autumn has been Slovenia's Adria Airways, which filed for bankruptcy at the end of September. Its collapse may have caused the least surprise in the sector because the airline's financial troubles had been well documented over recent years.

Slovenia's civil aviation regulator launched numerous probes into the financial health of the carrier, with a view potentially to removing its air operator certificate, but each time it gave the carrier a reprieve on the condition it restructured its business and its owner, 4k Invest, injected more capital.

Like many of Europe's regional carriers, Adria had attempted to broaden its business from offering scheduled services to offering so-called white label charter services for other carriers, seemingly with mixed success.

At 27 September, *Airfinance Journal*'s Fleet Tracker showed that Thomas Cook Airlines UK fleet was composed of 39 aircraft: three Airbus A320s, 28 A321s and eight A330s

Aviation Capital Group was most exposed with nine aircraft leased to the airline, followed by Air Lease with five and ICBC Financial Leasing with four. The airline owns three A330s. Other lessors have one or two aircraft with the grounded carrier.

Aigle Azur had a fleet of nine aircraft – seven A320s and two A330s – all of which were leased. GECAS is the most exposed with three aircraft placed with the French carrier. AerCap had two aircraft with the airline as does Avolon, while Aircastle and Castlelake had one each.

XL Airways had a fleet of five A330s. Two were leased by AerCap, one from GECAS and another by Carlyle Aviation. XL Airways owns one A330.

Adria had a fleet of 19 aircraft. This consists of four Saab 2000s, three A319s, three Bombardier CRJ700s and seven CRJ900s, one BAe Systems 146 and one Fokker 100.

Regional One was most exposed to Adria, with six aircraft placed with the Slovenian carrier. This consists of three CRJ700s and three CRJ900s. Jetstream Aviation Capital had four aircraft with Adria, and Carlyle Aviation Partners has three.

Analysis by *Airfinance Journal* shows that excluding the three A330s owned by Thomas Cook and the single A330 owned by XL Airways, there are 68 leased aircraft that could need to find new homes.

So could there be any more failures this year? In his interview, O'Leary was in no doubt, stating: "Norwegian is the next one to go bust," without giving further explanation.

A Norwegian spokesperson responded: "These comments are from the same broken record and have no root in reality. Norwegian continues to fly an increasing number of passengers as we continue to focus on building a strong, sustainable and profitable business to benefit our customers, employees and shareholders."

In early September, Norwegian was able to convince bondholders to extend the maturity dates of two sets of bonds with a nominal value of $380 million in exchange for a security package backed by slots at London Gatwick airport.

The move pushes out the deadline on the bonds from December 2019 and August 2020 to November 2021 and February 2022, respectively.

The extension gives loss-making Norwegian some breathing space to restructure, but will it be enough to see it through the winter?

Adria Airways filed for bankruptcy in September

Finnair plays long game

Finnair is adding 10% in capacity this year but global events continue to wreak havoc with the airline's estimates. Mika Stirkkinen, the carrier's chief financial officer, speaks to **Dominic Lalk**.

Finnair is growing more than 10% this year by available seat-kilometres (ASKs) but that growth is not necessarily translating into greater profits as the carrier continues to incur high operating costs and cutthroat competition from Europe to Asia.

More and more Asian airlines and low-cost carriers are launching flights between the two continents and some, including Chinese carriers Juneyao Airlines, Tibet Airlines and Sichuan Airlines, have even added Finnair's Helsinki hub to their route maps, eroding already fickle yields.

Mika Stirkkinen is a Finnair veteran. He became the airline's chief financial officer (CFO) in July, having been with the flag carrier for more than 20 years.

"Having been at Finnair for so long [since 1999], the transition was relatively easy. I know many Finnair people already so that makes things a lot easier," he tells *Airfinance Journal*. Stirkkinen replaced Pekka Vahahyyppa and reports to the recently installed president and chief executive officer, Topi Manner.

Finnair's bread and butter business is flights from its Helsinki Vantaa base to Asia fuelled by its extensive European feeder network.

"We are a growth company. We've been growing for many years now. During the past decade, we've roughly doubled our Asian capacity and that will continue. We're growing by more than 10% in ASKs this year. We're, of course, adding capacity to Asia but also across the Atlantic and, of course, on our European network," says Stirkkinen.

> *"We are a growth company. We've been growing for many years now. During the past decade, we've roughly doubled our Asian capacity and that will continue."*
>
> **Mika Stirkkinen**, chief financial officer, Finnair

The flag carrier serves more destinations in China and Japan than any of its European rivals. In China, Finnair flies to Beijing, Shanghai, Guangzhou, Nanjing, Chongqing and Xi'an, and it also operates 14 weekly flights to Hong Kong SAR. Japan is another notable market for Finnair and, with the launch of a new route to Sapporo, it will serve five destinations in that country from December.

In 2018, Chinese passengers accounted for the largest group of non-European visitors to Finland.

"We're looking at adding more routes into China but, of course, all the prerequisites will have to be met first: we need to have the air services agreement updated, the slots, overfly rights over Russia, you know the drill," says Stirkkinen. "We have a long-standing relationship with the authorities in China and Japan. That gives us extra access and more frequencies. Our competitors are more restricted," vice-president of group treasury and head of M&A, Christine Rovelli, had told *Airfinance Journal* earlier this year.

Quizzed about the much-cited US-China trade war and its paralysing effect on the aviation industry, Stirkkinen remains unfazed. Also, the worsening social, political and economic unrest in HK SAR does not concern the Finnair CFO much.

"Of course, we follow the global developments very closely but considering all that is happening, I would say that even though it hasn't been a perfect year, it's still going OK-ish so far," he says. He would not comment on the performance of the Helsinki-Hong Kong route, although many carriers, including United Airlines, Qantas Airways and Cathay Pacific Airways, have cut capacity in that market.

"What I can say is that we've added quite a lot of capacity into Hong Kong this past year – more than 40% extra ASKs in the summer season – but even so the loads have been almost identical so you could say the market has happily absorbed that capacity. Hong Kong remains one of our key destinations in the network," says Stirkkinen.

Nonetheless, it is questionable how long Finnair will be able to maintain its double daily flights to HK SAR if "the situation" there continues.

For example, *Airfinance Journal* has seen internal documents that show that on 4 October, Finnair flight AY102 took off from Hong Kong to Helsinki with just 76 passengers, 12 in business class and 64 in economy class, and that was not the worst loading the carrier has experienced on that route in the past five months.

"We typically don't react to short-term volatility in the market. For instance, after the earthquakes and tsunami in Japan we did not withdraw any capacity, and let me just say, that this was remembered by our partners and stakeholders in Japan. This is strategic for us and we intend to stay," explains Stirkkinen.

He does, however, admit to difficulties in the carrier's cargo operations. "The cargo business is struggling quite a bit. That's where we've been facing some headwinds. At the same time, I'm happy to be able to say that our cargo performance at Finnair has been better than the rest of the market, especially earlier this year we were outperforming the market," he says.

"Our cargo team has done a great job modernising Finnair's cargo business. There's been a huge increase in throughput in the past couple of years after we opened a dedicated cargo terminal at Vantaa. It's now an almost completely data-based operation and that's really helped our performance but, naturally, if world trade is at zero it's difficult to continue that trend," adds Stirkkinen.

In mid-October, the International Air Transport Association (IATA) reported a 3.9% year-on-year contraction in air cargo demand, measured in freight tonne-kilometres, for August, marking the 10th consecutive month of volume declines, the longest period since the global financial crisis in 2008. The Asia-Pacific saw demand for airfreight contract by 5% in August, also because of the temporary shutdown of Hong Kong International airport, the largest cargo hub in the world.

"Asia to Europe is the biggest cargo market by far for us. From Europe to Asia, we carry mostly temperature-controlled Norwegian salmon and pharmaceuticals but on the way back to Europe, it's a lot of industrial products like car spare parts and, of course, consumer electronics," says Stirkkinen.

"The A350 has been a great asset for us. I've had several meetings with various banks in the past few weeks and I keep telling them that we have plenty of cash but somehow they still try to push and promote all these financing products to us for our A350s."

Mika Stirkkinen, chief financial officer, Finnair

Finnair had unused financing totalling €375 million ($421 million) at the end of June. The carrier refinanced a €175 million unsecured syndicated revolving credit facility earlier this year, with the same size and terms "substantially in line" with its previous facility. The new credit line has a maturity date of January 2022 and includes two one-year extension options.

The flag carrier also has a €200 million short-term commercial paper programme, which remains unused. "It just was not needed; it's typical for Finnish corporations to have these in place," says Stirkkinen.

Finnair retains more than €1 billion in cash and reserves. "We have one of the strongest cash-to-sales ratios in the airline industry," he notes.

The airline acquired two new Airbus A350 aircraft in the first half with its own cash. One aircraft was delivered in February and the other in April. It now operates 14 A350s, which have been delivered between 2015-2019. According to the current delivery schedule, the Helsinki-based carrier will receive another two A350s in 2020, two in 2021 and one in 2022.

Stirkkinen says three of the A350s were delivered on Japanese operating lease with call option agreements, two arranged by BNP Paribas for about €135 million and €128 million and the other arranged by Credit Agricole for about €115 million.

"The A350 has been a great asset for us. I've had several meetings with various banks in the past few weeks and I keep telling them that we have plenty of cash but somehow they still try to push and promote all these financing products to us for our A350s. That's my personal experience so far: it doesn't seem very dry at all in terms of liquidity," says Stirkkinen.

Finnair has investment commitments for property, plant and equipment totalling €827 million and this includes payments relating to its future A350 deliveries.

Finnair is the sixth-oldest airline in continuous operation, having launched flights on 1 November 1923. In the second quarter ended 30 June, 2019, it generated a profit of €31.2 million, up from a €15.5 million loss in the same quarter a year before, as revenues rose 10.4% to €793 million from €718 million.

Finnair has 59 aircraft in its mainline fleet and 24 ATR and Embraer aircraft for regional flights.

Stirkkinen says that of the nine "owned" A350s, three are the Jolco-financed aircraft, while two units are on lease agreements with NBB Leasing and one each from Avolon, GECAS and JP Lease.

The remainder of Finnair's widebody fleet comprises eight A330-300s – four owned and four leased aircraft.

The big question is what the airline plans to do with its narrowbody fleet. Finnair has 37 A320-family units – 19 owned and 18 leased. Of those, 24 aircraft were manufactured between 1999 and 2004, while the remainder left the Airbus production plants between 2013 and 2018.

Stirkkinen remains tight-lipped on Finnair's replacement strategy for the older units. "The average age of the A321s is only eight years so they still have a lot of shelf life. It's clear that this is a decision we will have to make eventually but we simply haven't completed the process yet. We need to be really careful with regards to fleet decisions but right now I have no timeline for you," he says.

Asked if mainline Finnair will remain an all-Airbus operator, Stirkkinen laughed: "You know I really can't answer that question. It's a no brainer that all options will always be considered and this includes Boeing aircraft."

Mixed offerings

Peter Barrett, chief executive officer of SMBC Aviation Capital, tells **Oliver Clark** about the Irish lessor's inaugural aviation equity fund and the challenges posed by the Boeing 737 Max grounding.

SMBC Aviation Capital (SMBC AC) has experienced some mixed fortunes this year. On a positive note, the Irish lessor successfully launched a new product in July with the creation of an inaugural aviation equity fund – the Global Aviation Equipment Leasing Fund (GAEL).

This closed-end fund, which initially concentrated on Japanese investors, acquired eight narrowbody aircraft with leases attached from SMBC AC, and Peter Barrett, the lessor's chief executive officer, tells *Airfinance Journal* that based on its success he is hopeful of bringing further such funds to market.

"This is a closed-end fund with defined assets in it, but we don't see it as a one-off and, depending on market conditions, investor appetite and many other things, certainly we would hope it is something we can look at again in the future and perhaps look at markets outside of Japan as well," he says.

Barrett points out that SMBC AC has been trading aircraft for a "very long time" and GAEL was a natural development of that rather than "something radical".

Nevertheless, GAEL is something the lessor is keen to replicate.

Barrett does not disclose which countries might be targeted next, but says the lessor is "looking for places where we think we might have an advantage in terms of distribution".

While GAEL has been a success story, the global grounding of the Boeing 737 Max has created a set of tough challenges for the lessor. SMBC AC was due to take delivery of more than 30 Max aircraft this year through a mixture of direct orders and sale and leaseback transactions, but these have now been deferred.

SMBC AC "hopes and expects" that orders will catch up once the programme resumes. As a consequence, it's business has grown at a slower pace than was planned.

"We don't have assets that we thought we would have and that is something we need to manage in terms of our balance sheet and our P&L [profit & loss]," he says.

SMBC AC has sought to mitigate the impact of this through a number of ways, including sourcing aircraft from the secondary market and changing the rate at which it sells aircraft. The lack of clarity over when the Max will return to commercial service has made it "challenging" for SMBC AC to attract potential customers to "engage" with it on ordering the aircraft.

Barrett says the lessor is working closely with Boeing on the return of the Max, but notes that this issue has been "pushed consistently to the right" by the manufacturer.

He does not comment on the lessor's plans to seek financial compensation from Boeing for the impact of the grounding. Instead, his priority is getting the aircraft back in service.

> *"We don't have assets that we thought we would have and that is something we need to manage in terms of our balance sheet and our P&L."*
>
> **Peter Barrett**, chief executive officer, SMBC Aviation Capital

"The correct focus for everybody is to get the aircraft back into the air safely. That's really important, and we should never lose sight that this is priority number one for Boeing, for the regulators and all of their customers, including the leasing companies," he says.

Looking at the lessor's fleet generally, Barrett says narrowbodies "predominate" and will continue to do so in the long term, but the company keeps its "radar on for everything".

SMBC AC owns 265 aircraft, manages another 160 and has commitments for another 306. The vast majority of its fleet is made up of narrowbody aircraft, including 104 owned 737-800s, 97 Airbus A320s and 26 A320neos.

Only a handful of its portfolio is made up of widebody aircraft, with seven owned 787-8s and eight A350s.

Barrett says that about nine years ago, SMBC AC transitioned away from its A330s and 777s as a result of "revolutionary change" happening in the widebody market. The lessor continues to look for opportunities to increase the size of its widebody assets.

Barrett describes the under development 777-X as a "big aircraft" and SMBC AC will have to "wait and see" how the programme develops over the coming years.

"I suppose one of the lessons of the past 10 years in terms of new aircraft is that building and delivering new aircraft successfully is a challenging thing for the OEMs [original equipment manufacturers] so that strikes a note of caution for new aircraft types, even new derivatives," he says.

He discloses that talks have taken place with Boeing over its New Midsize Aircraft concept, but concludes that further progress will have to wait until the Max grounding has been resolved.

As for smaller aircraft, Barrett describes the A220 as an "interesting" aircraft type and sees the acquisition of a controlling stake in the programme by Airbus in 2017 as a "positive thing".

> *"The purpose of the capital injection was to strengthen the balance sheet, so we now have one of the lowest leveraged balance sheets in the industry, we have a very strong credit rating and frankly we have dry powder."*
>
> **Peter Barrett**, chief executive officer, SMBC Aviation Capital

"There is still a bit of road to run in terms of how Airbus is going to sell that aircraft, how they are going to market it, how it's going to sit in their overall offering, but certainly we would see that aircraft as being on a positive trajectory," he says.

In late 2018, SMBC AC received a $1 billion capital injection from its shareholders – Sumitomo Mitsui Finance and Leasing Company and Sumitomo Mitsui Banking Corporation.

Barrett says the purpose of the capital boost was to strengthen SMBC AC's balance sheet. To infer a direct correlation between it and plans to order more aircraft would be incorrect, he adds.

"The purpose of the capital injection was to strengthen the balance sheet, so we now have one of the lowest leveraged balance sheets in the industry, we have a very strong credit rating and frankly we have dry powder.

"We have a lot of capability now to both manage things that might happen in the future in terms of opportunities, but also to manage if things in terms of the market get more challenging," he says.

So could SMBC AC take part in any future consolidation of the market? Barrett does not dismiss the idea.

"If we see opportunities that we think are going to represent good value and make good sense for us strategically, of course we will look at them. But M&A is not an end in itself," he adds.

"As one of the largest financially strongest leasing companies in the world inevitably if you're an investment bank we are probably going to be on your list if you're trying to sell something. So we get to see a lot of stuff," he says.

"Ultimately, we are focused on delivering value to shareholders and business activity if it's strategically valuable for us and makes sense."

Whether SMBC AC takes part or not, Barrett believes that consolidation will continue as the leasing industry matures and as shareholder requirements dictate the need for asset disposals.

"I think what will be interesting is that there have been a lot of new entrants into this business in the last five to seven years and I think some of them will succeed and do very well.

"But some of their owners will decide perhaps they didn't need to be in aircraft leasing, or the owners' strategy will change and instead of growing this space they want to put their capital somewhere else," he says.

Barrett says his sense is that there has been an uptick in aircraft trading recently, but he adds this seems like part of a normal business cycle, and lessors want rather than have to sell.

But could the trend now be heading downward? Barrett says that the current cycle has "had a good run".

SMBC AC has noted an "awful lot of liquidity" being invested, which drives a lot of activity and behaviour in the market. The lessor is also seeing some signs of the credit cycle being a "bit softer on the airline side".

Barrett says that normally it would take a major extraneous event such as the 1990/91 Gulf War, 9/11, or the 2007/08 financial crisis to tip the global economy into a recession.

"That drives a macro-shock to the system. That drives a turning point in the system, and I am not going to try to predict when that will happen. It could happen tomorrow. It could happen in a few years."

He adds: "Clearly, the longer the cycle goes on, the more vulnerable the market is to that extraneous shock and we have seen that in all economic cycles, but I am not going to call that."

SMBC AC's fleet is made up of narrowbody aircraft, including 104 owned 737-800s, 97 Airbus A320s and 26 A320neos.

BNP Paribas heads for another record year

Banks may have been affected by the stoppage to Boeing 737 Max deliveries and tight pricing on certain transactions, but Bertrand Dehouck, BNP Paribas' head of aviation, views the bank's activity for the first nine months of 2019 as positive.

"For the EMEA [Europe, the Middle East and Africa] region my team is covering, it has been a better first nine months compared to last year. The team has been very busy on all fronts: airlines, lessors, capital markets, secured and unsecured mandates. The same applies also to our desks for the Americas and APAC," says Bertrand Dehouck, head of aviation at BNP Paribas in an interview with *Airfinance Journal*.

In the second quarter, the bank discussed internally the impact of the Boeing 737 Max grounding, as it has some commitments to the programme. These deliveries have been postponed, indefinitely, but Dehouck says it is not going to affect BNP Paribas in a material way.

"Some clients are not getting the aircraft they would have otherwise financed whilst some lessors are selling less aircraft than initially anticipated to avoid depleting their assets. The reduced sales also limit financing opportunities. BNP Paribas has been a key player in the financing of portfolio sales.

"There is a marginal effect of the issue on the Max programme for BNP Paribas and the financing community, but it is in no way comparable to the operational and financial issues this represents for our clients."

"At this point in time, I expect 2019 to be a good year for the bank, notwithstanding the Max issue," says Dehouck, adding that this year could be the sixth straight record year.

Aviation franchise winner

BNP Paribas won *Airfinance Journal*'s 2018 Aviation Finance House of the Year award demonstrating a broad variety of transactions, as well as creativity across many financing structures.

Last year the bank's involvement in aviation transactions totalled more than $50 billion. The bank was particularly active in capital markets and revolving credit facilities with more than $39 billion worth of deals and over $11 billion of commercial loans.

Last year, BNP Paribas was involved in more than 30 capital market deals, 17 revolving credit facilities, as well as 51 aircraft financings and refinancings. "BNP Paribas' aviation teams in EMEA, Americas and Asia-Pacific were able to deliver significant value for their clients in a challenging context," says Dehouck.


Bertrand Dehouck

He recognises that the bank's activity, in terms of volume, has shifted towards the capital markets over the past five years.

"The presence in the capital markets is core to our franchise," he says.

Of the $39.6 billion-worth of capital market transactions, $9.3 billion were airline-related deals, the balance being issued on behalf of aircraft lessors. "The market was wide open for our clients in 2018," he says.

"In terms of volume and providing liquidity to our clients, the bulk is now the capital markets. However, capital market deals do not represent the bulk of revenues at the end of the year. This is a volume business. Between 2000 and 2010, the bank heavily invested in its US dollar structuring and distribution platform, which is key in order to be relevant to aviation clients. That said, our revenues are still skewed towards commercial lending as these transactions are often much more structured and complex and the bank participates in risk taking, thus offering greater sustained revenues," he explains.

In June, Dehouck stated it was hard to predict the volume of transactions the bank will be involved in placing into the capital markets at the end of the year.

"People should not be focused on this. What matters more is which transactions we will be involved in versus the overall market, the seniority of our role in these placements and whether these deals are vanilla/unsecured or structured/secured. These factors have a greater impact on our returns as opposed to the pure aggregate volumes."

Dehouck anticipates a record year on the lending side.

"Our aviation franchise is well grounded on each of the capital markets and the lending legs. The teams are also working hard to strengthen additional legs such as corporate finance, hedging and cash management. If we zoom in on the lending side of the business, we have seen a growing number of banks and investors coming to the market since 2017. This has created an unprecedented liquidity chasing for deals and putting strong downward pressure on pricing. 2019 is shaping up to be very similar to 2018."

Dehouck does not see any forms of retrenchment in terms of the number of banks, and pricing remains competitive. "You may get 15 banks bidding on one mandate but the reality is that it just takes one party to underbid you and to create a formidable pricing tension," he observes.

"Since the second quarter of this year, we have seen clients getting better terms with respect to covenant or leverage but eventually it seems pricing might have bottomed out," adds Dehouck.

Pricing environment

European airlines have pushed pricing on their recent bond issuances to record levels.

In September, Deutsche Lufthansa priced its five-year €500 million ($548 million) unsecured bond at a 0.25% coupon under its €4 billion Euro Medium Term Note (EMTN) programme. The issue price was 99.678% while yield to maturity is 0.315% a year.

In June, Easyjet issued €500 million-worth of unsecured notes under its EMTN programme at 0.875% coupon. The bonds mature on 11 June, 2025.

Easyjet says more than 150 pan-European investors participated in the issue and the bond was 3.4 times oversubscribed.

BNP Paribas was one of the bookrunners in this transaction, along with Bank of America Merrill Lynch and Lloyds Bank Corporate Markets.

"The pricing achieved by Easyjet was fantastic and it was driven by the amount of liquidity in the market," says Dehouck.

"When the German 10-year bond was back to minus 25 basis points in June, people saw material premium to this transaction. It is not at all the same risk. Investors price deals on a relative basis.

But overall, the yields are so low if not negative that we see them more and more willing to trade risk for yield," he comments.

Easyjet is seen as a strong credit and this explains its very tight pricing.

"Given the strong appetite from investors on the Easyjet name, one could expect other airlines to do very well too and markets should be accepting of weaker credits. Since the markets are interconnected, what we observe in the capital markets is also spilling over into the traditional commercial lending business," he says.

"In terms of pricing, we were surprised last year to see the momentum continuing with downward pressure for the whole year. In EMEA, BNP Paribas missed out on a number of transactions in the first half because we thought that the endorsement in December 2017 of the adjustment framework of Basel III, dubbed Basel IV, should have pushed pricing upward."

He adds: "To put it simply, if the adjustment framework is implemented, an important portion of the active banks in this sector would have to put more capital in front of this business – despite having never posted any major cost of risk related to this business. Ipso facto our clients would be faced with less funding availability and/or funding being more expensive as the banks will try to partially offset the additional capital required to fund it."

Dehouck says several strong forces resulted in the continued pricing decline in 2018:

- an increase of liquidity deployed in this asset class (explained partly by the increased presence of a non-bank willing to fund the aviation market and because banks are pushed to lend or otherwise face negative deposit at the European Central Bank);
- an increased portion of the market financed through unsecured public market reducing the opportunities for secured financiers;
- the fact that the market is not pricing Basel IV yet because its road to implementation remains long and there is a strong pressure from, in part, the current US administration towards less banking regulation as opposed to more; and
- the "specific" reasons.

However, Dehouck acknowledges "particular transactions", where a bank bid aggressively on a deal for "specific" reasons.

"The way a bank prices a transaction depends on the view of the risk, internal cost of funding, its positioning in the market and its objectives. Sometimes a bank can justify a pricing under some specific circumstances: to add a long-desired new client, to finance a particular asset, or to get greater visibility into the market etc..."

The question is, in 2019, are those specifically low-priced deals really the exception or is it the by-product of a more general trend?

"Our view is that those deals tend to be priced because of these 'specific circumstances'. This year, they do not translate into further declining pricing trend," says Dehouck.

He adds there has been only marginal premium for the risk over the past two years, meaning there was less distinction between risks. "Put differently, the pricing environment has narrowed down between the very best and the average credits."

Dehouck adds: "Eventually, the pricing compression between credits has stabilised compared with 2018. However, it remains narrow. You will observe a widening of pricing between credits of different quality at the first sight of market deterioration; such widening could be mitigated by central banks if they pump large volumes of liquidity into the system."

Lessors

BNP Paribas' approach to lessors has not changed over the years. It has been a continued evolution.

"Over the last five years, we have gradually increased our involvement with the lessor community, building on the previous 10-plus years. Our objective has been to accompany our clients' own transformation," says Dehouck.

"The leasing community now represents half of our net-funded exposure and we are comfortable with this level. Our position on lessors reflects the overall market: today, 45% of the world fleet is owned by lessors but more than 50% of future deliveries will come from their orderbooks," he adds.

Dehouck says the lessor segment has progressed well, and this explains the relatively late rush of many financiers into that market.

"Fundamentally, their metrics have improved over the years. About 15 years ago, a number of lessors were leveraged 9:1 – now it is 2.5-3:1 for most of them. The risk profile is fundamentally different. They have built meaningful unencumbered asset bases. Thus, now lessors have access to a much bigger pool of liquidity than before."

An improvement of the lessor's credit profile has allowed broadening its source of liquidity providers to access a deep spectrum of investors.

"By tapping the investors' market broadly, they don't rely on banks as it was the case previously. To over-characterise the point, it is as if themselves were financing aircraft by aircraft on a secured way (or by small batch, a lengthy and cumbersome process) and now many of them can raise multi-billion dollar unsecured bonds in a single-day execution. It is a good thing. Especially if they have large orderbooks."

BNP Paribas wants to "moderately" grow its exposure in this sector. This represents a challenge because lending to lessors has a shorter duration and there is a large volume of early pre-payments linked to their trading activity.

"Some of our competitors are quasi-exclusive capital providers to lessors. BNP Paribas' approach is, in order to understand the underlying risk, to stay close to the airlines and to have a portfolio coherent with the overall market."

The trading activity as well as mergers and acquisitions are inevitable in the leasing industry.

"There will always be some portfolio trading and mergers between lessors. It is in the nature of their business and it is healthy. This demonstrates there is liquidity in the assets. Therefore, it strengthens our own position. They put a price on the assets and we can better assess the level of risk we are taking," he says.

But Dehouck points out there is a view in the market that aircraft leasing is a relatively benign environment, and there will always be aircraft buyers in the secondary market.

"Therefore, we would never see a material default, and here I am less optimistic. The fundamental change versus the last crisis in 2007/08 is that aircraft leasing represented less than 30% of the overall fleet at the time."

Dehouck says it was a growing share of a growing market. It had a decoupling effect, which immunised the lessors from issues spilling over from their airline clients.

"The next crisis will be different. The market will be different because half of the overall fleet will be owned by lessors, and half of the future deliveries is committed to lessors," he says.

For him, the market is much more commoditised and a downturn could have a bigger impact on the lessors' clients.

"In a crisis, you will have a tighter situation with a far greater number of aircraft coming back at the same time, causing more infighting to quickly place these aircraft by a greater number of lessors. Thus, one can expect that there will be fiercer competition and less discipline in pricing new leases. It might not be immediately visible as the lack of discipline might not be on the rental per say but rather on the maintenance reserve requirements and/or the return conditions" he says.

"That is why at BNP Paribas, we look at the quality of the servicer, the depth and breadth of the platform, when assessing aircraft lessors," says Dehouck. "It is key to this sector. Even when a deal is secured by good assets, financiers will see greater issues when dealing with a less effective servicer," he concludes.

Proceeding at **full speed**

Los Angeles-based Air Lease Corporation is having a record year, and adding more aircraft to its portfolio than ever before. **Dominic Lalk** speaks to the lessor's chief executive officer and president, John Plueger.

Air Lease Corporation (ALC) remained solidly profitable in the second quarter ended 30 June amid robust fleet growth and placement activity, although continued Boeing and Airbus delivery delays have necessitated further revisions to schedules and spending plans.

The lessor's revenues rose 18.5% to $471 million in the three-month period, chiefly driven by continued fleet growth, while its adjusted pre-tax margin was 36.2% and adjusted pre-tax return on common equity was 15.7%.

This translated into a quarterly net income of $124 million, up 7.7% on the previous year, while earnings per share was $1.10, up 5.8% but below the consensus estimate of $1.24. "Our first-half 2019 results were good, but even more noteworthy is that, historically, we've outperformed our targets on sales. If you just look at our core leasing operation, we've had extremely strong earnings and pre-tax profit margin." ALC's chief executive officer, John Plueger, tells *Airfinance Journal* in an exclusive interview.

"Pre-tax ROE [return on equity] for Q2 was north of 14% without any sales or trading deals and I say that because some say 'oh your core profitability won't be the same without aircraft sales and trading'."

The lessor took delivery of 16 aircraft from its orderbook and one aircraft from the secondary market in the quarter, representing a $1.6 billion investment – the highest quarterly investment in the company's history.

ALC ended the quarter with an operating portfolio net book value of $17.8 billion, up from $15.7 billion at the end of 2018. The portfolio had a weighted average age of 3.7 years and weighted average lease term remaining of 7.2 years.

There were no aircraft sales in the quarter because the focus was on growth, but Plueger says that several sales had already closed for the third quarter and that full-year sales were expected to be in line with the earlier guidance of $1 billion.

"We time our aircraft sales based on many different factors and there will be sales in the second half of 2019 for sure, but you also need to consider and factor in the Max grounding and the continued significant Airbus delays.

Those will slow our capex (capital expenditure) and somewhat reduces our appetite for sales, so that's why we didn't sell anything in the second quarter this year. Even so, our growth remains extremely strong as we face these Airbus and Boeing delays," says Plueger.

ALC was initially looking at record capital expenditure spending of $6.5 billion in the current financial year but the Boeing 737 Max grounding and lengthy Airbus A320neo-family delays have wreaked havoc with the lessor's lofty ambitions.

"We originally had an outlook for buying $6.5 billion of new aircraft this year as we went into the fourth quarter of 2018, before the first Max crash. Then, at the end of the first quarter and after the second Max crash, we lowered that guidance from about $6.5 billion to $5.8 billion. And then at the end of the second quarter we lowered that $5.8 billion to only $5.1 billion," adds Plueger.

At press time, ALC had confirmed the sale of five aircraft in the third quarter for $184 million.

"While that's a significant capex reduction that's still much higher than the $3.4 billion that we bought in 2018. That's still almost double. It's still a huge meaningful increase," he says.

"The reason for us further lowering from $5.8 billion to $5.1 billion is because all of our future Max deliveries will be to customers outside the US and we made an internal assessment that we don't expect any 737 Max deliveries into our portfolio outside the US this year. This is our own evaluation, not a Boeing evaluation, and we made this evaluation because we believe it reflects the reality much more closely," adds Plueger.

The ALC chief executive is not alone in thinking the Max will not return to the skies this year. Plueger joins the ranks of major airline CEOs and industry associations who have said a Max return in 2019 was very unlikely.

There is a consensus among movers and shakers that some regulators, including the US Federal Aviation Administration (FAA), will allow the 737 Max back into service while others, such as the European Aviation Safety Agency, might take much longer. This raises a number of concerns, most importantly the question of transparency and consistency as has been noted by International Air Transport Association (IATA) director-general Alexandre de Juniac, Lufthansa CEO and IATA board of governors chairman Carsten Spohr, Singapore Airlines CEO Goh Choon Phong and many others.

"We originally had an outlook for buying $6.5 billion of new aircraft this year as we went into the fourth quarter of 2018, before the first Max crash. Then, at the end of the first quarter and after the second Max crash, we lowered that guidance from about $6.5 billion to $5.8 billion."

John Plueger, chief executive officer and president, Air Lease Corporation

"This is a global industry and it needs global trust. It's difficult to explain to our passengers that this aircraft is safe to fly in some countries but not in others," says Spohr. In the interim, Ethiopian Airlines CEO Tewolde Gebremariam says his airline "will be the last" to restore 737 Max operations. Yet others, including Flyadeal and Far Eastern Air Transport, have walked away from the aircraft altogether.

"At the beginning of the second quarter we still thought there might be a few Max deliveries toward the end of this year but, as developments unfolded, we became concerned that this won't be happening so we went down to $5.1 billion," says ALC's Plueger.

He adds: "I actually hope our internal assessment is wrong because we have lots of customers out there who really need these aircraft. We now have a new US FAA chief administrator who was just sworn in so hopefully that will help speed things up a little."

Nonetheless, Plueger must admit that ALC has a couple of customers which are not comfortable receiving the 737 Max at the moment.

"We've had some operators who have Max deliveries scheduled from us that have expressed uncertainty and frustration, but it's still an evolving situation. A lot depends upon final Boeing compensation as to whether or not they take the aircraft, and this obviously impacts our position with Boeing," says Plueger.

ALC had 15 Max aircraft in its fleet at the time of the grounding order and was due to take another 20 through the remainder of 2019. Its orderbook for the Max programme stands at 140 aircraft.

As this issue went to press, Air Canada was the last major carrier to once again delay the re-entry into service of the 737 Max. Until further notice, Air Canada's 24 Maxs will stay grounded through 14 February, 2020.

The leasing community has experienced overwhelming demand for 737NGs to cover for the 737 Max grounding despite an obvious mismatch between the airline's requirements and what the lessors are willing to give.

"The NG has always been good. Certainly, if you have an -800 for short lease, airlines will knock your doors down. But therein lies the key. Most airlines that were going to take the Max will only take incremental NGs for a short period of time, maybe six months to a year, so there's a demand-supply mismatch. If they already committed to take Maxs they are less willing to take incremental NGs for, say, five years," notes Plueger.

ALC has 84 737-800s in its portfolio but they have all been placed. "At Air Lease, we have no 737-800s left. We kind of wish we had because there was definitely an increase in lease rates in that market but then again that's more a function of the duration of the lease term. Lease rates rally strongly if you can place one for six months to a year, maybe 14 to 15 months. They're still a bit higher on normal three- to five-year term leases, but then they normalise quickly," he adds.

Of ALC's 84 737-800s, the oldest unit was delivered to the lessor in 2007 while the latest additions were in 2017. "The vast majority of our -800s were delivered to us new so most of them still have quite a few years remaining from their first leases before we need to place them again so we don't really benefit from this temporary increase in lease rates," says Plueger.

At the end of June, ALC owned 297 aircraft (up from 275 a year ago) and managed another 64 (up from 61). It had 343 aircraft on firm order, plus 50 options.

ALC has placed 97% of its orderbook on long-term leases for aircraft being delivered through 2020 and 77% through 2021. Committed minimum future rental payments add up to $28.7 billion, of which $13.5 billion is for the existing fleet and $15.2 billion relates to aircraft on order.

Reflecting what management sees as a promising growth outlook for the leasing industry, ALC signed memorandums of understanding (MoUs) with Airbus in June to launch the A321XLR and to order A220s.

Those MoUs cover the purchase of 27 A321XLRs, 23 A321neos and 50 A220s, plus options for 25 A220s. In addition, ALC agreed an MoU with Boeing to convert 15 existing orders for the 737 Max to five 787-9s.

The leasing company has observed "particularly good strength in the A321neo marketplace", including strong demand for the A321XLR. Customers now also "routinely" ask about the A220. The 787-9 switch was portrayed as a normal orderbook adjustment, reflecting demand from customers for that model.

Despite the June MoUs, ALC remains frustrated with Airbus's continuous production delays, particularly on the A321neo and A330neo lines.

"The bottom line is: we have yet to see improvements. There are still a lot of issues on the A321neos coming out of Hamburg. The ACF [Airbus Cabin Flex] configuration is adding complexities that hadn't been fully anticipated. I do know that Guillaume [Faury, Airbus's chief executive officer] is trying to correct things and bring production back up to speed but we still have significant delays and we haven't really seen that much improvement," says Plueger.

ALC has placed orders for 139 A321neos to date, of which 28 have been delivered through 30 August, according to Airbus orders and deliveries data.

"I do know they're working feverishly to address and correct their industrial challenges but it's also about the whole supply chain and that supply chain is under stress, also partially because, even though Boeing is not delivering Maxs, suppliers are still producing components and that slows the entire supply chain, both at Airbus and Boeing," adds Plueger.

He does not think that things will improve anytime soon; there is no respite on the horizon. "It isn't going to get any better in the short to medium term. Boeing has already said that when the FAA recertifies the Max they plan to increase production from 42 now to 52 and eventually north of 57 units per month," according to Plueger.

> *"On the A330neo we've had worst-case delays of six to nine months based on a variety of factors but yes they're arriving late. It's a combination of things. The [Rolls-Royce] Trent 7000 production is under a lot of stress as the TEN 1000 turbine blades continue being replaced."*
>
> **John Plueger**, chief executive officer and president, Air Lease Corporation

ALC is impressed with Airbus's new leadership team built around CEO Faury and chief commercial officer Christian Scherer.

"Guillaume was here in March to visit our board and I was very encouraged by his straightforward open nature and he said 'look I'm going to fix this even though it may take time but I will fix it'. Nonetheless, in the meantime we face serious delays on the A321neo and also on the A330-900, the A330neo. In fact, the only aircraft that's on time for us from Airbus is the A350," says Plueger.

ALC has placed orders for 25 A330-900s, 19 A350-900s and 10 A350-1000s. Through to 30 August, it had received seven A330neos and 10 -900s but no -1000s.

"On the A330neo we've had worst-case delays of six to nine months based on a variety of factors but yes they're arriving late. It's a combination of things. The [Rolls-Royce] Trent 7000 production is under a lot of stress as the TEN 1000 turbine blades continue being replaced," notes Plueger.

ALC has not observed any impact to overall aircraft demand from trade issues or global economic activity. There have been no issues with aircraft deliveries to China or in obtaining new deals there.

"Despite what you're reading in headlines and such, the answer is no, we're not seeing any slowdown in demand and activity from China. We are still getting the same amount of enquiries as before for leasing of aircraft, our deliveries are proceeding on track into China and, although we are extremely watchful and looking for any signs, so far there's been no change in behaviour or demand for RFPs [requests for proposal]. I'm looking for it, but so far I'm not seeing anything," says Plueger.

Nevertheless, in an August earnings call, ALC executives highlighted that the lessor's exposure to Hainan Airlines will decline to only two 787s after the HNA Group carrier returns two 737-800s in the fourth quarter because of normal lease expiry.

The Asia-Pacific region accounts for almost 47% of ALC's customer base so attention must be paid, says Plueger. In that vein, the lessor is proceeding with opening a representative office in Hong Kong SAR to better serve its customers in the region.

The Air Lease Corporation Hong Kong (ALCHK) office was officially opened in October and its team is led by Jie Chen, executive vice-president, managing director and president Asia.

ALCHK will play an important part in cutting deals via Chinese special purpose vehicles (SPVs), including the Nansha free-trade zone SPV which has been tasked with leasing five 787-9s on 12-year terms to China Southern Airlines. This is the first time a US lessor has used Hong Kong to lease aircraft under Hong Kong's new tax regime for lessors and also the first time an aircraft is leased through Nansha, which is in Guangdong province, to a Chinese airline.

This new model (Hong Kong – Chinese free-trade zone – Chinese airline) is expected to set a precedent for other international lessors to follow.

Some in the industry are expressing growing concern about Hong Kong SAR's worsening political and social unrest, now entering its fifth month, but ALC remains unfazed.

"The situation in HK gives us a little bit of concern, just regarding the practicalities. We need to be able to travel in and out of the city over the next several months, getting in and out of the airport, that sort of thing. I believe over time the situation will sort itself out. I don't think that this is going to fundamentally change the reality that HK is a major financial centre and hub in Asia and I do believe the Chinese government is going to make it work under the 'one country two systems' agreement," says Plueger.

Come what may, ALC is determined to make Hong Kong a success. "I still totally and 100% believe in what we're doing over there," he says. "We are proceeding at full speed."

Is consolidation the next step in engine leasing?

The engine leasing industry is in a healthy, competitive state with independent companies vying with OEM-owned lessors, but consolidation could happen in some parts of the market.

Like aircraft leasing, the engine leasing market is benefiting from macro-environment factors such as a growth industry, low interest rates and an abundance of liquidity that have pushed for a "super cycle".

While parallels can be drawn between the two, the engine leasing market is characterised by a stronger original equipment manufacturer (OEM) presence, which dates from the late 1980s.

At the time, the market was mainly dominated by airlines and their maintenance, repair and overall (MRO) shops, but over the years, Rolls-Royce has penetrated the leasing sector via Rolls-Royce & Partners Finance, while CFM International teamed up with GPA to create Shannon Engine Support. Later, General Electric launched GE Engine Leasing and Pratt & Whitney entered the sector with Pratt & Whitney Engine Leasing.

Compared with the aircraft leasing sector, it is more difficult for independent engine lessors to compete successfully.

Today, Engine Lease Finance (ELFC) and Willis Lease Finance are the main independent entities in this market and both have more than 30 years of experience.

ELFC's chief commercial officer, Joseph O'Brien, says it is becoming increasingly difficult to estimate the independent lessors' market share as the engine leasing market has become more segmented.

"We have large OEM lessors at GECAS Engines, Rolls-Royce & Partners Finance, Pratt & Whitney Engine Leasing and Shannon Engine Support. They each have significant portfolios but the breakdown of finance lease versus operating lease versus OEM support leases is near impossible to know," he says.

The second-largest segment includes more traditional operating lessors. "Here, the share is relatively small. Among the 10-largest companies in this segment, we estimate we all together have about 10% of the spares market."

Engine leasing is well into its third decade and is maturing as an industry, says IBA's senior engine analyst, David Archer, who notes that recent growth has been fuelled by strong investor appetite.

"Returns on investment are typically higher than in the aircraft leasing market, which has mainly attracted new investment but it's easy to underestimate the complexity of the asset and the implications this can have on values. Some lessors are simply buying to gain some market share, purchasing engines at a premium, but in a downturn they will struggle the most."

The increasing Japanese presence can be felt, mirroring the aircraft leasing industry in which Japanese financiers have invested in foreign platforms over the past few years.

The re-emergence of Japanese investors as pacesetters in aviation finance has been reaffirmed with the latest round of M&A deals, aircraft orders and increased Japanese operating lease with call option financings.

"There is a significant increase in Japanese presence in the engine leasing industry. This includes various ventures involving Mitsui, Sumitomo, Marubeni and Tokyo Century," notes O'Brien.

He adds: "There are several reasons for this, but the two most common are the companies looking for higher returns outside Japan and, in most cases, there are some synergies with other investments in the entities such as aircraft leasing, maintenance repairs and overhaul, parts trading, etc."

Shannon Engine Support's senior vice-president of sales and marketing, Tadhg Dillon, confirms competition is "fierce" but he adds that this has been "our world" for the past nine to 10 years.

"The engine leasing industry is significantly different from aircraft leasing in that demand for spare engines cannot be created; it's directly linked to the number of engine shop visits globally, shop visit turnaround time and the overall aviation market condition [the need for lift]."

As a result, unpredictability is the main factor with many peaks and troughs. "To survive in the long term, one needs scale, a diverse portfolio both in terms of engine type and book values, a great team of people and focus on providing the best service and product offerings to your customers," he adds.

The engine market has benefited from investors' overall appetite in aviation, although it has yet to reach the level of aircraft leasing.

Dillon confirms there are lots of new entrants. "They seem to be entering the market through the aircraft part-out/green time engines avenue or MRO-affiliated engine lessors whose prime objective is to support the MRO and trade as a commercial lessor on a smaller scale," he says.

ELFC relishes a good challenge and regards itself as well-positioned in an environment where solid funding and a clear strategy are of the essence, particularly in the sale and leaseback market.

"We have been managing in several ways, including matching aggressive pricing where we think appropriate with our best customers. We will not follow pricing or terms down the slope to losses," says O'Brien.

Is consolidation next in the engine market?

O'Brien believes consolidation will not happen in the immediate future but warns that if the sector sees a significant downturn that could change.

"It's always on the agenda but I don't see it happening with the traditional engine lessor because the majority of them are OEM affiliated," says Dillon. However, he adds, consolidation may be on the cards for those involved in sourcing engines from aircraft part-out, where competition is fierce and forecasted returns are far from certain.

IBA's Archer agrees. "I wouldn't say that I have yet seen any significant consolidation, though many have brought in new in-house capabilities such MRO services, asset management and teardown capabilities, which adds significant value to their operations," he says.

Equally, MROs and teardown entities have ventured into the leasing space.

"In a downturn," he adds, "which we are expecting in the near future, consolidation is inevitable and the big players like ELFC or Willis Lease Finance are well prepared for these scenarios having been through downturns before."

Boeing 777-300ER – end of the line

Appraisers say the high costs associated with older models are putting pressure on values and lease rates.

The extended-range Boeing 777-300ER version, which entered service in 2003, became the benchmark long-haul high-capacity twin-engined aircraft, with more than 800 delivered. However, recent years have seen a softening in demand as the aircraft faces increased competion from new Airbus types. Nonetheless, orders continue to be announced – KLM Royal Dutch Airlines being the most recent customer to add to its fleet.

There is also activity in the secondary financing market. As already reported by *Airfinance Journal*, United Airlines is including two 777-300ERs as part of a $1.22 billion enhanced equipment trust certificate (EETC) that the airline is bringing to market.

Future developments

Boeing launched the 777X as the 777-300ER's successor in late 2013. The manufacturer originally offered two variants of the replacement model. 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). The second member of the family, the 777-8, would seat more than 350 passengers and offer a range capability of 8,700 nautical miles. However, in mid-August, Boeing announced that development of the 777-8 was being put on hold.

Entry into service was targeted for 2020, but this looks under threat as the first flight has been put back because of issues with the General Electric GE9X engines. This delay was announced before an incident in September during static testing. However, Boeing says that this latest setback will not affect the development timeline.

Collateral Verifications (CV)

Gueric Dechavanne, vice-president, commercial aviation services

In the past 12 months, CV has seen a continued decline in 777-300ER values

Boeing 777-300ER

of about 5%, with monthly lease rates dropping by 25% for the older vintages, which are more challenging to place. It is our understanding that several lessors which were able to extend leases with existing operators have done so at rates in the $500,000-a-month range, which is lower than initially anticipated for the type.

The lack of a strong secondary market for the 777-300ER remains concerning in terms of the pricing levels that will be required to place the aircraft with new operators. As experienced with the 777-200ER, the reconfiguration and maintenance costs for this aircraft type can be quite 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 are in the $15 million to $20 million range. Engine overhaul costs, excluding life-limited parts, are more than $14 million for each engine. For potential second-tier operators, this represents a significant investment over and above the acquisition cost of the aircraft. We believe this will continue to hold back the development of the secondary market for the 777-300ER.

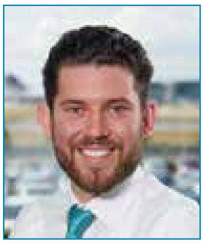
Although demand for the 777-300ER had been dwindling despite Boeing's efforts to secure more orders, the current backlog should keep the production line going until the introduction of the 777-9 in late 2020. With some of the latest engine issues that the 777-9 has been having, however, the entry into service may be pushed back further, which may create some additional opportunities for the older 777-300ERs. Should top-tier carriers not be able to get their new 777-9s when expected, this may enable leases to be extended on older 777-300ERs, which should be welcomed by the lessor community.

Another concern is the competition from the Airbus A350-1000, which has now entered service. Airbus claims the A350 is 25% more efficient than the 777-300ER, and operators may move away from the 777 – causing a further impact on the Boeing aircraft's residual values.

Additionally, once the next-generation 777 starts to deliver in larger numbers, 777-300ER values will be impacted. In the longer term, assuming the cargo market recovers, a freighter-conversion programme may be possible. CV believes this would complement the factory-built 777F.

For the time being, the 777-300ER faces some challenges as the secondary market for the aircraft continues to develop.

ICF



Ben Chapman, ISTAT certified appraiser, aircraft consulting and services

With a current in-service fleet of more than 850 units – an unusually widespread fleet

Current 777-300ER backlog

Customer	Backlog
Emirates	5
PIA	5
British Airways	4
United Airlines	4
BOC Aviation	3
Undisclosed	3
Aeroflot	3
KLM	2
Swiss	2
All Nippon Airways	2

Based on standard ISTAT assumptions.

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
Bock 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	793
Operators (current)	45
In storage	4
On order	33
Built peak year (2016)	88
Estimated production 2019	20
Average age	6.5 years

Source: *Airfinance Journal's Fleet Tracker and additional 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: *Air Investor 2019*

for a large widebody aircraft – and about 1% of the fleet in storage, the 777-300ER has been the most successful 777 variant in terms of deliveries. The programme is now entering the final phase of its lifecycle – the replacement 777X is due to enter service in the coming year and only just over 30 777-300ERs remain on order. Slow orders over the past few years have forced Boeing to severely lower build rates to bridge the production gap.

The 777X has a total backlog that does not threaten to dilute the -300ER fleet any time soon, but the 777-300ER has started to be replaced already by some operators downscaling to smaller and more efficient A350s and 787s. Many leases are being extended, and we are currently observing the first transitions because of scheduled lease returns from Emirates Airline, Cathay Pacific and Eva Airways, all already placed by lessors. Grounded aircraft from the Jet Airways bankruptcy are further testing the secondary market.

Remarketing is proving tough because of the high costs of late-life ownership of 777s compared with the cheap leases and financing available for A350s or 787s. ICF's maintenance survey and forecast estimates the cost of a full-performance restoration for a mature GE90-115 at more than $11 million, with the life-limited parts and materials costing airlines more than a further $8.5 million.

The size of the 777-300ER drives up the cost of reconfiguration and refurbishment – with $20 million for a full-interior reconfiguration being quoted by some sources. These costs, coupled with heavy airframe checks at more than $3.5 million, make operating a 777-300ER past the age of 14 an expensive exercise.

As a result, current market values and lease rates for the 777-300ER have been declining and the oldest vintages are now in part-out territory – two spare engines equating to the value of the oldest aircraft. Newer aircraft values range between $79 million for a 2010-build aircraft and up to $159 million for a new (2019) delivery.

Lease rate factors have also been declining, driving lease rates down faster than values with market lease rates ranging between $560,000 for a 2010 model and peaking at about $1.15 million a month for a new aircraft.

Given current market values for the aircraft, ICF's parts valuation model suggests that rotable and repairable components would make teardown profitable for the earliest vintages, but as yet no 777-300ER teardowns have been undertaken. ICF's maintenance forecast predicts that retirements for part-outs are set to begin at a slow but increasing pace – resulting in 10% of the fleet being retired by 2025.

The prevalence of GE OnPoint agreements has helped spread the costs of engine ownership while also maintaining GE's control of the aftermarket for spare engines and parts.

As aircraft from the first bow-wave of production enter later life, there is an expected increase in part-outs and a potential for a freighter programme to emerge as values and lease rates continue to soften.

IAI has already proposed a 777-300ERF P2F programme with an estimated supplementary type certificate development time of three years. The feedstock pricing is about $30 million or less with a conversion cost of $15 million to $25 million. ICF estimates there will be about 200 candidate aircraft for freight conversion by 2024, introducing some more stability to this market in the coming years.

777-300ER VALUES

Current market values ($m)

Build year	2010	2012	2014	2016	2018
CV view	80.3	91.2	104.5	123.0	131.6
ICF view	79.1	91.1	104.0	121.5	145.4

Assuming standard ISTAT criteria.

Indicative lease rates ($000s/month)

Build year	2010	2012	2014	2016	2018
CV view	550	650	750	850	1,050
ICF view	560-660	700-750	800-850	900-950	950-1,000

Max looks to compete long-term

As the timing of the 737 Max's return to service continues to be in doubt, **Geoff Hearn** looks at whether further delays will impact the competitiveness of the Boeing models against the rival Airbus products.

Previous studies by *Airfinance Journal* into the relative merits of the Boeing 737 Max and Airbus A320neo models have found the competing families to be very closely matched with both manufacturers able to make credible claims about the superiority of their products. The most recent studies were, however, carried out before the grounding of the 737 Max.

In March, aviation regulators and airlines around the world grounded all 737 Max aircraft after an Ethiopian Airlines flight crashed killing everyone on board. The accident came after a Lion Air Max 8 crashed soon after take-off in October 2018, also with no survivors. There is as yet no firm date for the return to service of the type. Boeing has said it hopes to resume flights early in the fourth quarter of 2019, but that does not look to be a certainty, because the process of recertification has not been straightforward.

In May, Boeing completed development of the updated software that needed modification in the light of findings after the accidents. However, in June, the Federal Aviation Administration (FAA) identified an additional requirement during simulator sessions reviewing specific flight conditions. The company says it is addressing this requirement through further software changes. After a visit to Boeing in September, FAA administrator Steve Dickson told international regulators that the FAA has no set timeline to allow the 737 Max back into the air.

There is no doubt that the ongoing delay has impacted Boeing customers and some operators have gone public in assessing the damage to their finances.

As reported by *Airfinance Journal* in September, airlines such as Flydubai and Turkish Airlines have at least partly blamed disappointing financial results on the Max 8 grounding, although the latter also cites delays in deliveries of A320neo-family aircraft as a contributor to a decline in financial performance.

Operating cost impact

Airfinance Journal's previous cost analysis concluded that the Max 8's cash operating costs are about 3% higher than those of an A320neo on a 500 nautical mile route. This equates to a seat-cost advantage of about 5% for the Boeing model. On the other hand, the A321neo provides significant cost advantages over the Max 9 – a situation that is only partially addressed by the increased seating offered by the Max 10.


Boeing 737 Max


Airbus A320neo

At about $2 per US gallon, the current fuel price is below the level envisaged when the Neo and Max families were launched, and consequently the competitiveness of the newer models over their predecessors is not as high as envisaged by the manufacturers. However, the lower fuel price has virtually no impact on the relative costs of the Max and Neo models.

Maintenance cost savings are also a source of debate when comparing aircraft. Manufacturers invariably claim significant savings for the latest models, but these claims are not always fully borne out in service. The grounding of the Max models and the early difficulties of the first Neo aircraft to enter service highlight that theoretical savings can be dwarfed by operational problems.

The nominal cash operating cost figures are unlikely to be altered by the current Max situation since the modifications being introduced in the wake of the accidents will have little if any impact on the cash operating costs of the aircraft. However, the situation for total operating costs (including capital) could be less clear if the grounding of the Max aircraft starts to impact on investor confidence and values.

Base value for long-term

For the moment, any such impact looks unlikely, with the market perception being that the longer-term value of the Max will be unaffected.

Phil Seymour, chief executive officer of aviation consultancy firm IBA, has reviewed the 737 Max situation and believes that base values, as defined by ISTAT, provide a reliable long-term benchmark and are preferable to the use of market values in the current climate. Seymour says other leading appraisers are adopting this approach, although he acknowledges that there has been pressure from financiers to provide current market values.

IBA sees a high demand for narrowbody aircraft over the next 25 years and this is a significant factor in the company sticking with its base value projections for the Max models. Base value opinion for an aircraft type is also driven by its projected orderbook, the diversity of lessor and airline orders, as well as the fleet concentration and geographical spread of airlines.

The Max orderbook looks strong in all these areas. Seymour points out: "Aircraft programmes often face technical and market challenges – history has shown that these challenges can, and have been overcome."

He does think that values could be impacted if the situation is not resolved and orders are lost to the extent that there is a significant drop in the backlog, but he emphasises that there would have to be a big decline before there is any such impact. One area that could have an impact on base values is a fracturing of the global market. Certification and approval by regulators needs to be on a global basis, but in this instance there looks to be an increasing likelihood that some jurisdictions will take time to follow an eventual decision by the FAA to lift the ban on the 737 Max.

Seymour does see a problem in the shorter term with regard to the increasing number of Max aircraft in storage. He believes that as the grounding continues there will be logistical difficulties in bringing the 350-plus aircraft stored by airlines back into service, particularly as the stockpile of undelivered aircraft at various Boeing sites increases. Boeing continues to produce about 40 aircraft a month with around 400 units already built but undelivered. Seymour says the difficulties in putting aircraft back into service will depend on how well they have been stored, but problems are bound to increase as the time in storage increases. The situation is further complicated by the necessity of installing the modified Boeing software into all the stored aircraft. Boeing is reported to be organising teams of engineers to facilitate the process.

Orders

Before the grounding of the 737 Max, Airbus had sold more of its latest-generation aircraft than Boeing had for its newest single-aisle models. However, given the head start afforded by the A320neo's earlier entry into service, this was unsurprising. The Max 8 has almost achieved parity with the A320neo in terms of orders, although this disguises the fact that the A321neo has increasingly been Airbus's star performer, having accumulated more than three times as many orders as the combined Max 9/Max 10 tally.

How much the Max 8 orderbook has been impacted by the grounding is difficult to say. Some provisional orders, such as the one from Saudi carrier Flyadeal, have been lost, but there have as yet been no cancellations of firm orders. However, there are some signs that potential Max orders may be lost to the A320neo.

Spicejet, which is among the airlines to have cited the Max grounding as a contributor to disappointing financial results, is reported to be looking at a proposal from Airbus for A321neos. The Indian carrier is evaluating an Airbus proposal, which includes the A321XLR, with a view potentially to ordering at least 100 aircraft, according to its chairman, Ajay Singh.

Despite the eye-catching letter of intent for 200 aircraft signed by IAG at the Paris air show, firm orders for the Max have dried up since the grounding. With a backlog of more than 4,000 aircraft, this is far from catastrophic, but the longer the grounding goes on the more there will be cause for concern.

Where there is a clear impact is the lead that Airbus has in terms of the in-service fleet. Despite a troubled entry into service and problems in building up production rates to anticipated levels, there are now close to 1,000 Neos delivered and in service, compared with the 385 Max models delivered by Boeing – all of which are grounded. The gap is bound to increase until the Max is back in service, and the situation will not be improved by the need to bring the large number of aircraft out of storage.

Boeing's problems may be even more acute when it comes to competing with the A321neo. The Max 9 and Max 10 are less directly affected by the current grounding than the Max 8 because fewer than 30 Max 9s have been delivered and the Max 10 is yet to enter service. It is not clear that the current grounding will impact on the planned 2020 entry into service of the Max 10, but it is unlikely to help in keeping to the schedule.

Given the advantage in orders and in-service fleet numbers enjoyed by the A321neo over the 737 Max 9/Max 10, Boeing will not want to fall further behind its rival.

Total orders for Neo and Max families

Type	Orders	Delivered
A319neo	36	0
A320neo	3,848	729
A321neo	2,764	218
Total Neo	**6,648**	**947**

Type	Orders	Delivered
737 Max 7	62	0
737 Max 8	3,847	357*
737 Max 200	135	0
737 Max 9	352	28*
737 Max 10	534	0
Total Max	**4,930**	**385**

Source: Airfinance Journal Fleet Tracker 30 September, 2019
**Grounded*

ISTAT definitions

Base value is the appraiser's opinion of the underlying economic value of an aircraft in an open, unrestricted, stable market environment with a reasonable balance of supply and demand, and assumes full consideration of its "highest and best use".

An aircraft's base value is founded in the historical trend of values and in the projection of value trends and presumes an arm's-length, cash transaction between willing, able and knowledgeable parties, acting prudently, with an absence of duress and with a reasonable period of time available for marketing. In most cases, the base value of an aircraft assumes its physical condition is average for an aircraft of its type and age, and its maintenance time status is at mid-life, mid-time (or benefiting from an above-average maintenance status if it is new or nearly new, as the case may be).

Market value (or current market value if the value relates to the time of the analysis) is the appraiser's opinion of the most likely trading price that may be generated for an aircraft under the market circumstances that are perceived to exist at the time in question.

Market value assumes that the aircraft is valued for its highest, best use, that the parties to the hypothetical sale transaction are willing, able, prudent and knowledgeable, and under no unusual pressure for a prompt sale, and that the transaction would be negotiated in an open and unrestricted market on an arm's-length basis, for cash or equivalent consideration, and given an adequate amount of time for effective exposure to prospective buyers.

Rating agency unsecured ratings

Airlines

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

Source: Ratings Agencies - 9th October 2019

Lessors

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

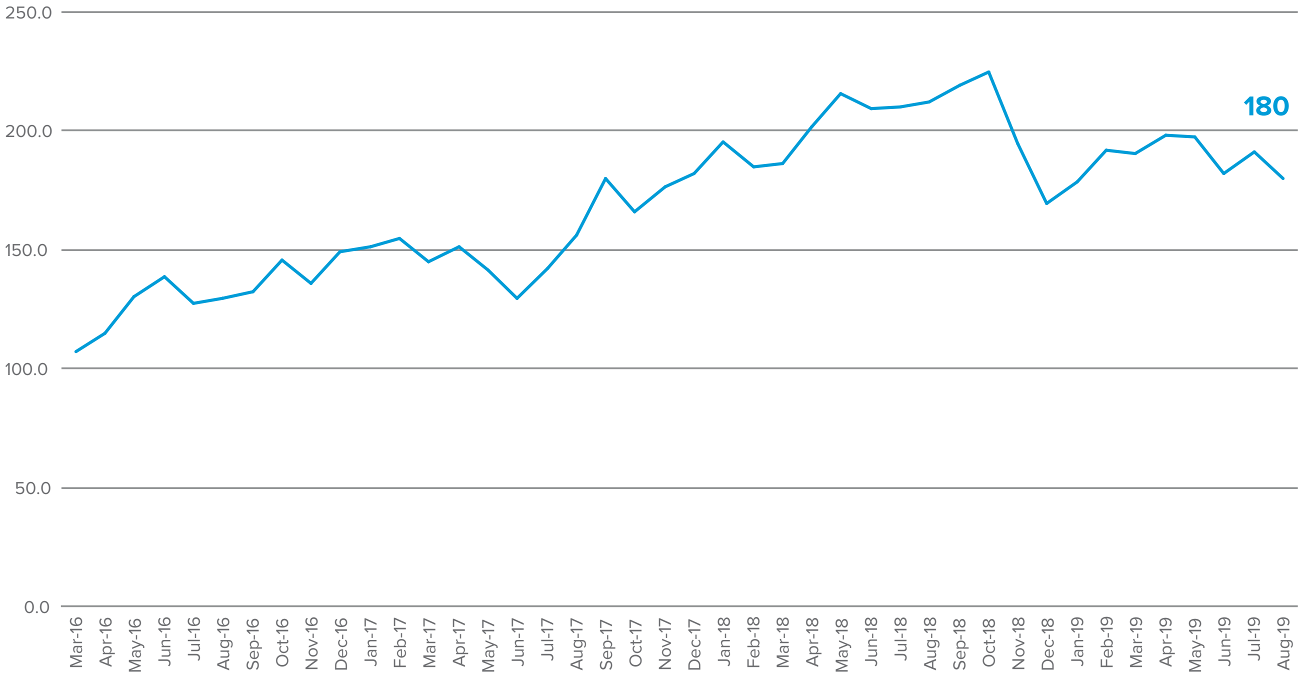
Source: Ratings Agencies - 9th October 2019

Manufacturers

	Fitch	Moody's	S&P
Airbus Group	A-(stable)	A2(stable)	A+(stable)
Boeing	A(neg)	A2(neg)	A(stable)
Bombardier	B-(stable)	B3(stable)	B-(stable)
Embraer	BBB-(stable)	Ba1(stable)	BBB
Rolls-Royce	A-(stable)	Baa1(stable)	BBB(neg)
United Technologies	-	Baa1(stable)	BBB+

Source: Ratings Agencies - 9th October 2019

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



Source: US Energy Information Administration

Recent commercial aircraft orders (July-September 2019)

Customer	Country	Quantity/Type
Air Asia X	Malaysia	12 A330neo, 12 A321XLR
Virgin Atlantic Airways	UK	8 A330-900neo
Iberia	Spain	2 A320neo
DAE Capital	UAE	2 A350-900
Air China	China	20 A350-900
AerCap	Ireland	5 A320neo
Air New Zealand	New Zealand	8 787-10
China Airlines	Territory of Taiwan	6 777F
KLM	Netherlands	2 777-300ER
Air Tahiti	French Polynesia	3 ATR72-600

Air China ordered 20 A350-900s

Based on *Airfinance Journal* research up to 30/09/19

Aircraft list prices - new models

Model	$ million
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

As of 30/09/19

Current production aircraft values ($ million)

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

*Based on ISTAT appraiser inputs for Air Investor 2019

Lease rates ($'000 per month)

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

Commercial aircraft orders by manufacturer

	Gross orders 2019	Cancellations 2019	Net orders 2019	Net orders 2018
Airbus (30 September)	303	-176	127	747
Boeing (30 September)	170	-254	-84	893
Bombardier	15	0	15	47
De Havilland of Canada	6	0	6	0
Embraer	44	0	44	47
ATR	43	0	43	52

Based on Airfinance Journal research and manufacturer announcements until 30/09/19

Diverging path of passenger and cargo traffic **growth rates**

Cargo has become a finicky child who is hard to predict, writes Adam Pilarski, senior vice-president at Avitas.

As an old practitioner of traffic forecasting, I knew the simple trick of coming up with cargo traffic forecasts: spend a lot of energy to forecast passenger growth rates and then add a point to a point and a half to that rate and you have a credible cargo traffic forecast. It worked for a few decades and all forecasters found this shortcut very useful and productive.

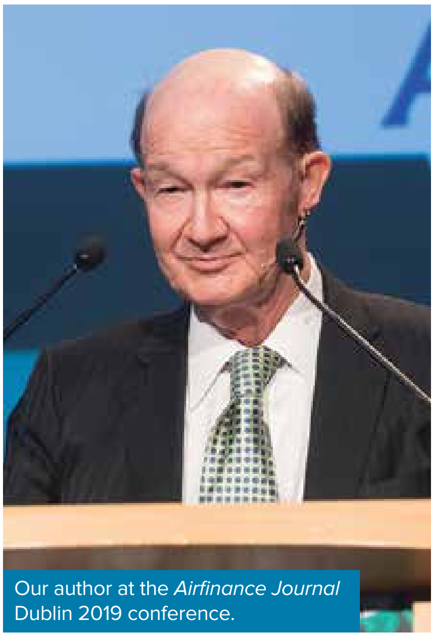
Cargo grew faster than passenger traffic for decades because trade also grew faster than the world economy: remember when globalisation was a positive term and expected to spread further in the future?

I recently checked on the last set of forecasts by Douglas Aircraft Company published in 1995, just before our liberation by Boeing. It expected 6% passenger and 7.4% cargo traffic for the next decade. This was in line with all the other forecasts published at the same time. Overall, world passenger growth rates have been coming down progressively as the industry matured. They amounted to more than 30% annually in the 1930s, down to about 15% in the 1950s and 1960s, 9% in the 1970s and since then about 5%.

Cargo was not a big element of traffic but exhibited similar patterns over time. On the passenger traffic side, in the past five years we witnessed a very robust and unsustainable period of growth of about 6% to 7%, way higher than the long-term forecasts accepted by the industry of below 5%. During the past decade, cargo grew by only 2.5% annually. This low average was comprised of very volatile rates.

The years 2007 to 2009 were a disaster with significant declines, followed by a mild recovery in 2009/10, and then by an average growth of 2% for the next five years. There was a recovery of 10% in 2017 followed by a very weak 2018 and currently we are in negative territory again.

The International Air Transport Association director-general Alexandre de Juniac recently said: "After a decade in the doldrums, air cargo had an amazing 2017 with 9.7% growth," but then quickly pointed out that this was a one-time event and recent expectations are for a continuation of bad numbers.



Our author at the *Airfinance Journal* Dublin 2019 conference.

> *The latest 20-year forecasts from Airbus and Boeing show that passenger traffic is expected to grow at 4.3% to 4.6% annually while cargo will lag at 3.3% to 4.4%, conforming with existing present realities.*

What has happened that brought cargo from the darling of forecasters to a finicky child who is hard to predict? Some of the explanatory factors are fairly straightforward. A period of very high oil prices (2007/14) punished air cargo substantially (it is an expensive way of getting products faster to consumers and with high oil prices becomes even more expensive). Low interest rates had a lot to do with it too. As the cost of capital was very low, the penalty for using slower transport was reduced so the speed of air cargo became less essential ("I do not mind that my inventory of fine dresses is taking its time on a boat from Italy to US as I do not have to pay a high price for the loan I took to buy the merchandise").

Also, globalisation has slowed down. In part, it was because outsourcing production reduces cost but also means less control over output. An example from our industry: Boeing's 787 development, which relied heavily on outsourcing, proved to be a disaster resulting in a change leading to keeping production under direct control. The resulting outcome was that businesses increasingly decided to keep more work in house under strict control.

The international scene also changed with some elements of the population benefiting from globalisation while others were left behind. That led to political changes in many countries where populism and nationalism became the new catch words instead of efficiency and profitability. All this had the inevitable impact on world trade, slowing it down substantially.

Also, Boeing researchers point out that of the components of economy, services are more related to the passenger and manufacturing more to cargo traffic. Services are growing faster than manufacturing around the world, hence another reason for the divergent traffic patterns we are witnessing.

So, what about the future? The latest 20-year forecasts from Airbus and Boeing show that passenger traffic is expected to grow at 4.3% to 4.6% annually while cargo will lag at 3.3% to 4.4%, conforming with existing present realities. Unless we return to the path of globalisation and trade, we should expect these trends to continue for some time.

Domestic cargo growth may finally outperform international. It is not the end of cargo but an interruption or cessation of trends we enjoyed for some time. Depending on the political and economic environment in the world, we can expect a continuation of the new reality, quite different from the one we experienced just a few years ago.

AIRFINANCE JOURNAL

An *Airfinance Journal* special supplement

Leasing Top 50 2019

Top 50 **managers by number of aircraft**

Rank	Manager	Total	% change since last year		Turboprop	Regional jet	Narrowbody	Widebody
1	GECAS	**1,201**	↓	-2%	20	249	776	156
2	AerCap	**1,042**	↓	-4%	-	3	748	291
3	Avolon	**530**	↓	-9%	-	3	430	97
4	BBAM	**510**	↑	13%	-	2	384	124
5	Nordic Aviation Capital	**480**	↑	12%	282	191	7	-
6	SMBC Aviation Capital	**421**	↑	3%	-	2	369	50
7	Air Lease Corporation	**361**	↑	12%	-	2	269	90
8	DAE Capital	**350**	↑	7%	56	-	231	63
9	BOC Aviation	**337**	↑	13%	-	-	282	55
10	ICBC Leasing	**329**	↑	23%	-	7	285	37
11	Aviation Capital Group	**316**	↑	15%	-	-	298	18
12	Aircastle	**283**	↑	18%	-	6	244	33
13	Carlyle Aviation Partners	**240**	↑	25%	-	-	206	34
14	Castlelake	**223**	↑	23%	15	14	160	34
15	BOCOMM Leasing	**217**	↑	18%	-	10	183	24
15=	ORIX Aviation	**217**	↓	-6%	-	-	187	30
17	CDB Aviation	**215**	↑	13%	-	20	157	38
18	Macquarie AirFinance	**194**	↓	-1%	-	3	181	10
19	Goshawk	**171**	↑	49%	-	1	156	14
20	Jackson Square Aviation	**158**	↑	5%	-	-	141	17
21	Avmax	**150**	↓	-13%	64	71	13	2
22	China Aircraft Leasing Company	**137**	↑	22%	-	-	131	6
23	Standard Chartered Bank	**133**	↓	-1%	-	-	124	9
24	DVB AAM	**121**	↓	-2%	-	-	96	25
25	Falko	**115**	↑	49%	17	98	-	-
26	Cargo Aircraft Management	**103**	↑	11%	-	-	2	101
27	CMB Financial Leasing	**94**	↑	19%	-	4	75	15
28	Aircraft Leasing & Management	**86**	↑	13%	-	14	60	12
29	Chorus Aviation	**80**	↑	186%	68	12	-	-
30	Accipiter	**77**	↑	15%	-	-	75	2
31	CCB Leasing	**75**	↓	-3%	-	-	64	11
32	VTB Leasing	**74**	↑	4%	-	7	55	12
33	Elix Aviation Capital	**73**	↓	-5%	73	-	-	-
34	JP Lease Products & Services	**72**	↑	26%	-	-	50	22
35	VEB Leasing	**71**	↑	6%	1	30	21	19
36	Fortress Transportation	**70**	↑	8%	-	-	45	25
36=	ALAFCO	**70**	↑	21%	-	-	61	9
38	State Transport Leasing Company	**69**	↑	11%	-	31	31	7
38=	FPG Amentum	**69**	↓	-5%	-	-	52	17
40	MC Aviation Partners	**66**	↓	-4%	-	-	62	4
41	Aviation Finance & Leasing	**65**	↑	23%	-	-	65	-
42	Tokyo Century Leasing	**61**	↓	-34%	-	6	39	16
42=	Jetran International	**61**	↑	22%	7	2	50	2
44	Altavair Airfinance	**60**	↑	13%	-	-	31	29
45	Seraph Aviation Management	**59**	↑	20%	2	6	34	17
46	GTLK Europe	**58**	↓	-11%	-	-	51	7
46=	Skyworks Leasing	**58**	↑	12%	4	1	30	23
48	Acumen Aviation	**57**	→	0%	8	42	7	-
49	GOAL	**56**	↑	5%	8	11	34	3
49=	Sberbank Leasing	**56**	↓	-10%	-	20	30	6
49=	Merx Aviation	**56**	↑	4%	-	-	53	3
	Total	**10,247**	↑	**6%**	**625**	**868**	**7,135**	**1,619**

Source: Lessors and *Airfinance Journal*'s Fleet Tracker as of 30 June, 2019

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

Rank	Manager	Total	% change since last year	Turboprop	Regional jet	Narrowbody	Widebody
1	AerCap	**$39,599**	↑ 8%	-	$104	$20,540	$18,956
2	GECAS	**$26,011**	↓ -3%	$209	$1,460	$16,996	$7,347
3	BBAM	**$23,330**	↑ 4%	-	$29	$11,738	$11,564
4	Avolon	**$20,593**	↓ -4%	-	$4	$13,342	$7,247
5	SMBC Aviation Capital	**$18,906**	↑ 16%	-	$31	$13,296	$5,579
6	Air Lease Corporation	**$18,280**	↑ 14%	-	$34	$9,319	$8,926
7	BOC Aviation	**$16,268**	↑ 14%	-	-	$10,562	$5,706
8	ICBC Leasing	**$16,081**	↑ 34%	-	$335	$11,046	$4,700
9	DAE Capital	**$11,630**	↑ 3%	$797	-	$6,384	$4,449
10	Aviation Capital Group	**$11,252**	↑ 28%	-	-	$9,698	$1,555
11	BOCOMM Leasing	**$9,319**	↑ 14%	-	$205	$6,830	$2,284
12	CDB Aviation	**$8,207**	↑ 12%	-	$366	$5,599	$2,242
13	ORIX Aviation	**$7,963**	↑ 12%	-	-	$5,400	$2,563
14	Aircastle	**$7,356**	↑ 13%	-	$119	$5,591	$1,647
15	Goshawk	**$7,319**	↑ 49%	-	$19	$5,810	$1,491
16	Jackson Square Aviation	**$6,877**	↓ -1%	-	-	$5,359	$1,517
17	Nordic Aviation Capital	**$6,430**	↑ 3%	$2,995	$3,227	$208	-
18	China Aircraft Leasing Company	**$5,322**	↑ 23%	-	-	$4,958	$364
19	Macquarie AirFinance	**$4,924**	↓ -8%	-	$42	$4,386	$497
20	Standard Chartered Bank	**$4,855**	↓ -8%	-	-	$4,387	$468
21	Carlyle Aviation Partners	**$4,151**	↑ 22%	-	-	$3,238	$913
22	Castlelake	**$4,106**	↑ 41%	$44	$91	$3,067	$903
23	CMB Financial Leasing	**$4,302**	↑ 3%	-	$104	$2,841	$1,357
24	Amedeo Limited	**$3,816**	↓ -33%	-	-	-	$3,816
25	CCB Leasing	**$3,765**	↓ -3%	-	-	$2,691	$1,074
26	Aircraft Leasing & Management	**$3,356**	↑ 14%	-	$335	$2,063	$958
27	ALAFCO	**$3,281**	↑ 35%	-	-	$2,102	$1,179
28	DVB AAM	**$3,189**	↓ -8%	-	-	$1,834	$1,356
29	IAFC	**$3,087**	↓ -5%	-	-	$1,244	$1,842
30	FPG Amentum	**$3,083**	↓ -2%	-	-	$1,703	$1,380
31	JP Lease Products & Services	**$2,880**	↑ 31%	-	-	$1,163	$1,717
32	Aviation Finance & Leasing	**$2,744**	↑ 14%	-	-	$2,744	-
33	Tokyo Century Leasing	**$2,636**	↓ -28%	-	$96	$1,256	$1,283
34	Seraph Aviation Management	**$2,616**	↑ 15%	$15	$107	$637	$1,856
35	Investec	**$2,555**	↓ -11%	$106	$93	-	$2,356
36	Accipiter	**$2,545**	↑ 10%	$2	-	$2,420	$124
37	Altavair Airfinance	**$2,448**	↓ -13%	-	-	$668	$1,780
38	MC Aviation Partners	**$2,445**	↓ -5%	-	-	$2,189	$256
39	Doric	**$2,409**	↓ -10%	$51	-	$131	$2,227
40	VEB Leasing	**$2,406**	↑ 0%	$8	$531	$732	$1,134
41	GTLK Europe	**$2,347**	↑ 14%	-	$5	$1,392	$950
42	Novus Aviation	**$2,253**	↓ -24%	-	-	$534	$1,719
43	Minsheng Financial Leasing	**$2,060**	↑ 9%	-	-	$1,459	$601
44	GOAL	**$1,944**	↑ 21%	$137	$97	$1,528	$182
45	VTB Leasing	**$1,817**	↓ -5%	-	$11	$1,627	$179
46	Sberbank Leasing	**$1,679**	↑ 22%	-	$299	$1,107	$273
47	Merx Aviation	**$1,624**	↑ 3%	-	-	$1,409	$215
48	SPDB Financial Leasing	**$1,595**	↑ 1%	-	$20	$1,248	$327
49	Falko	**$1,461**	↑ 89%	$142	$1,319	-	-
50	Wings Capital Partners	**$1,347**	↑ 137%	-	-	$1,158	$189
	Total	**$350,471**	↑ 7%	$4,506	$9,082	$215,634	$121,249

Source: Lessors and *Airfinance Journal*'s Fleet Tracker as of 30 June, 2019

Top 50 **beneficial owners by number of aircraft**

Rank	Beneficial Owner	Total	Turboprop	Regional jet	Narrowbody	Widebody
1	GECAS	**1,179**	19	229	777	154
2	AerCap	**949**	-	3	673	273
3	Avolon	**481**	-	-	391	90
4	Nordic Aviation Capital	**469**	279	190	-	-
5	DAE Capital	**343**	56	-	226	61
6	ICBC Leasing	**329**	-	7	285	37
7	BOC Aviation	**314**	-	-	267	47
8	Air Lease Corporation	**297**	-	1	215	81
9	Aircastle	**269**	-	5	234	30
10	Aviation Capital Group	**267**	-	-	242	25
11	SMBC Aviation Capital	**259**	-	-	244	15
12	Carlyle Aviation Partners	**242**	-	-	208	34
13	NBB Leasing	**218**	-	-	144	74
14	Castlelake	**211**	9	14	154	34
15	CDB Aviation	**210**	-	20	152	38
16	Macquarie AirFinance	**194**	-	3	179	12
17	BOCOMM Leasing	**185**	-	5	161	19
18	Jackson Square Aviation	**156**	-	-	141	15
19	Goshawk	**154**	-	1	142	11
20	Avmax	**150**	64	71	13	2
21	China Aircraft Leasing Company	**137**	-	-	131	6
22	JP Lease Products & Services	**114**	-	-	79	35
23	FLY Leasing	**112**	-	-	100	12
24	Standard Chartered Bank	**111**	-	-	102	9
25	Cargo Aircraft Management	**107**	-	-	10	97
26	Deucalion Aviation Funds	**106**	-	-	86	20
27	FALKO	**91**	17	74	-	-
28	Chorus Aviation	**80**	68	12	-	-
29	Accipiter	**77**	-	-	75	2
30	CCB Leasing	**75**	-	-	64	11
31	VTB Leasing	**74**	-	7	55	12
32	Genesis Aircraft Services	**73**	-	2	69	2
33	ORIX Aviation*	**72**	-	-	63	9
33=	Merx Aviation*	**72**	-	-	69	3
35	Elix Aviation Capital	**71**	71	-	-	-
36	ALAFCO	**70**	-	-	61	9
36=	Fortress Transportation	**70**	-	-	45	25
38	VEB Leasing	**69**	1	30	19	19
38=	State Transport Leasing Company	**69**	-	31	31	7
40	Aviation Finance & Leasing	**65**	-	-	65	-
41	Jetran International	**62**	7	2	51	2
42	Regional One	**61**	5	56	-	-
43	Altavair Airfinance	**60**	-	-	31	29
44	Vermillion Aviation	**59**	-	-	56	3
45	CMB Financial Leasing	**58**	-	-	52	6
46	GOAL	**56**	8	11	34	3
46=	Sberbank Leasing	**56**	-	20	30	6
48	IAFC	**55**	-	-	30	25
49	Fuyo General Lease	**52**	-	6	42	4
50	GTLK Europe	**51**	-	-	44	7
	Total	**9,161**	**604**	**800**	**6,342**	**1,415**

Source: Lessors and *Airfinance Journal*'s Fleet Tracker as of 30 June, 2019

** ORIX Aviation and Merx Aviation got credit for 50% each of the Kornerstone aircraft*

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

Rank	Beneficial Owner	Total	Turboprop	Regional jet	Narrowbody	Widebody
1	AerCap	**$33,428**	-	$95	$17,176	$16,157
2	GECAS	**$26,067**	$204	$1,397	$17,147	$7,319
3	Avolon	**$19,215**	-	-	$12,392	$6,823
4	Air Lease Corporation	**$16,189**	-	$19	$7,878	$8,293
5	ICBC Leasing	**$16,081**	-	$335	$11,046	$4,700
6	BOC Aviation	**$15,061**	-	-	$9,912	$5,149
7	NBB Leasing	**$12,238**	-	-	$4,971	$7,267
8	DAE Capital	**$11,454**	$797	-	$6,375	$4,281
9	SMBC Aviation Capital	**$10,435**	-	-	$8,603	$1,832
10	Aviation Capital Group	**$9,426**	-	-	$8,160	$1,265
11	BOCOMM Leasing	**$8,439**	-	$138	$6,319	$1,982
12	CDB Aviation	**$7,898**	-	$366	$5,432	$2,100
13	Aircastle	**$6,927**	-	$99	$5,386	$1,442
14	Jackson Square Aviation	**$6,766**	-	-	$5,373	$1,393
15	Goshawk	**$6,532**	-	$19	$5,382	$1,131
16	Nordic Aviation Capital	**$6,177**	$2,995	$3,182	-	-
17	China Aircraft Leasing Company	**$5,073**	-	-	$4,787	$286
18	Macquarie AirFinance	**$4,993**	-	$42	$4,386	$566
19	Carlyle Aviation Partners	**$4,217**	-	-	$3,304	$913
20	Standard Chartered Bank	**$4,116**	-	-	$3,649	$468
21	Castlelake	**$3,927**	$32	$91	$2,901	$903
22	JP Lease Products & Services	**$3,867**	-	-	$1,922	$1,945
23	CCB Leasing	**$3,602**	-	-	$2,529	$1,074
24	FLY Leasing	**$3,418**	-	-	$2,599	$818
25	ALAFCO	**$3,281**	-	-	$2,102	$1,179
26	IAFC	**$3,087**	-	-	$1,244	$1,842
27	ORIX Aviation*	**$2,762**	-	-	$1,945	$817
28	Aviation Finance & Leasing	**$2,744**	-	-	$2,744	-
29	Accipiter	**$2,545**	$2	-	$2,420	$124
30	CMB Financial Leasing	**$2,712**	-	-	$1,973	$739
31	Altavair Airfinance	**$2,448**	-	-	$668	$1,780
32	Deucalion Aviation Funds	**$2,415**	-	-	$1,590	$826
33	Doric	**$2,409**	$51	-	$131	$2,227
34	VEB Leasing	**$2,327**	$8	$531	$653	$1,134
35	Vermillion Aviation	**$2,200**	-	-	$1,998	$201
36	Novus Aviation	**$2,193**	-	-	$551	$1,642
37	GTLK Europe	**$2,031**	-	-	$1,096	$935
38	Investec	**$1,996**	$106	$93	-	$1,797
39	Merx Aviation*	**$1,989**	-	-	$1,774	$215
40	GOAL	**$1,818**	$157	$57	$1,527	$78
41	Fuyo General Lease	**$1,971**	-	$127	$1,515	$330
42	VTB Leasing	**$1,817**	-	$11	$1,627	$179
43	Amedeo Air Four Plus	**$1,802**	-	-	-	$1,802
44	Minsheng Financial Leasing	**$1,775**	-	-	$1,459	$315
45	Voyager Aviation	**$1,728**	-	-	-	$1,728
46	Sberbank Leasing	**$1,679**	-	$299	$1,107	$273
47	Tokyo Century Leasing	**$1,459**	-	$31	$1,119	$309
48	Incline Aviation	**$1,447**	-	-	$956	$491
49	Stellwagen Group	**$1,412**	$15	$107	$108	$1,181
50	FPG Amentum	**$1,310**	-	-	$1,151	$159
	Total	**$300,903**	**$4,366**	**$7,039**	**$189,089**	**$100,410**

Source: Lessors and *Airfinance Journal*'s Fleet Tracker as of 30 June, 2019

** ORIX Aviation and Merx Aviation got credit for 50% each of the Kornerstone aircraft*

Top 50 lessors' orderbooks

Rank	Lessor	Total	Turboprop	Regional jet	Narrowbody	Widebody
1	Avolon	**378**	-	-	333	45
2	GECAS	**369**	11	5	349	4
3	Air Lease Corporation	**345**	-	-	270	75
4	Aercap	**318**	-	45	246	27
5	SMBC Aviation Capital	**294**	-	-	294	-
6	China Aircraft Leasing Company	**261**	-	30	231	-
7	CDB Aviation	**183**	-	-	181	2
8	BOC Aviation	**163**	-	-	150	13
9	Aviation Capital Group	**158**	-	-	154	4
10	ICBC Leasing	**131**	-	50	81	-
11	ALAFCO	**111**	-	-	108	3
12	Ilyushin Finance Corporation	**95**	-	27	67	1
13	Aviacapital Services	**85**	-	-	85	-
14	Nordic Aviation Capital	**64**	57	7	-	-
15	Macquarie Airfinance	**60**	-	-	60	-
16	Jackson Square Aviation	**52**	-	-	50	2
17	China Huarong Financial Leasing	**50**	-	20	30	-
18	ABC Financial Leasing	**45**	-	-	45	-
18=	Goshawk	**45**	-	-	45	-
20	Timaero Ireland	**38**	-	-	38	-
21	BOCOMM Leasing	**33**	-	-	33	-
22	Everbright Financial Leasing	**30**	-	-	30	-
23	VEB Leasing	**29**	-	4	25	-
24	Aircastle	**25**	-	25	-	-
25	Accipiter	**20**	-	-	20	-
25=	Comsys Aviation Leasing	**20**	-	20	-	-
25=	Lease Corporation International	**20**	-	-	20	-
28	State Transport Leasing Company	**18**	-	18	-	-
29	Chorus Aviation	**14**	5	9	-	-
29=	Sberbank Leasing	**14**	-	-	14	-
31	Fly Leasing	**13**	-	-	13	-
32	Incline Aviation	**12**	-	-	12	-
33	Japan Investment Adviser	**10**	-	-	10	-
33=	Avation	**10**	9	-	1	-
33=	Aerolease Aviation	**10**	-	10	-	-
36	Hong Kong Int. Av. Leasing	**7**	-	-	-	7
37	GTLK Europe	**6**	-	-	6	-
37=	Willis Lease Finance	**6**	-	6	-	-
39	SPDB Financial Leasing	**5**	-	-	5	-
39=	CIB Leasing	**5**	-	5	-	-
41	Novus Aviation Capital	**4**	-	-	-	4
41=	Middle East Leasing	**4**	-	-	4	-
41=	NBB Leasing	**4**	-	-	4	-
41=	Minsheng Financial Leasing	**4**	-	4	-	-
45	Arctic Aviation Assets	**3**	-	-	3	-
45=	DAE Capital	**3**	-	-	-	3
47	Ping An	**2**	-	-	2	-
47=	Aerostar Leasing	**2**	2	-	-	-
	Total	**3,578**	**84**	**285**	**3,019**	**190**

Source: Lessors and *Airfinance Journal*'s Fleet Tracker as of 30 June, 2019


LEASES

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

Rank	Lessor	Total	Turboprop	Regional jet	Narrowbody	Widebody
1	Air Lease Corporation	**$31,895**	-	-	$18,879	$13,016
2	Avolon	**$29,136**	-	-	$21,759	$7,377
3	GECAS	**$23,987**	$115	$110	$23,018	$744
4	Aercap	**$21,537**	-	$986	$16,208	$4,344
5	SMBC Aviation Capital	**$18,886**	-	-	$18,886	-
6	China Aircraft Leasing Company	**$14,632**	-	$660	$13,972	-
7	CDB Aviation	**$12,013**	-	-	$11,687	$326
8	BOC Aviation	**$11,545**	-	-	$9,276	$2,269
9	Aviation Capital Group	**$11,025**	-	-	$10,423	$602
10	ALAFCO	**$7,418**	-	-	$6,909	$508
11	ICBC Leasing	**$4,332**	-	$1,056	$3,276	-
12	Aviacapital Services	**$3,909**	-	-	$3,909	-
13	Jackson Square Aviation	**$3,696**	-	-	$3,375	$322
14	Ilyushin Finance Corporation	**$3,450**	-	$451	$2,971	$28
15	Macquarie Airfinance	**$3,193**	-	-	$3,193	-
16	Goshawk	**$2,875**	-	-	$2,875	-
17	Timaero Ireland	**$2,429**	-	-	$2,429	-
18	Veb Leasing	**$1,362**	-	$69	$1,293	-
19	Hong Kong Int. Av. Leasing	**$1,304**	-	-	-	$1,304
20	China Huarong Financial Leasing	**$1,265**	-	$440	$825	-
21	ABC Financial Leasing	**$1,238**	-	-	$1,238	-
22	Accipiter	**$1,180**	-	-	$1,180	-
23	BOCOMM Leasing	**$1,036**	-	-	$1,036	-
24	Lease Corporation International	**$989**	-	-	$989	-
25	Sberbank Leasing	**$971**	-	-	$971	-
26	Fly Leasing	**$926**	-	-	$926	-
27	Incline Aviation	**$855**	-	-	$855	-
28	Novus Aviation Capital	**$826**	-	-	-	$826
29	Everbright Financial Leasing	**$825**	-	-	$825	-
30	Nordic Aviation Capital	**$695**	$571	$124	-	-
31	Japan Investment Adviser	**$694**	-	-	$694	-
32	DAE Capital	**$581**	-	-	-	$581
33	Aircastle	**$497**	-	$497	-	-
34	Comsys Aviation Leasing	**$440**	-	$440	-	-
35	State Transport Leasing Company	**$317**	-	$317	-	-
36	GTLK Europe	**$302**	-	-	$302	-
37	Middle East Leasing	**$285**	-	-	$285	-
38	Chorus Aviation	**$282**	$52	$230	-	-
39	NBB Leasing	**$267**	-	-	$267	-
40	Aerolease Aviation	**$260**	-	$260	-	-
41	Arctic Aviation Assets	**$214**	-	-	$214	-
42	Groupe Dubreuil	**$169**	-	-	-	$169
43	Avation	**$144**	$94	-	$50	-
44	Ping An	**$139**	-	-	$139	-
45	SPDB Financial Leasing	**$138**	-	-	$138	-
46	CIB Leasing	**$128**	-	$128	-	-
47	Willis Lease Finance	**$99**	-	$99	-	-
48	Minsheng Financial Leasing	**$36**	-	$36	-	-
49	Pearl Aircraft Corporation	**$17**	-	$17	-	-
50	Aerostar Leasing	**$6**	$6	-	-	-
	Total	**$224,446**	**$839**	**$5,920**	**$185,271**	**$32,416**

Source: Lessors and *Airfinance Journal*'s Fleet Tracker as of 30 June, 2019

[1] *calculated as 55% of 2019 list price*

Lessor firm orders

Figure 1: Firm orders by body type

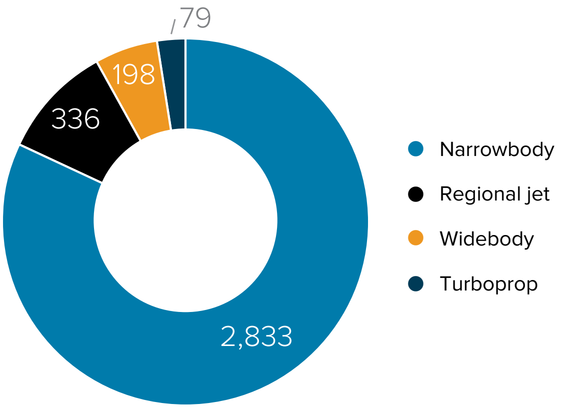


Figure 2: Firm orders by value by body type ($m)

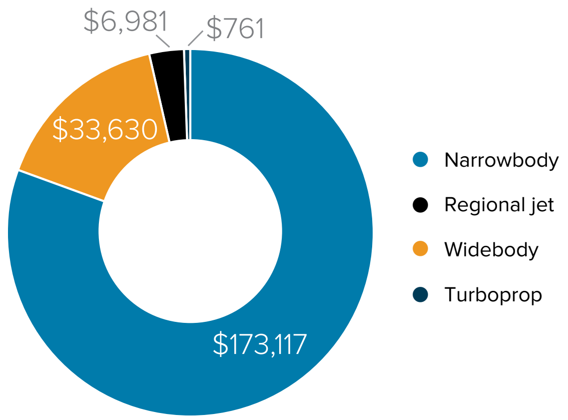


Figure 3: Firm orders by manufacturer

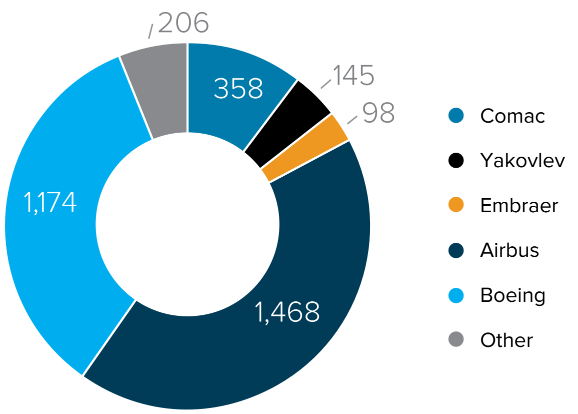


Figure 4: Firm orders by value by manufacturer ($m)

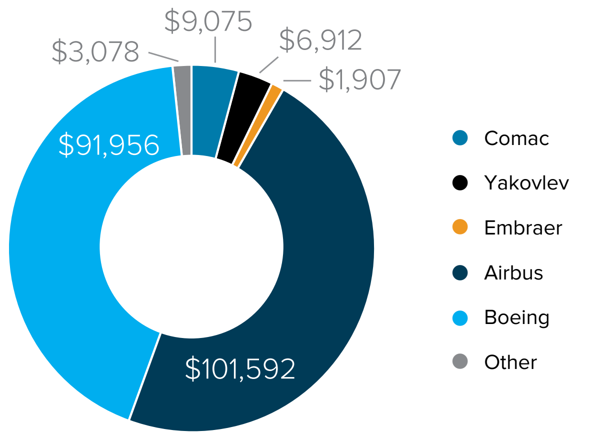


Figure 5: Firm orders by country of lessor

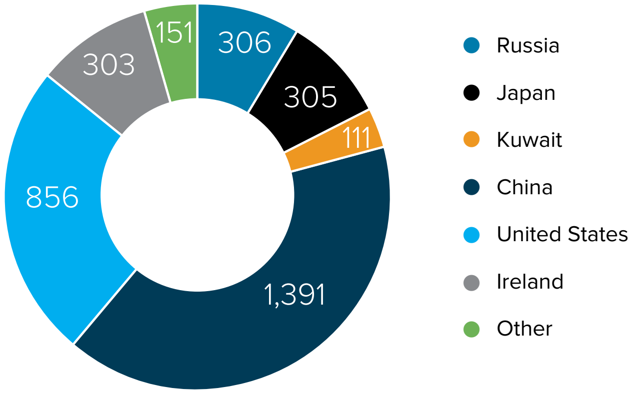
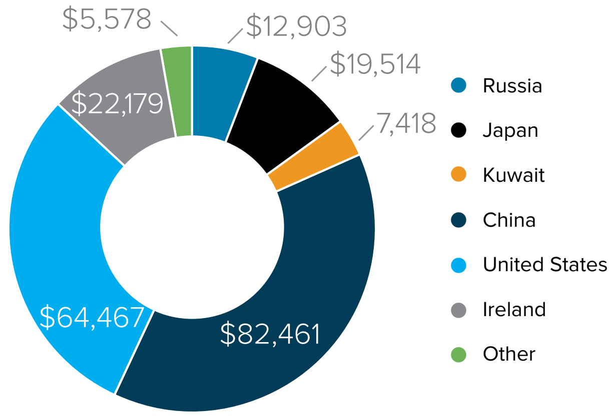


Figure 6: Firm orders by value by country of lessor ($m)



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

Trend analysis – Global aircraft leasing companies' financial performance

Figure 1 - Financial highlights

$ billion	2014/15	2015/16	2016/17	2017/18	2018/19
Revenue in survey	14.3	17.1	17.8	19.2	21.2
GECAS	5.3	5.2	5.3	5.1	4.9
Total revenue	19.6	22.3	23.1	24.3	26.1
PP&E in survey	120.5	132.8	133.8	154.9	168.2
GECAS	34.9	30.6	34.3	31.8	29.7
Total assets	155.4	163.4	168.1	186.7	197.9
Net income in survey[1]	3.1	3.2	3.4	4.6	5.1
GECAS	1.0	1.0	1.3	1.4	1.2
Total net income[2]	4.1	4.2	4.7	6.0	6.3

Source: Company reports and *The Airline Analyst*
[1] *excluding major tax credits for ALC, ACG and BOC Aviation in 2017/18*
[2] *includes CIT Aerospace International/AWAS*

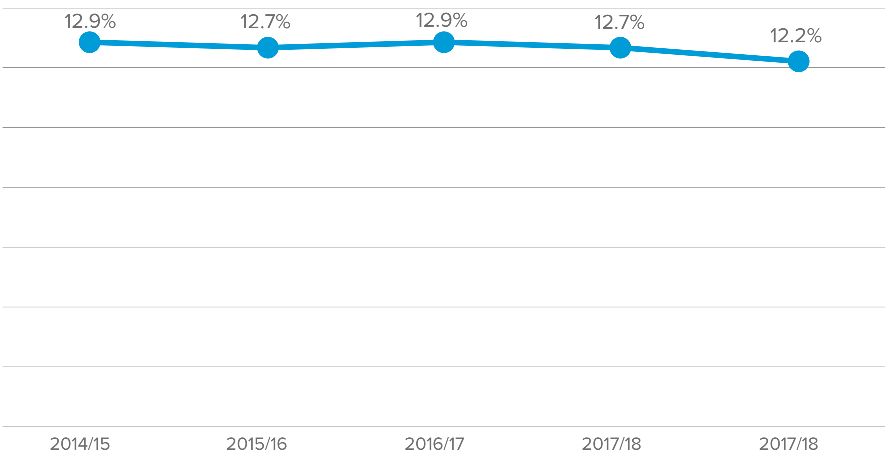
In addition to the "Lessor Comparisons" analysis in the next section, we present here an analysis of the global financial trends for the industry as a whole over the last five years. The survey group includes seven of the top 10 largest lessors (the exceptions being GECAS, ICBC Financial Leasing and BBAM - though it includes FLY). DAE is included for the second time. AWAS and CIT Aerospace are included for the periods before their change of ownership and when their financials were available. Unfortunately, a number of lessors with December year-ends have not yet filed their 2018 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). We have included certain key 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 can be seen its numbers show a shrinkage in 2018. We also include some key financials for Fortress Transportation & Infrastructure Investors whose portfolio has been growing rapidly over the last 2-3 years. Total property, plant and equipment assets for the population were $197.9 billion (up 8.6% excluding GECAS) in the most recent financial year, 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 and sidecars.

Revenues were $26.1 billion (plus 7.5%) and net income was a record $6.3 billion (plus 11.1% excluding GECAS).

Yield
Figure 2 shows the yield trend over the last five years. In 2018/19, there was a continuation of the downward trend of last

Figure 2: Lease yield



Source: Company reports and *The Airline Analyst*

year, which tells us the pricing pressure in the marketplace has started to move the aggregate needle. The 70 basis points (bps) decline from 2014/15 to the latest year is equivalent to a revenue figure of $1.4 billion for the sample as a whole. It would therefore confirm that the large lessors have not been immune to competition in the marketplace.

Gearing

Gearing for the lessors in the survey however remains benign as shown in Figure 3. This remains a conservative capital structure supported by a significant increase in retained earnings. The typical 4x or higher leverage of the last cycle is only evident in a few cases currently, 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 over the five-year period as shown in Figure 4. Secured debt has declined, while unsecured debt has more than doubled over the period and increased by $22 billion (net) in 2018/19 alone. More than adequate liquidity chasing the sector resulted in credit spreads declining during the year.

Interest Cost

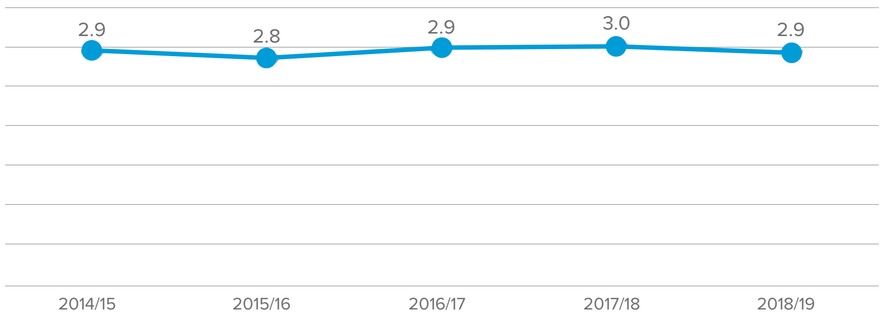
Clearly one of the objectives of the lessors is to maximise the yield-interest cost spread. As shown in Figure 5, the downward movement in average interest cost in 2017/18 was good for profitability in that year. The most recent year, despite the decline in credit spreads, witnessed a reversal of the declining trend for average interest cost due to the increase in short and medium-term interest rates of around 80 bps during the year. Assuming an average increase over the year of 35 bps applied to $150 billion of debt, the cost to the lessors was of the order of $525 million.

Return on Equity

As a consequence of pressure on yields and debt costs, return on equity for the group fell to 11.4% from 11.8% in the most recent period. This nevertheless is higher than experienced from 2014 to 2017 and remains an attractive risk-adjusted return which will support the continued entry of new investors to the market, especially with the turnaround of interest rates during 2019 and ample liquidity available.

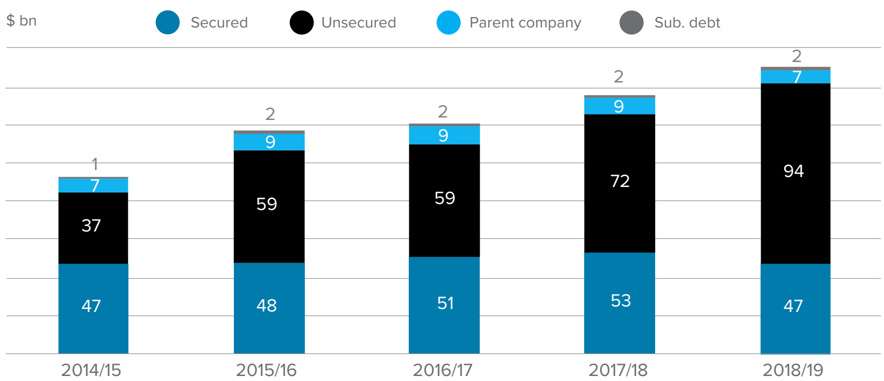
Companies included in the latest period are listed in Figure 1 in the next section. In addition, we included AWAS and CIT as appropriate in historic years in order to make the data as consistent as possible..

Figure 3: Gearing (Debt/equity)



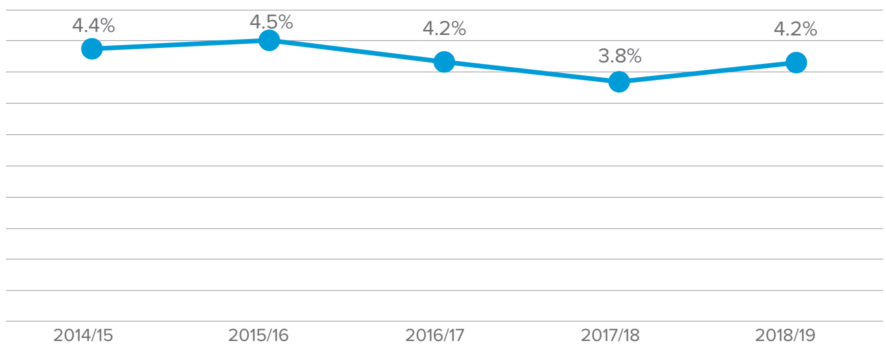
Source: Company reports and *The Airline Analyst*

Figure 4: Debt structure



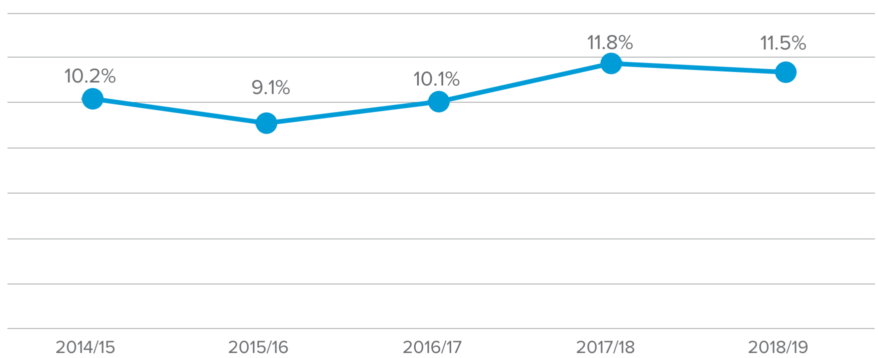
Source: Company reports and *The Airline Analyst*

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] 1after adjusting for large 2017 tax credits for ALC, ACG and BOC Aviation

Lessor comparisons – 2018/19

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 2018 or 2019).

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

Figure 1 identifies the entities included in the study. In total, we have been able to source the financials for 23 aircraft leasing companies. In addition, full financials are not available for GECAS, but some headline numbers are available in the GE annual report. Fortress Transportation and Infrastructure Investors publish financials for their overall leasing business but break out some key numbers for the aircraft leasing segment. We include Avation plc from Singapore (listed in the UK) and CALC (listed in Hong Kong). Most of the lessors in the study are incorporated in the US or Ireland though two of the largest, AerCap and BOC Aviation, are incorporated in the Netherlands and Singapore, respectively, though BOC Aviation is listed in Hong Kong.

The significant absences from our coverage include ICBC Financial Leasing, Goshawk and Macquarie AirFinance (who do not file financial information publicly other than a few headline numbers). We include DAE for the second time but financials are not available for BBAM (though we do include FLY Leasing). We have included Jackson Square Aviation Ireland for the first time and include pro-forma aggregate numbers for Pembroke Capital and Pembroke Aircraft Leasing. Some lessors that we have included previously are not included as they had not filed their 2018 financial statements at the date of preparing this compilation. These include AerDragon, BoComm Leasing, Vermillion and Triangle (Falko). We have included two special purpose listed aircraft leasing entities including Amedeo Air Four Plus and DP Aircraft I.

The abbreviations used to refer to the lessors through the rest of this study are indicated in Figure 1.

Among the other Chinese lessors we include the Irish leasing entities for CCB, CDB and Ping An. Interestingly Ping An has had one of the strongest financial performances in recent years with sizable gains on aircraft sales. It has been reported, however, that they plan to exit the aircraft leasing market.

Figure 1: Lessors included in the study

Lessor	Country	FYE	Abbreviation
Accipiter Holdings Limited	China/Ireland	31-Dec-18	Accipiter
AerCap NV	Netherlands/Ireland	31-Dec-18	AerCap
Air Lease Corporation	USA	31-Dec-18	ALC
Aircastle	USA/Ireland	31-Dec-18	Aircastle
ALAFCO Aviation Lease & Finance	Kuwait	30-Sep-18	ALAFCO
Amedeo Air Four Plus Limited	UK	31-Mar-19	AA4+
Avation PLC	UK/Singapore	30-Jun-19	Avation
Aviation Capital Group	Japan/USA	31-Dec-18	ACG
Avolon	Ireland	31-Dec-18	Avolon
Banc of America Leasing	USA/Ireland	31-Dec-18	BOAL
BOC Aviation	China/Singapore	31-Dec-18	BOC Aviation
CALC	China/Hong Kong	31-Dec-18	CALC
CCB Aviation Corporation	China/Ireland	31-Dec-18	CCB AC
CDB Aviation Lease Finance	China/Ireland	31-Dec-18	CDB ALF
Dubai Aerospace Enterprise	UAE	31-Dec-18	DAE
DP Aircraft I Limited	UK	31-Dec-18	DP AIRCRAFT
FLY Leasing	Ireland	31-Dec-18	FLY
Fortress Transportation & Infrastructure Investors[1]	USA	31-Dec-18	Fortress
GECAS[1]	USA/Ireland	31-Dec-18	GECAS
Jackson Square Aviation	Japan/Ireland	31-Dec-18	JSA
MCAP Europe Limited	Japan/Ireland	31-Mar-19	MCAP
Nordic Aviation Capital	Denmark	30-Jun-19	NAC
Pembroke Pro-forma	UK/Ireland	31-Dec-18	Pembroke
Ping An Aircraft Leasing Company Limited	China/Ireland	31-Dec-18	Ping An
SMBC Aviation Capital	Japan/Ireland	31-Mar-19	SMBC AC

[1] *Key data only*

The regional aircraft sector is represented by Nordic Aviation Capital and Avation. Banc of America Leasing continues to maintain its low profile yet appears to be doing deals with $2 billion of PP&E as of 31 December 2018.

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 Aviation Capital who have been heavily funded by shareholder loans so please interpret their numbers accordingly. Over the last three 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 compensionio	Included in SG&A expenses
Interest income	Included in other revenue

Source: Company reports and *The Airline Analyst*

Profitability

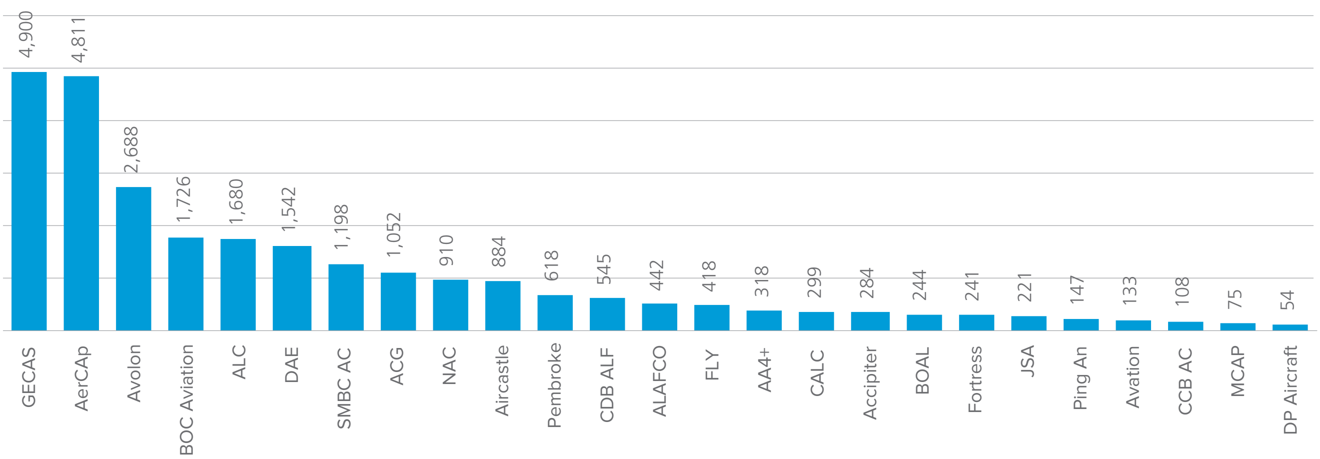
Figures 3 and 4 show the lessors ranked by revenue and net income. The revenue range of the lessors in the study is from $4.9 billion for GECAS to $53m for DP Aircraft. Despite Avolon's acquisition of CIT Aerospace it remains just over half the size of GECAS and AerCap. BOC Aviation, ALC and DAE come in fourth, fifth and sixth position followed by SMBC AC.

As mentioned in the previous section, aggregate yield for all lessors in the study declined to 12.1% from 12.5%. Some of the

lessors bucked the trend and squeezed some growth in yield, most notably FLY Leasing, Jackson Square Aviation (JSA), CALC and NAC. AerCap's and Avolon's yields declined by 9% and 15% year-on-year respectively. The latter may be partly caused by the timing of the acquisition of the CIT Aerospace assets in 2017.

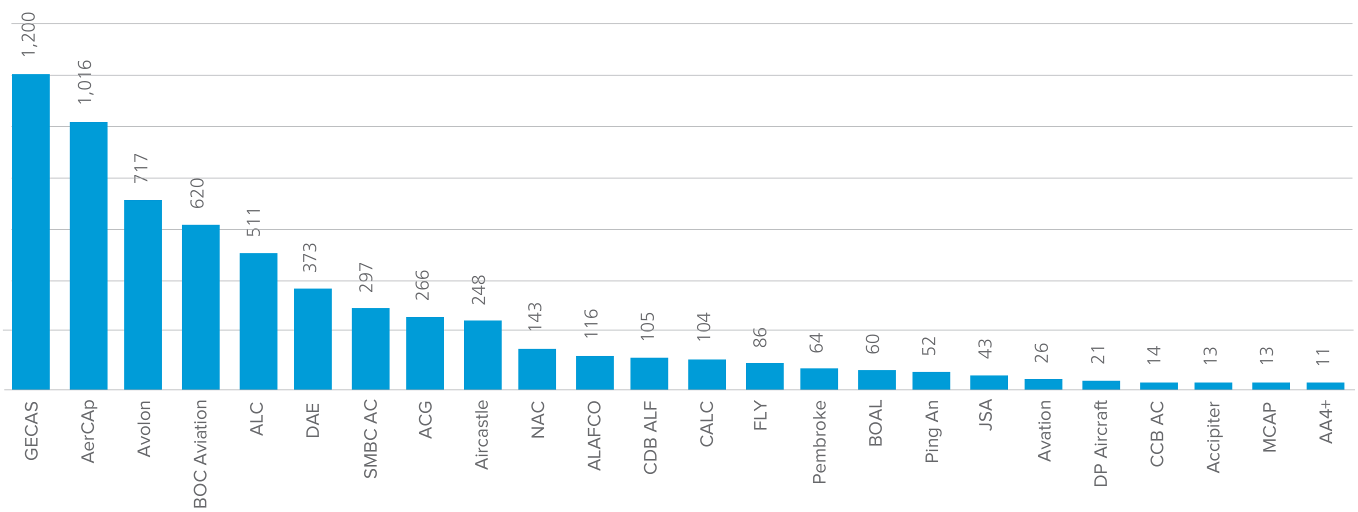
In aggregate the profit generated by the lessors in the study (and including GECAS) was $6.3 billion, a $300m increase on the previous year, and up from $4.1 billion

Figure 3: Total revenue ($ million)



Source: Company reports and *The Airline Analyst*

Figure 4: Net income ($ million)



Source: Company reports and *The Airline Analyst*

in 2014/15. Net income was headed by GECAS at $1.2 billion (down from $1.4 billion) followed by AerCap at $1 billion and Avolon at $717 million. Coming fourth in profitability were BOC Aviation followed by ALC.

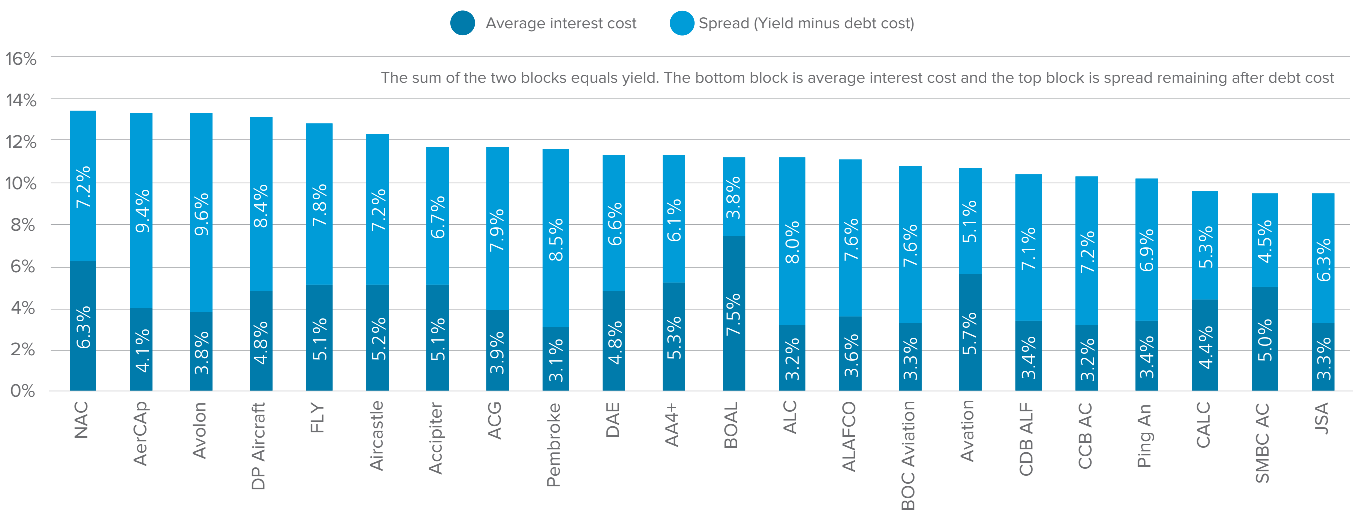
Among the key drivers of lessor profitability is the spread between lease yield and debt cost of funds. Figure 5 shows all three, ranked in descending order of yield.

NAC, AerCap and Avolon are the leaders on yield with Avolon number one on spread and AerCap number two. Among other things, this demonstrates the power of their franchises and scale. FLY and Aircastle also generate attractive yields but their relatively high debt costs result in lower spreads. The stand-outs in terms of lowest cost of (externally provided) funds are ALC at 3.2% and BOC Aviation at 3.3%. Some of the other lessors with low debt costs are heavily funded by their parents on attractive terms.

Gains/losses on sales

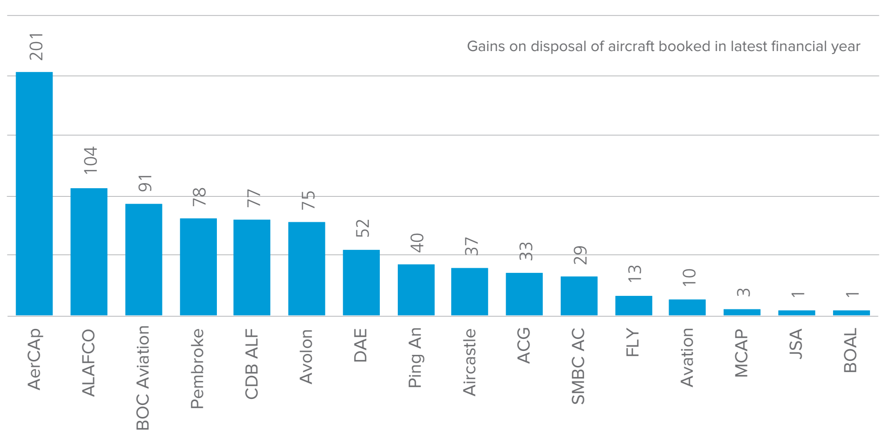
Aggregate plant, property and equipment for the lessors in the study (including GECAS and Fortress) is $198 billion. Gains booked were $891 million, 26% up on 2017/18, and 15% of reported profit before tax. Gains from aircraft sales made a significant contribution to the profitability of a number of lessors as shown in Figure 6.

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*

Impairments

Impairments totalled $257 million, down from $537 million the prior year. They were not universal but significant amounts were reported by Avolon, ACG, AerCap and SMBC AC, as shown in Figure 7. Overall, however, they were only 0.2% of opening net book value. In previous years any GECAS impairments were reported in the GE annual report but this was not the case for 2018. We cannot ascertain whether this means "zero", "not material" or the figure was simply not disclosed.

Financial flexibility

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.

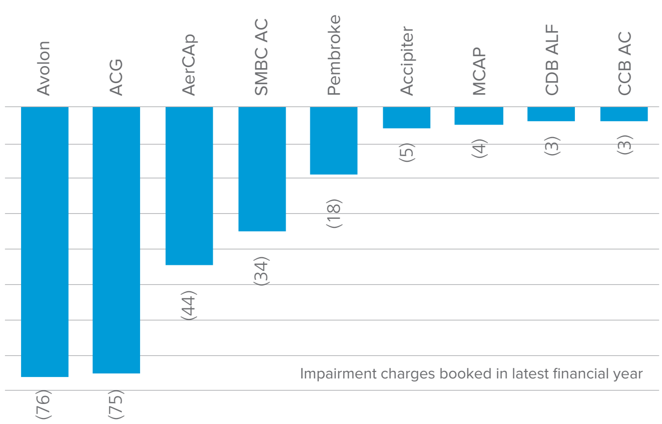
Leverage

The debt/equity ratio is the simplest measure of capital structure and is universally understood. Some of the lessors use significant amounts of inter-company debt which results in high nominal leverage. 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 CALC significantly above this range. FLY and Avation are just above the 4x threshold.

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. Lessors with investment grade ratings are

Figure 7: Asset impairment



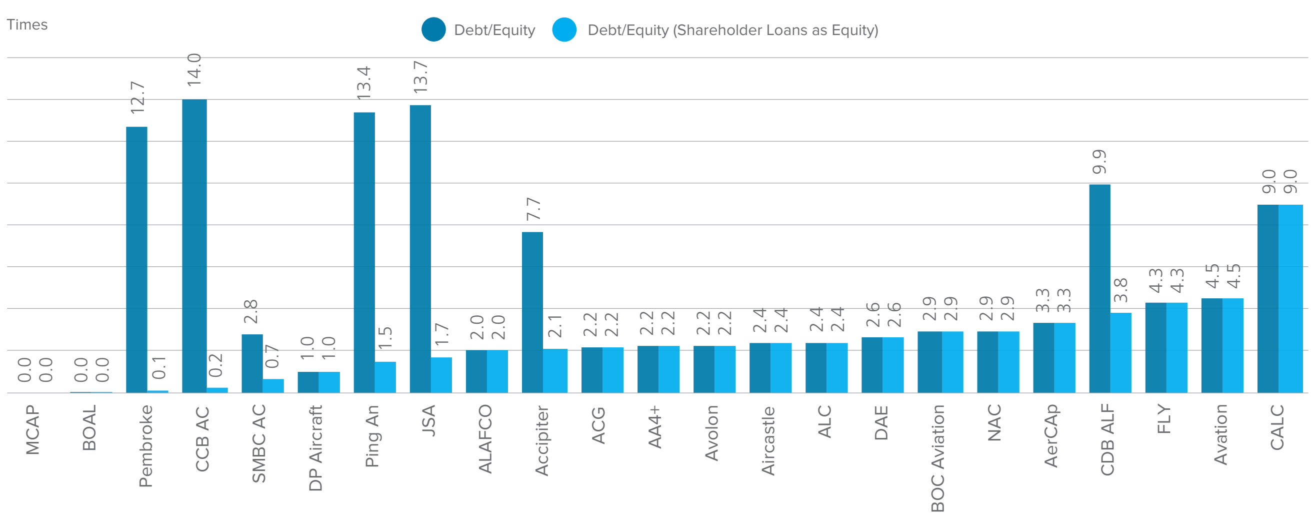
Source: Company reports and *The Airline Analyst*

Figure 9: Lessor unsecured credit ratings

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

Source: Ratings Agencies - 9 October, 2019

Figure 8: Debt/equity ratio

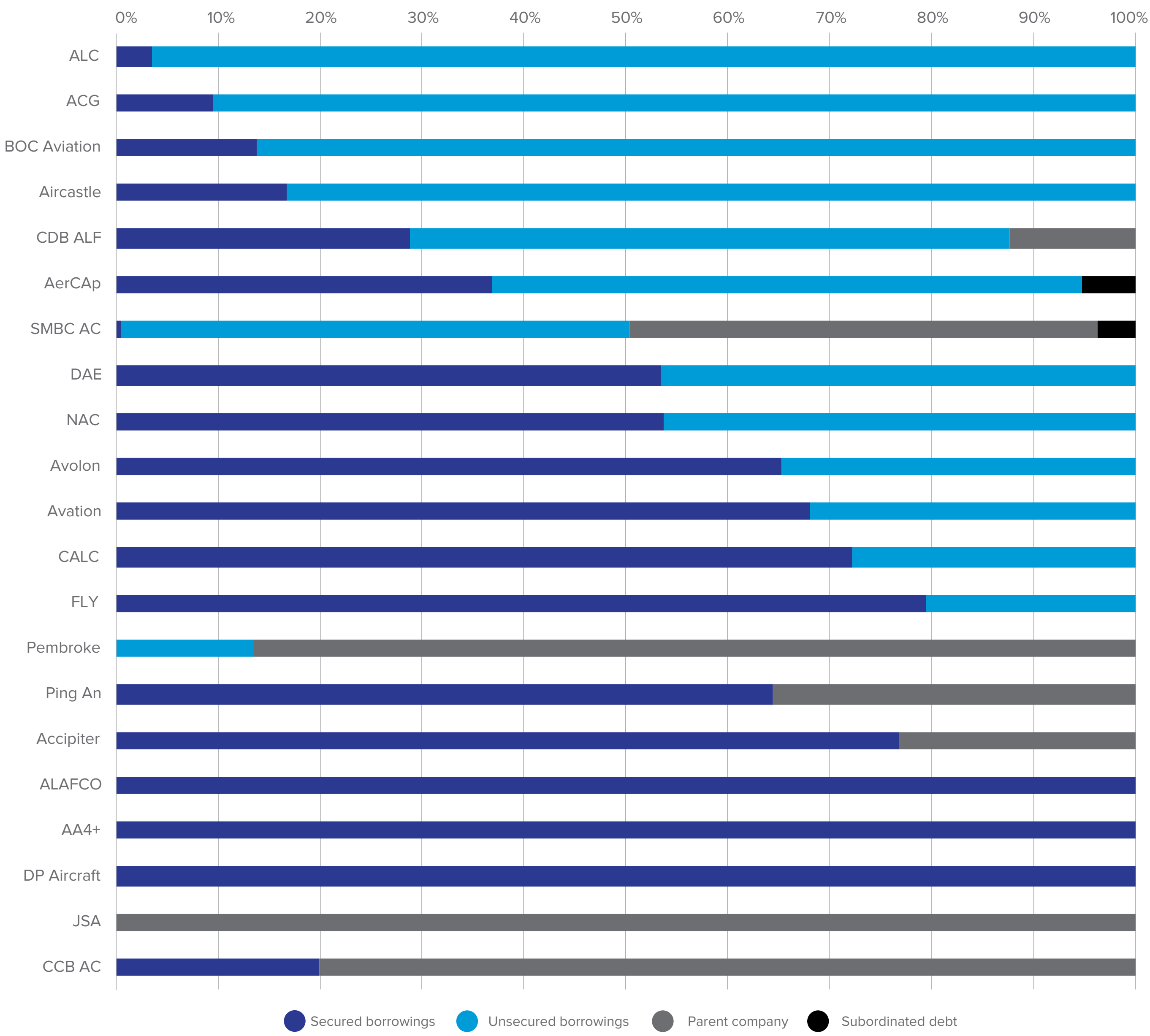


Source: Company reports and *The Airline Analyst*

Aircastle, ALC, SMBC AC, Avolon, DAE, ACG (who have benefited historically from their ownership by Pacific Life but are now under review due to the imminent sale to Tokyo Century) and BOC Aviation who, in addition to very strong financials, benefit from their Bank of China ownership.

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 previous section there has been a significant increase in unsecured funding by the industry as a whole, reaching 63% of total debt in 2018/19. The lessors with the highest percentage of external unsecured funding are ALC, ACG, BOC Aviation and Aircastle.

Figure 10: Debt structure



Source: Company reports and *The Airline Analyst*

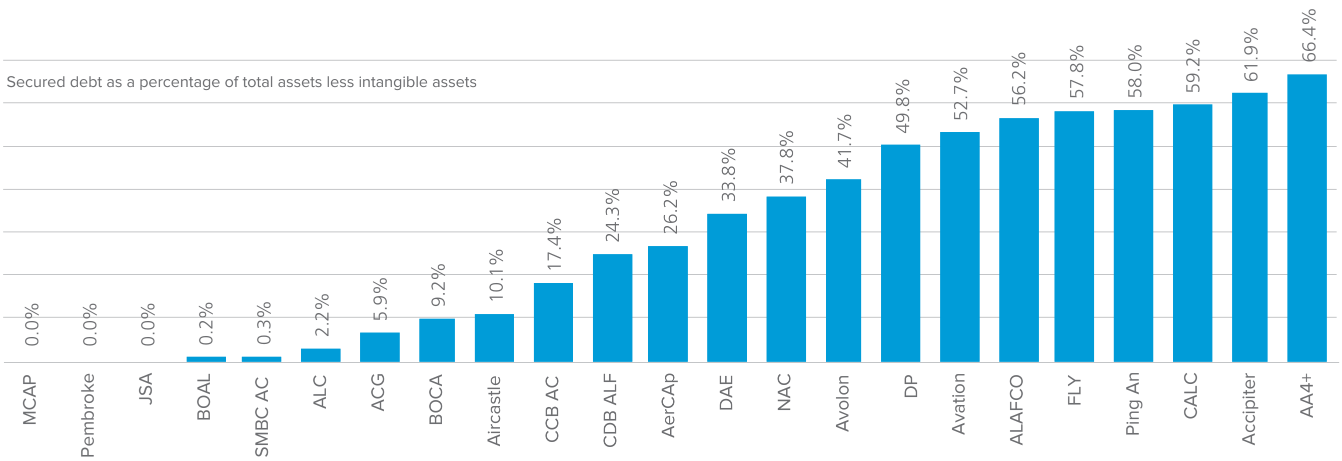
Financial flexibility

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, Pembroke, BOA Leasing and SMBC AC reflects their heavily shareholder funded debt structures. The other lessors on the left of Figure 11 represent the strongest position for unsecured creditors, led by ALC, ACG and BOC Aviation with their significant unsecured funding programmes. Those at the right hand side demonstrate the least protection for unsecured creditors.

Interest Coverage

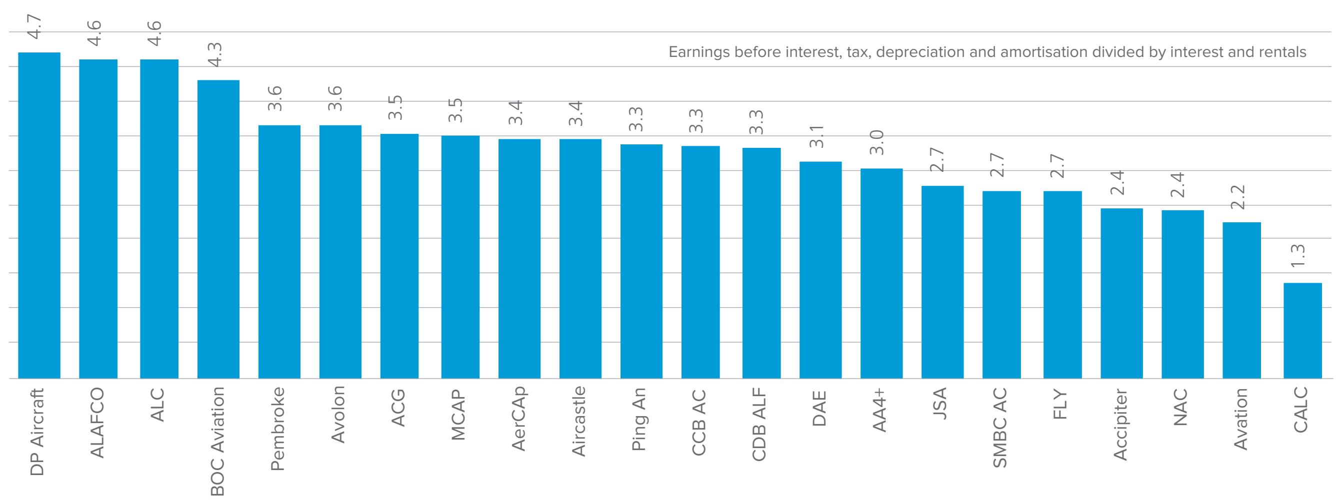
Interest coverage measured as EBITDA/ finance costs is another key aspect of financial flexibility. From Figure 12 we see that the majority of lessors covered by the study have a healthy coverage of at least 2x and many have much better coverage than that, particularly DP Aircraft, ALAFCO, ALC and BOC Aviation. The main outlier on the weaker side is CALC with coverage of 1.3x.

Figure 11: Secured debt/gross tangible assets



Source: Company reports and *The Airline Analyst*

Figure 12: Ebitda/total finance costs

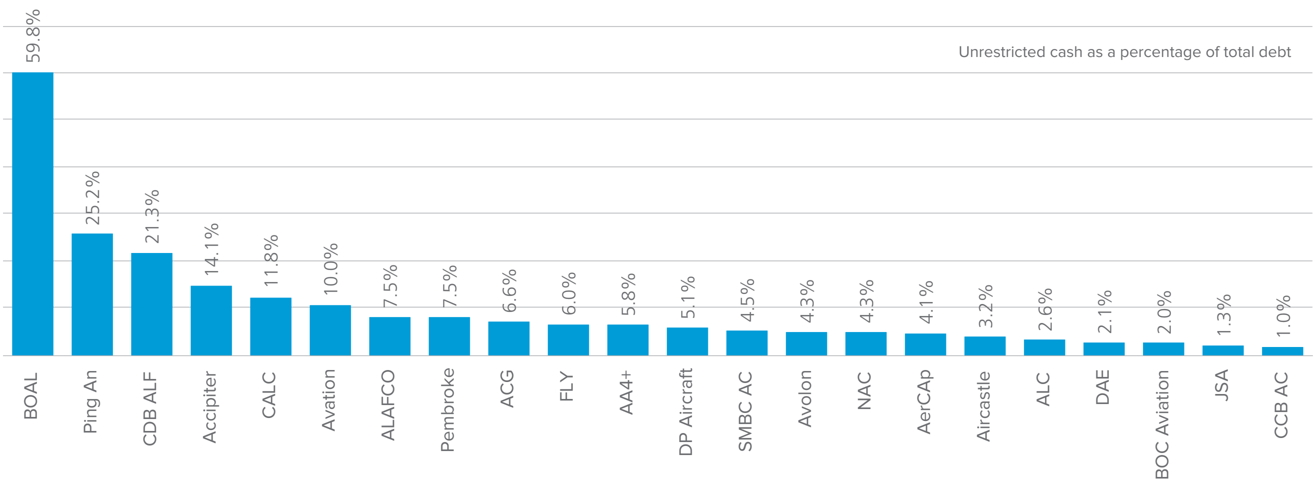


Source: Company reports and *The Airline Analyst*

Financial flexibility

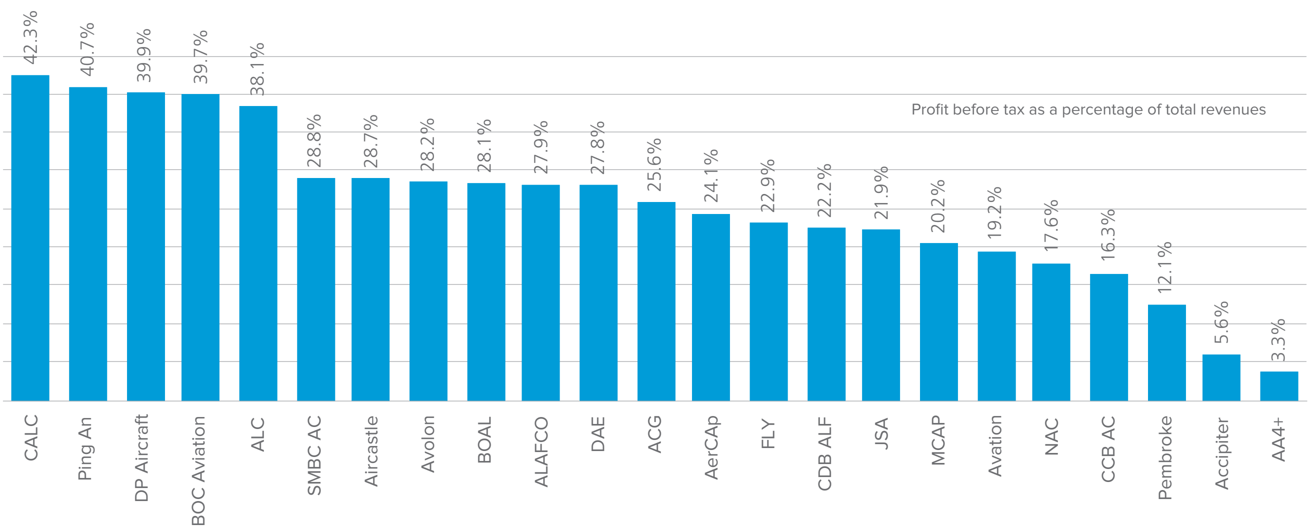
Liquidity
Figure 13 shows unrestricted cash liquidity as a percentage of total borrowings. At the extremes of the range were BOAL at 59.8% and CCB Aviation at 0.3%. The latter has access to inter-company funding. The next four strongest are all Chinese-owned lessors. For the remainder, this measure ranges from a low of 2% for BOC Aviation, DAE, ALC, Aircastle and AerCap. All of these lessors additionally have substantial committed revolving credit 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 like fleet utilisation and maintenance/transition costs. The larger lessors with high margins were BOC Aviation, ALC, SMBC AC, Aircastle and Avolon. At the other end of the scale were Pembroke and Accipiter.

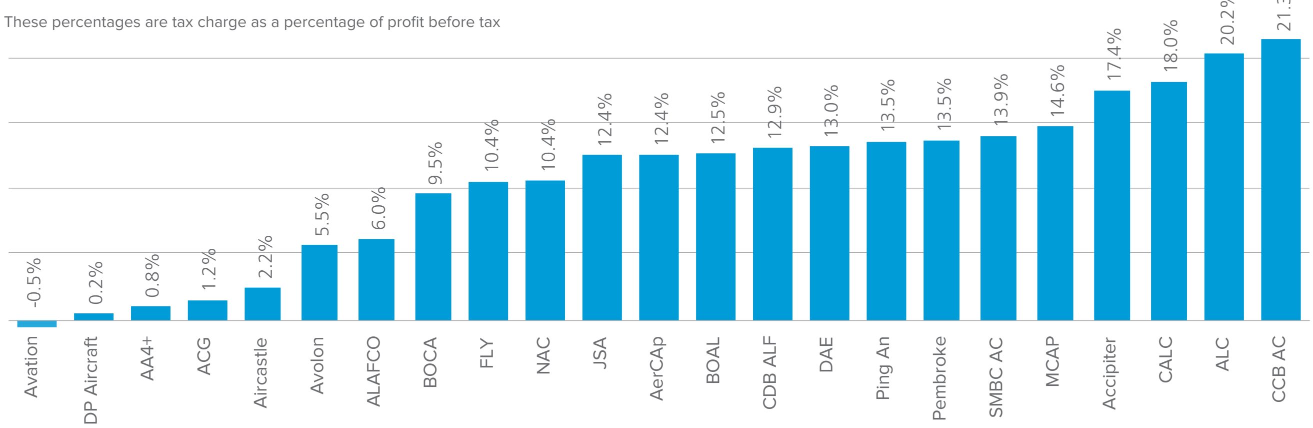
CALC and Ping An generate high returns but both carry significant amounts of leverage.

Tax Charge
One of the drivers of net profitability is the tax rate on profits. Figure 15 shows that, with two 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. With the US corporation tax reform of two years ago, even the US is looking competitive.

Return on Equity
Return on average of opening and closing equity is shown in Figure 16. More than two-thirds 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 though Pembroke's performance is also creditable.

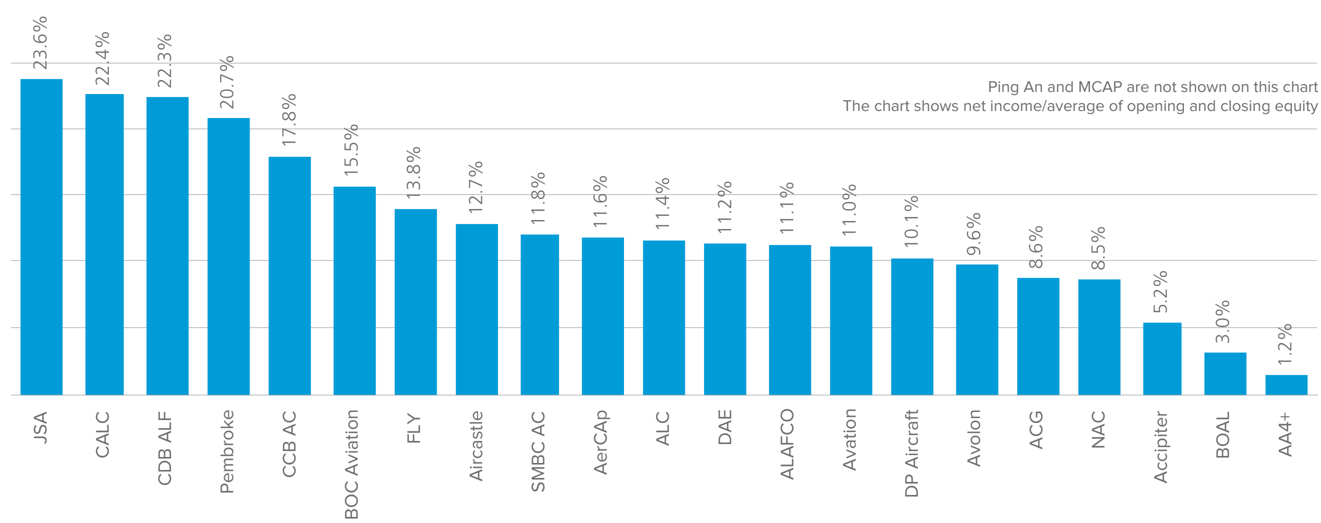
Conclusion
This study has shown some of the key dynamics affecting aircraft lessors' business models which are more varied than would appear the case at first inspection. Lease yield, debt cost, asset selection, asset utilisation and re-marketing capabilities are all critical components of the aircraft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

Figure 15: Tax rate



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 11,545 aircraft, leased by 128 commercial lessors with at least 10 aircraft to 836 airlines in 154 countries (data as of 30 June, 2019). Aircraft leased by "captive" lessors such as Synergy, Sunrise Asset Management, Arctic Aviation Assets, Aircraft Purchase Fleet and by the OEMs are excluded. Aggregate orders by the commercial lessors total 3,578 aircraft. The average age of the existing leased fleet is 10.7 years and 863 aircraft (7.5%) are reported as being in storage.

The industry is heavily concentrated. The top 10 lessors (4,987 aircraft) account for 43.2% of the total fleet count and 48.7% by value (top 10 value – $172.8 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.

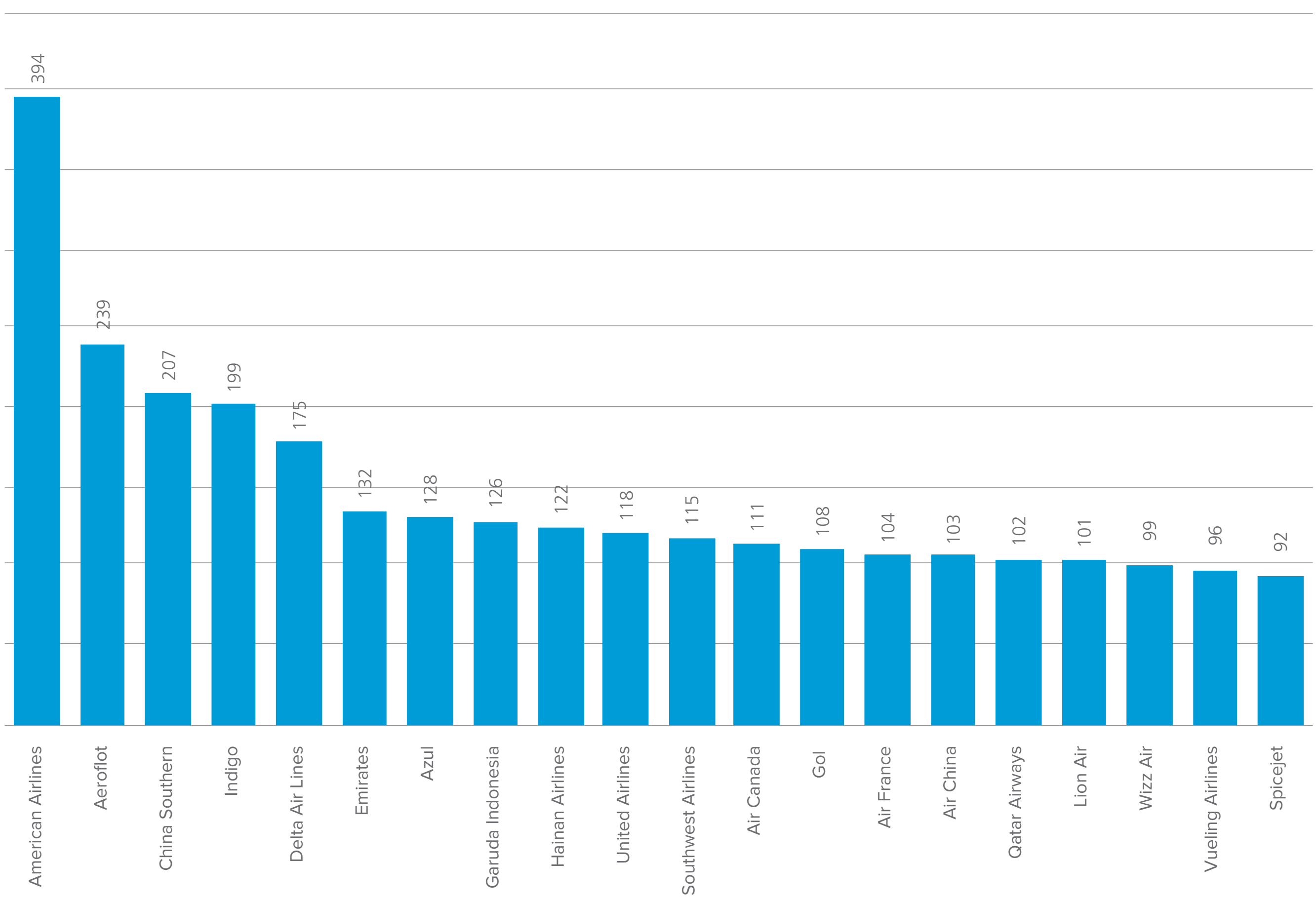
Airlines with the most leased aircraft

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 far-and-away the largest lessee resulting from the merger with US Airways. The other US majors are also significant lessees but there is geographic diversity too across emerging markets such as India, Hungary, China and Brazil.

Geographic distribution of leased aircraft

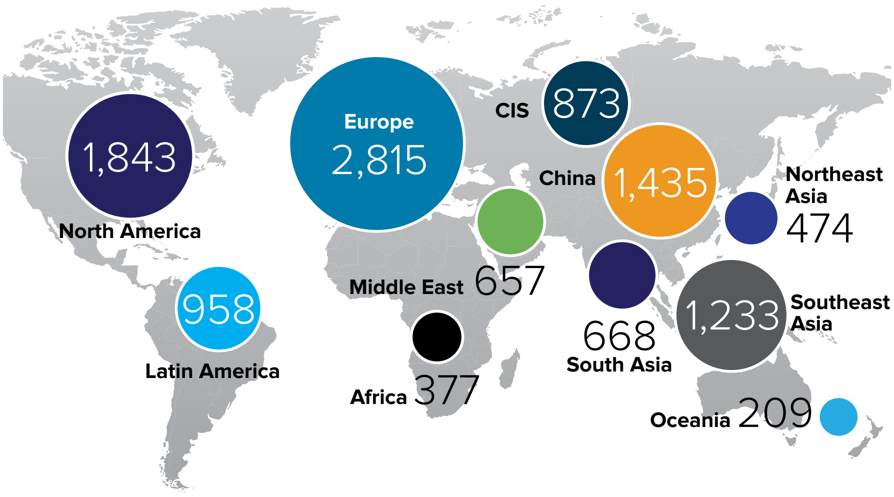
The geographic distribution of leased aircraft is shown in Figure 2. While the chart shows Europe in the lead, this is because we split Asia-Pacific into sub regions given their varying dynamics. The territories of Hong Kong and Macau are included in the China segment. We also decided to show Russia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

Figure 1: Biggest lessees by number of aircraft



Source: *Airfiance Journal*'s Fleet Tracker

Figure 2: Geographic distribution of leased aircraft



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

Regional Jets
As can be seen, GECAS remains the largest player despite its significant fleet reductions over the last few years. Nordic Aviation Capital comes in second place, having increased its fleet to nearly 200. Falko and TrueNoord have been investing and increasing their exposure to this segment.

Turboprops
Turboprops are a significant niche market, dominated by one lessor, Nordic Aviation Capital. However, other lessors have a presence, as shown in Figure 5, attracted by high yields. Leading the way in terms of new investment is Chorus Aviation Capital. The other major players in the segment are shown on the chart.

Breakdown of Leased Fleet
Figure 3 shows a breakdown of the leased fleet by body-type of aircraft. A full 67% of the leased fleet is in the narrow body category split mostly between the Airbus A320 and Boeing 737 families. Only 16% 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.

Figure 3: Leased aircraft body type

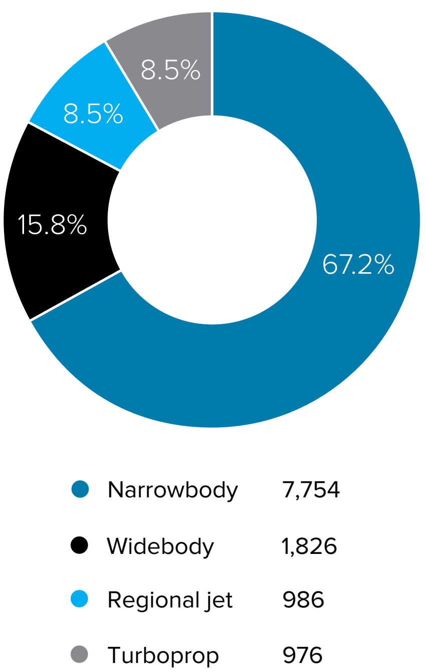
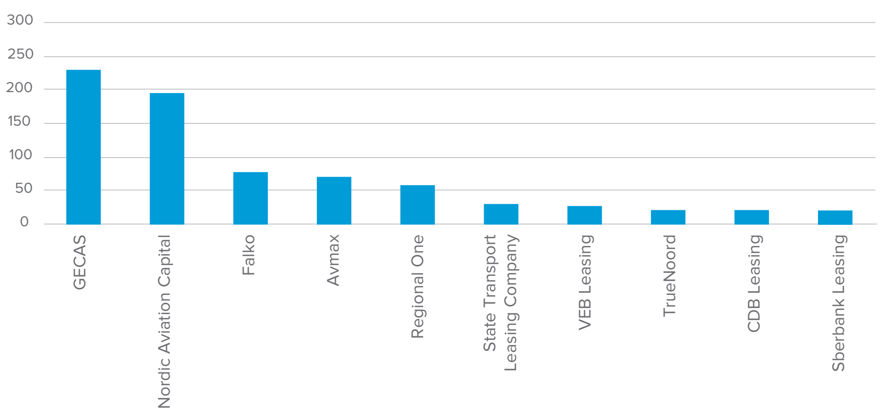
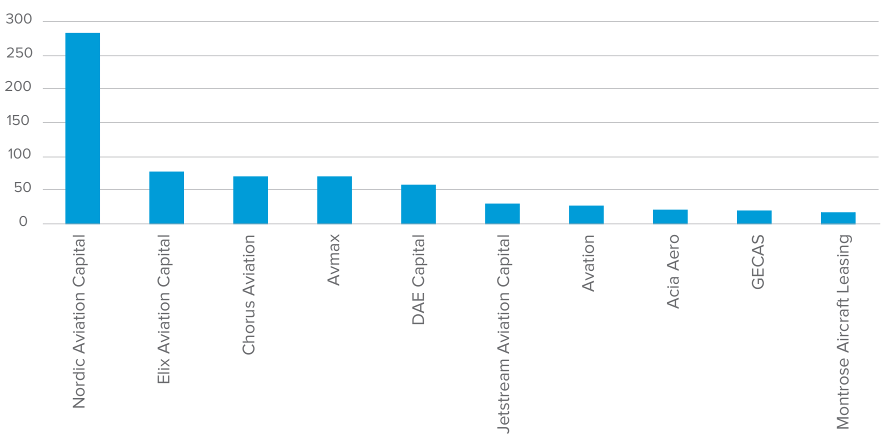


Figure 4: Top 10 lessors of regional jets



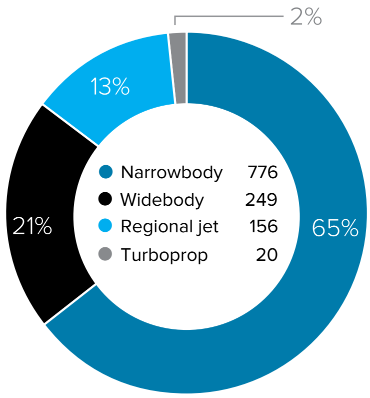
Source: Lessors and *Airfinance Journal*'s Fleet Tracker

Figure 5: Top turboprop lessors

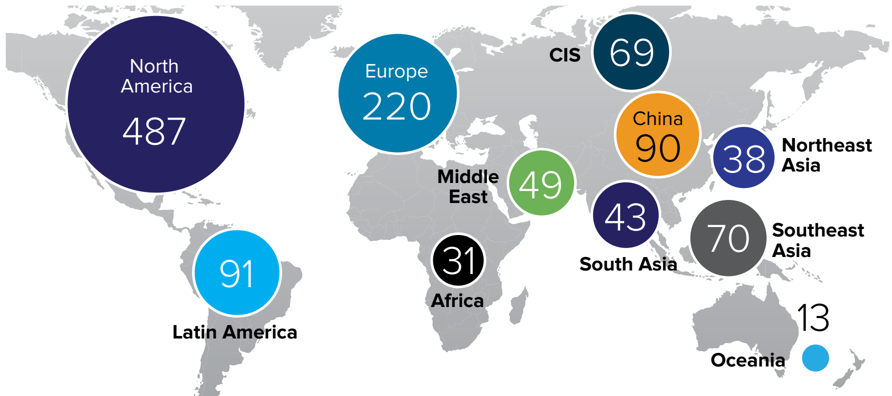


1 GECAS

GECAS fleet by aircraft type

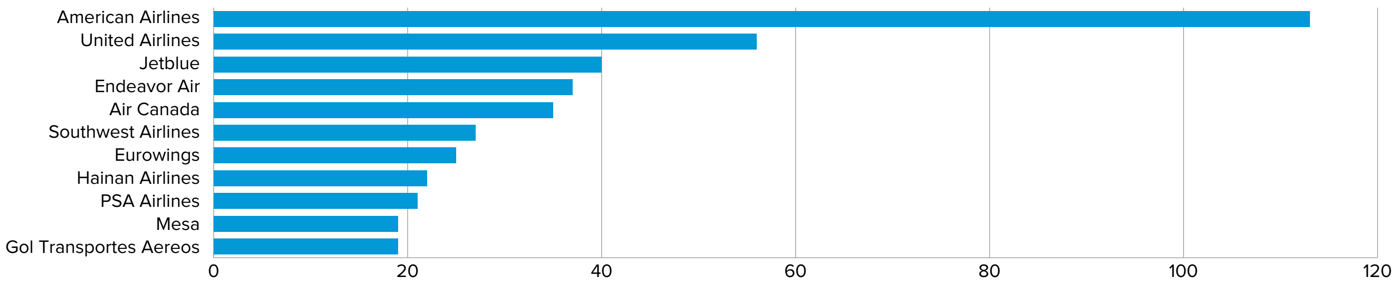


GECAS fleet by region of lessee



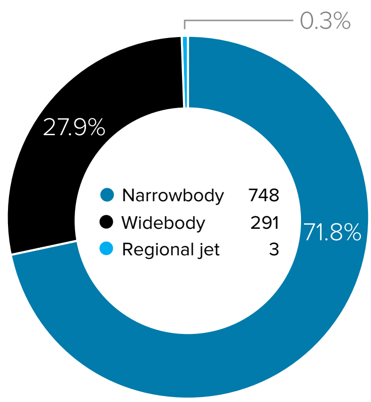
Source: *Airfinance Journal*'s Fleet Tracker as of 30 June, 2019

GECAS top lessees

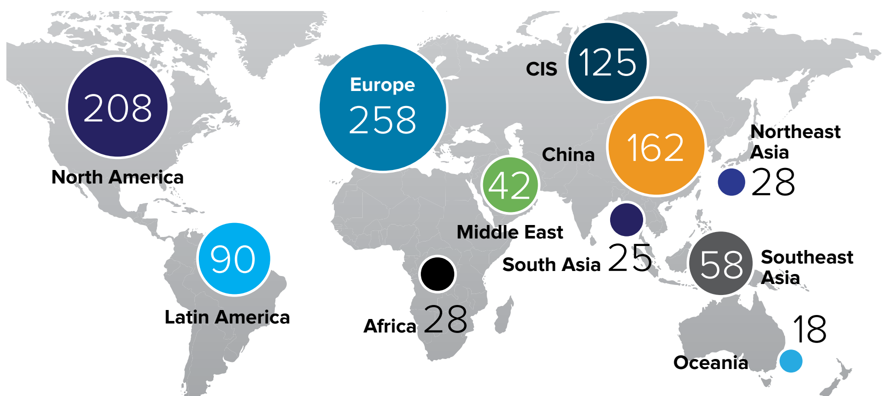


2 AerCap

AerCap fleet by aircraft type

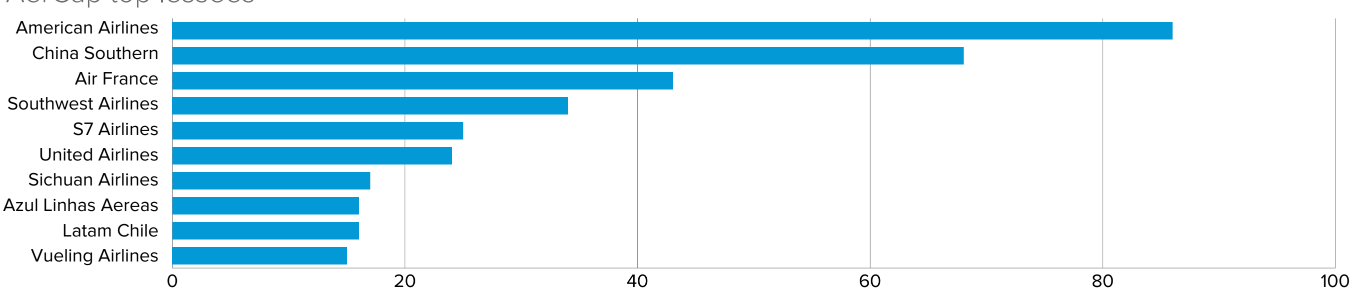


AerCap fleet by region of lessee



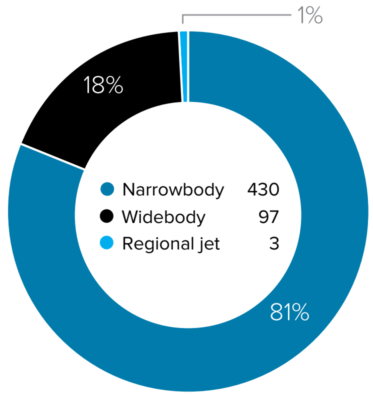
Source: *Airfinance Journal*'s Fleet Tracker as of 30 June, 2019

AerCap top lessees

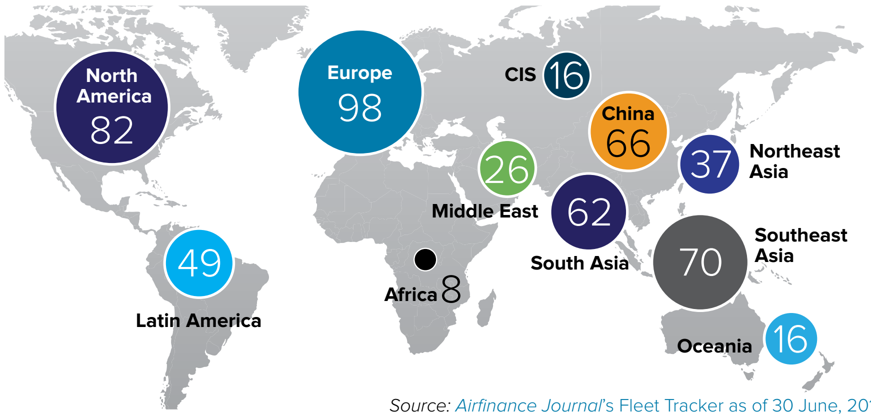


3 Avolon

Avolon fleet by aircraft type

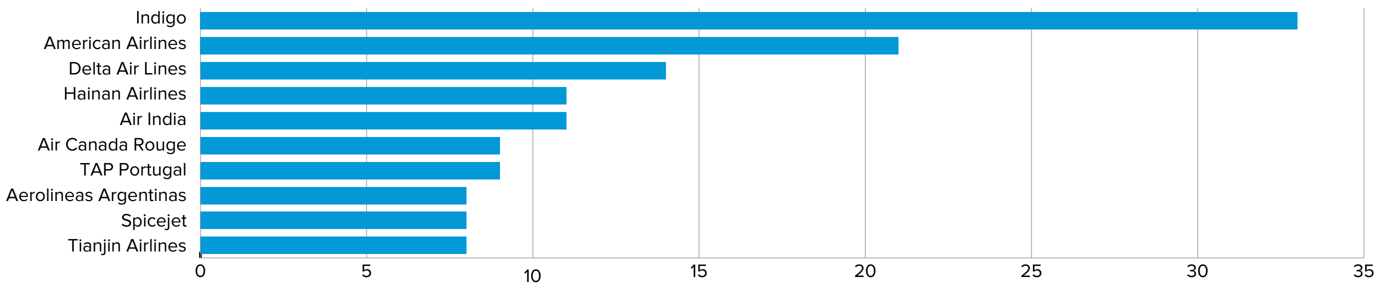


Avolon fleet by region of lessee



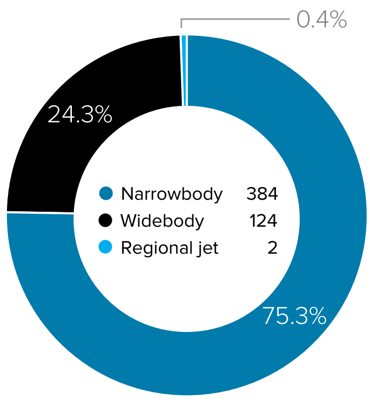
Source: *Airfinance Journal*'s Fleet Tracker as of 30 June, 2019

Avolon top lessees

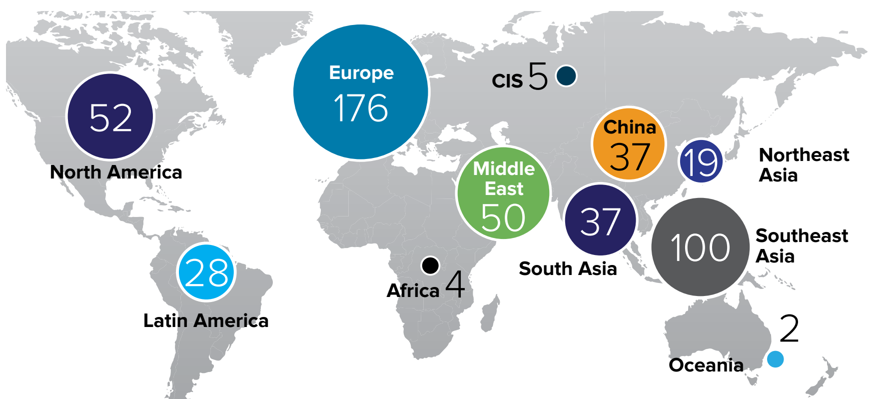


4 BBAM

BBAM fleet by aircraft type

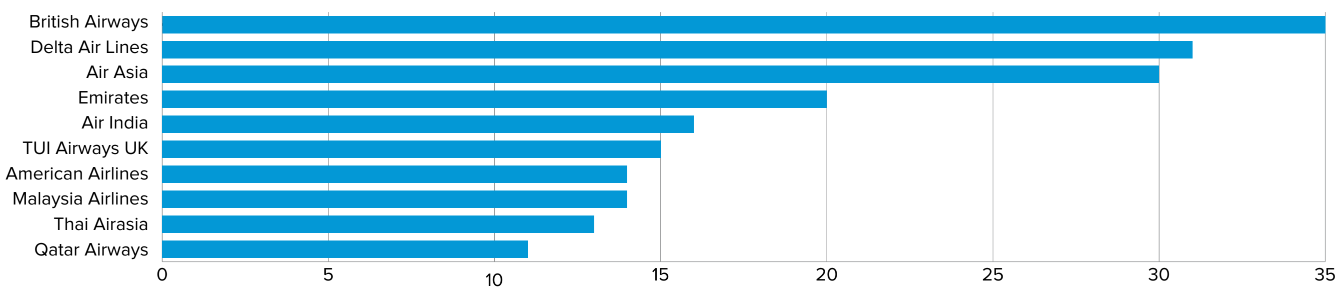


BBAM fleet by region of lessee



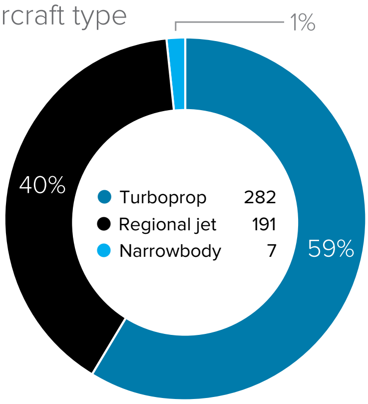
Source: *Airfinance Journal*'s Fleet Tracker as of 30 June, 2019

BBAM top lessees

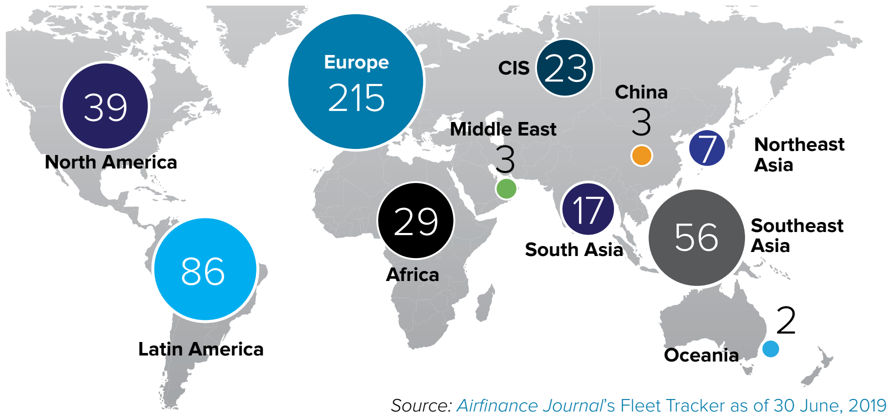


5 Nordic Aviation Capital

Nordic Aviation Capital fleet by aircraft type

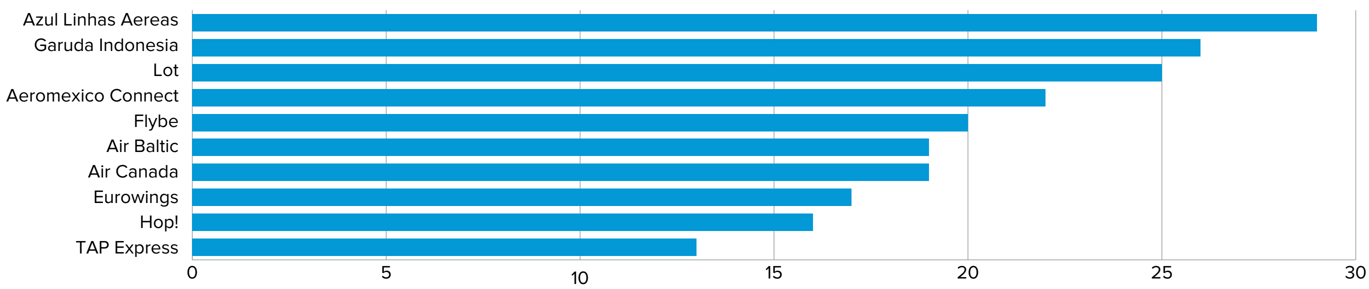


Nordic Aviation Capital fleet by region of lessee



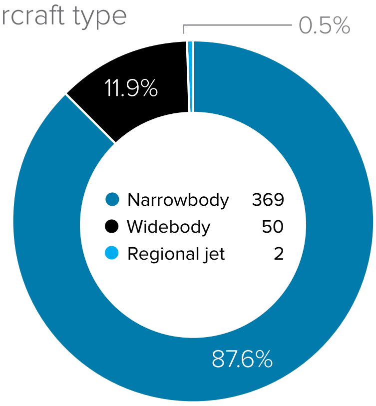
Source: *Airfinance Journal*'s Fleet Tracker as of 30 June, 2019

Nordic Aviation Capital top lessees

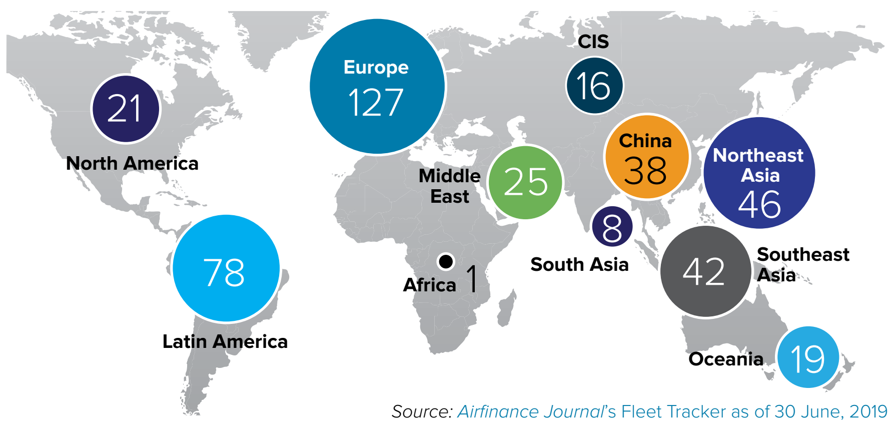


6 SMBC Aviation Capital

SMBC Aviation Capital fleet by aircraft type

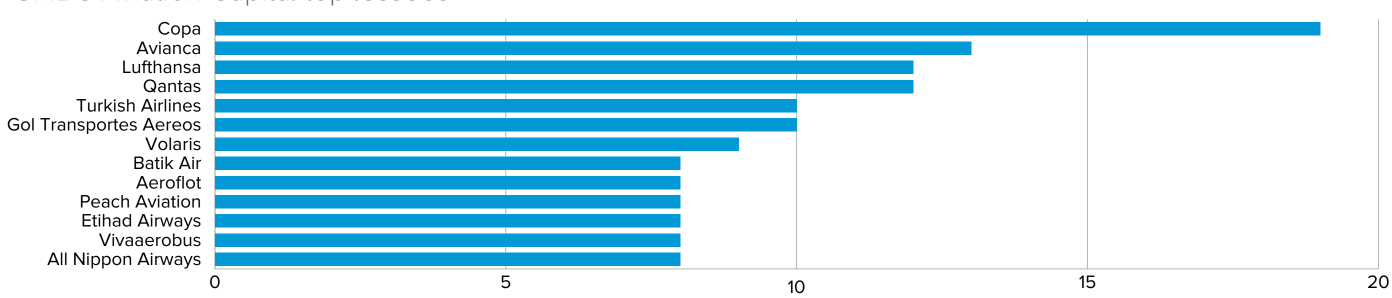


SMBC Aviation Capital fleet by region of lessee



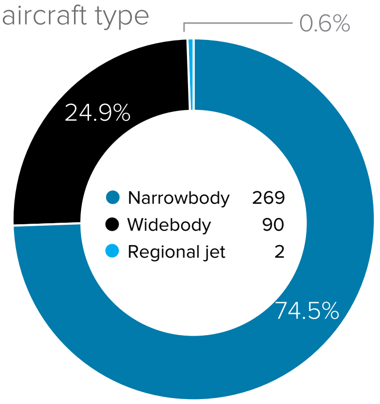
Source: *Airfinance Journal*'s Fleet Tracker as of 30 June, 2019

SMBC Aviation Capital top lessees

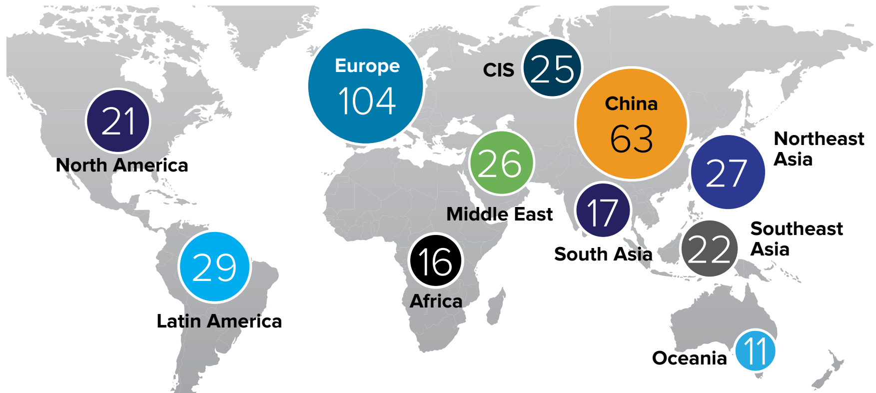


7 Air Lease Corporation

Air Lease Corporation fleet by aircraft type

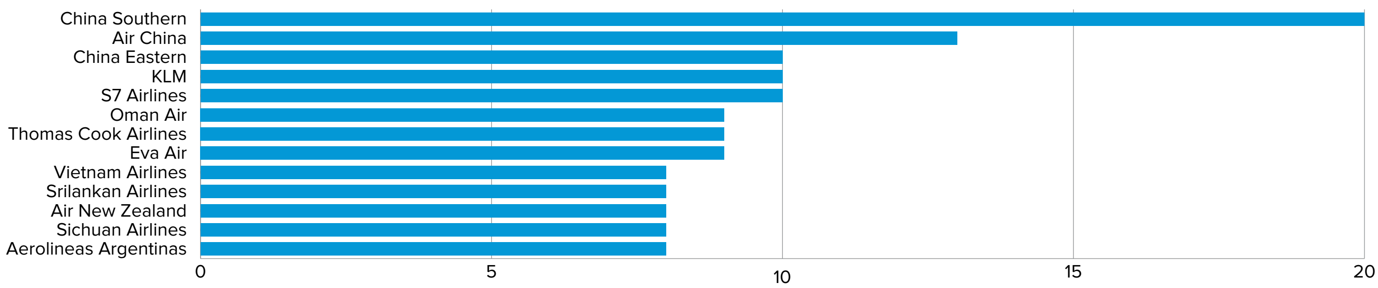


Air Lease Corporation fleet by region of lessee



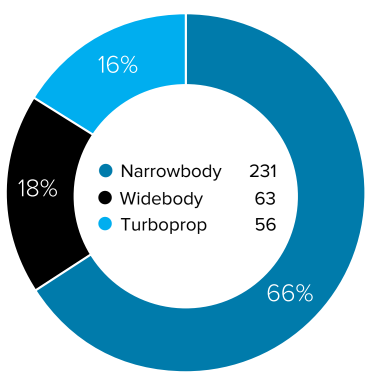
Source: *Airfinance Journal*'s Fleet Tracker as of 30 June, 2019

Air Lease Corporation top lessees

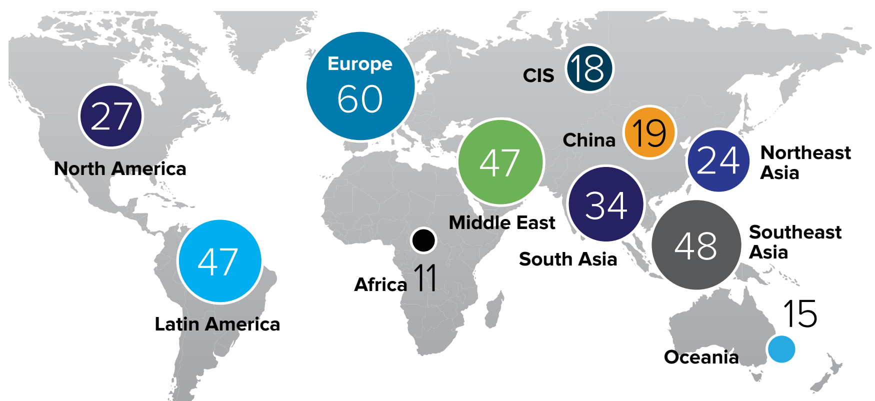


8 DAE Capital

DAE Capital fleet by aircraft type

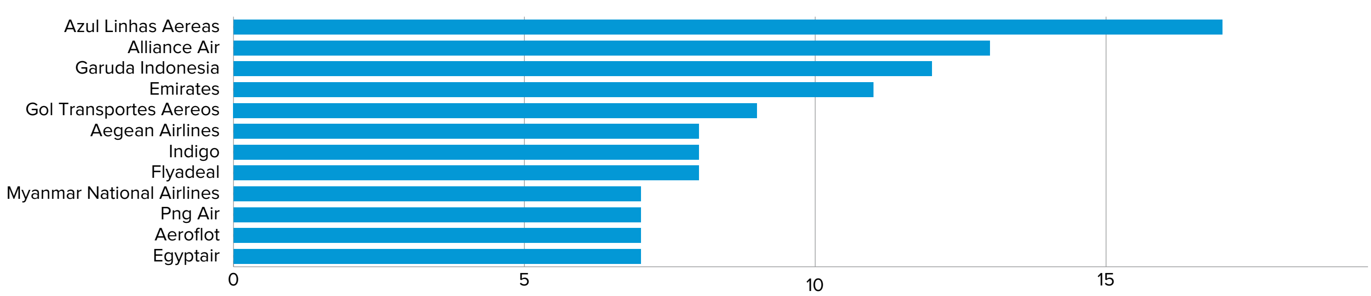


DAE Capital fleet by region of lessee



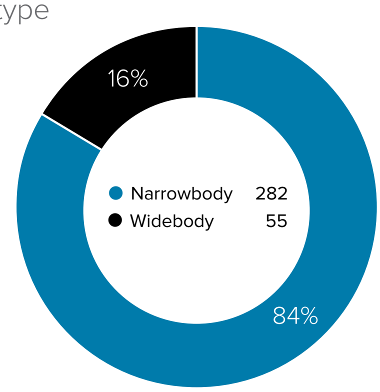
Source: *Airfinance Journal*'s Fleet Tracker as of 30 June, 2019

DAE Capital top lessees

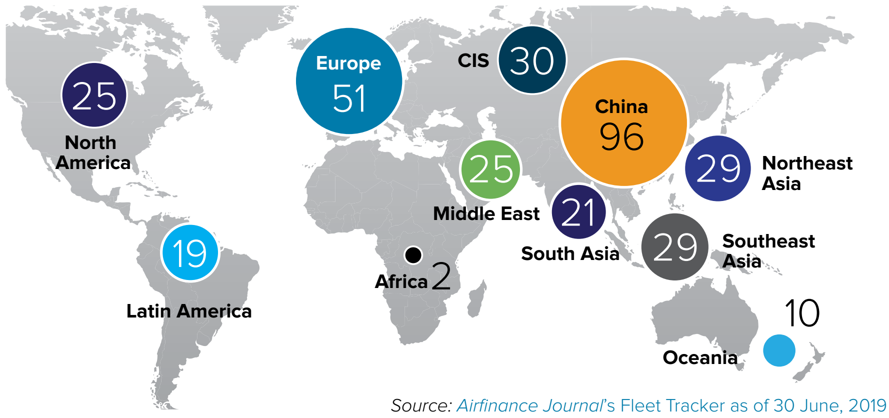


9 BOC Aviation

BOC Aviation fleet by aircraft type

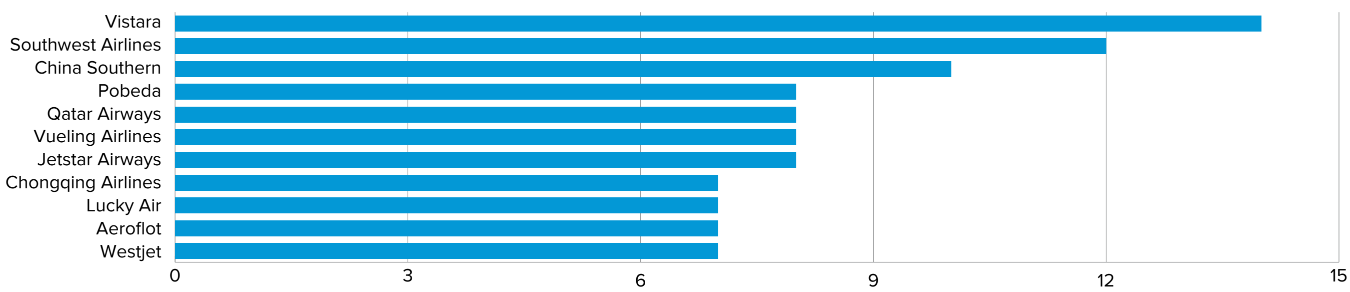


BOC Aviation fleet by region of lessee



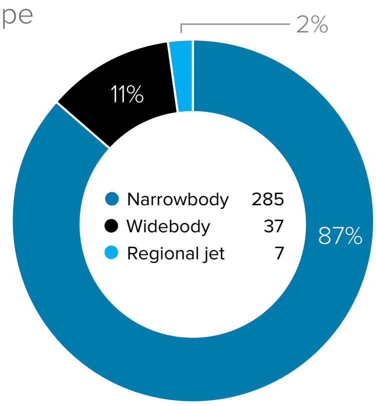
Source: *Airfinance Journal*'s Fleet Tracker as of 30 June, 2019

BOC Aviation top lessees

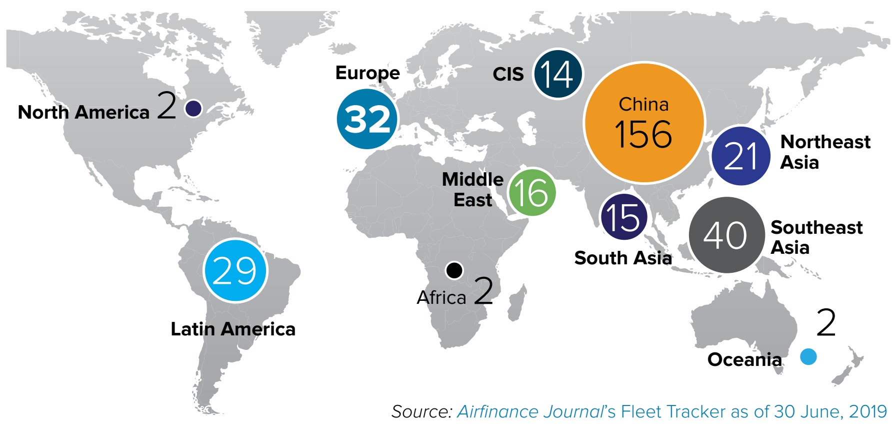


10 ICBC Leasing

ICBC Leasing fleet by aircraft type

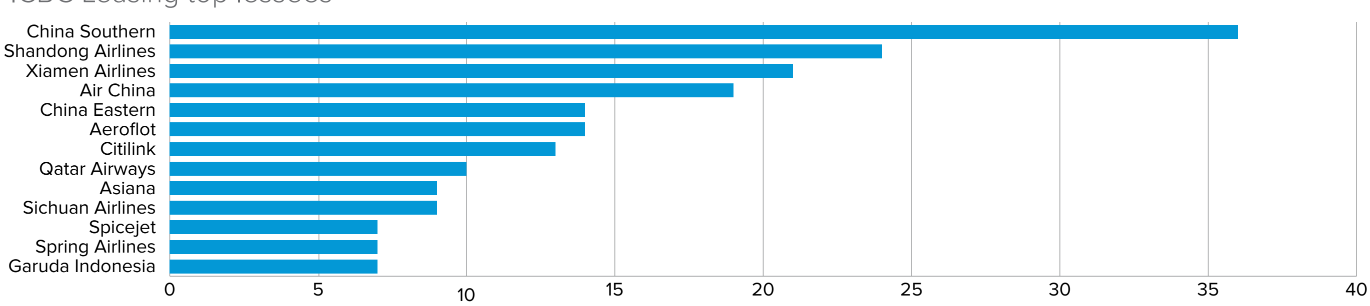


ICBC Leasing fleet by region of lessee



Source: *Airfinance Journal*'s Fleet Tracker as of 30 June, 2019

ICBC Leasing top lessees

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