

The Aviation Industry Leaders Report 2019:

# Tackling headwinds



# **Airline Economics**

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## THE AVIATION INDUSTRY LEADERS REPORT 2019

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DIGITAL ISSUE

Digital version production by

**Symbian Print Intelligence**

PUBLISHER

**Aviation News Ltd**

Registered in England & Wales: 7351543

Registered address:

Suite 1, First Floor, Parklands, 1 Lyme Drive,  
Trent Vale, Stoke-On-Trent, ST4 6NW

VAT number: GB 102 4185 61

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Airline Economics (Print) ISSN 2045-7154

Airline Economics (Online) ISSN 2045-7162

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# TACKLING HEADWINDS



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We are delighted to present you with our Aviation Industry Leaders Report 2019: *Tackling Headwinds*. The report captures the views of over 40 industry leaders across the leasing, airline and banking markets and includes the views of the rating agencies covering the sector.

The aviation industry has been thoroughly enjoying an extended bull run for the past decade. Airlines have had access to cheap finance as tough competition pushed down lease rates and debt costs. Lessors, while grappling with a very competitive marketplace with many new entrants, have also been capitalising on the availability of cheap finance and the demand for additional lift as passenger numbers continue to grow. Banks too are busy funding deliveries, and despite depressed margins and fierce competition, continue to find innovative ways to add value.

How long more can this bull run? It has been the question asked for the last number of years. The overall impression heading into 2019 is that while industry fundamentals remain strong – in particular high passenger growth, though cooling, – there are signs that building geopolitical, macroeconomic and industry headwinds will impact the industry over the next 24 months. Varying political tensions and potential trade wars, rising interest rates, volatile oil costs, a strong US dollar, slowing economies, increasing production rates, and MRO and infrastructure capacity constraints are all impacting the aviation sector. This report takes a look at how these headwinds are impacting the leasing, airline and banking markets today and considers the outlook for the rest of the year.

In summary, it is generally accepted that the industry cycle has peaked and is heading on a slow downward trajectory. Passenger demand, however, is not in contractionary territory. While growth is slowing it is off an increasing base and so absolute demand remains robust for now. As the economic environment becomes more challenging, weaker airlines will come under increased pressure. Those airlines that have used the elongated upcycle as a chance to strengthen their financial position will be able to weather the choppier environment ahead. Some liquidity is expected to leave the financing market as yields improve in other sectors. This could result in tighter financing terms in future. Banks are preparing for the impact of Basel IV, which could increasingly affect their ability to be competitive in the face of strong capital markets interest and banks that may not have to implement these rules. Some lessors see a weakening operating environment as a greater opportunity for value acquisitions. The stronger, more experienced leasing companies are expected to capitalise the most on these opportunities.

So 2019 brings with it a more cautious outlook with greater potential for more pronounced volatility and, with it, opportunity. I would like to thank all of those who participated for their time and their insights. I hope you enjoy the read.

## About this report

*Airline Economics* and KPMG interviewed major aviation industry leaders in a series of in-depth interviews that delved deep into the real issues impacting the commercial aviation industry.

*Airline Economics* and KPMG conducted in-person interviews with 42 senior industry executives at leasing companies, banks and airlines, 32 of which were videoed at *Airline Economics* Growth Frontiers events located around the world between October and December 2018. The full video interviews are available online at <http://www.aviationnews-online.com/aviation-industry-leaders-report/>. The themes discussed in this report were presented at *Airline Economics* Growth Frontiers Dublin 2018 on January 21, 2018, which can also be viewed by subscribers and delegates at [www.aviationnews-online.com](http://www.aviationnews-online.com) after the event.

KPMG and *Airline Economics* would like to thank all of the industry leaders and experts that contributed to this report for their time.



# Aviation Industry Leaders Report 2019: Tackling Headwinds

Our Aviation Industry Leaders Report 2019: *Tackling Headwinds* examines the current state of the aviation market, including financing trends, new aircraft production and entry-into-service issues as well as the impact of new technologies.

This executive summary provides a snapshot of the broader report, highlighting the critical issues and challenges facing the industry over the next 12 months.

Over the past decade, alongside the general improvement in the global economy, airlines have grown in profitability, matured in terms of employing better capacity management and cost controls, and have benefitted from the explosion in demand for passenger air travel. Airframe and engine manufacturers have booked orders and reported record deliveries, with plans potentially to further push production to historically high levels. Leasing companies are busier than ever as demand for lift continues, which is attracting many new entrants – backed by new investors – into all sectors of the leasing market, from brand new aircraft to mid-to-late-life equipment. Banks too are eager to lend despite impending constraints from new EU capital regulations; commercial debt finance is more popular than ever despite the lower yields, while structured capital markets transactions are becoming more standardised and tradable as investors pile into the sector.

Despite this positive picture, pressure is building as the industry tackles geopolitical, macroeconomic and industry headwinds as it moves away from peak growth and profitability.

This annual Aviation Industry Global Leaders Report examines the current state of the aviation market, including financing trends, new aircraft production and entry-into-service issues as well as the impact of new technologies.

## STATE OF THE INDUSTRY

Airlines, lessors and banks are operating within a global environment where a multitude of exogenous factors are colliding at once, presenting numerous challenges.

Geopolitical threats are building, notably the ongoing US-China trade dispute and the impending departure of the UK from the European Union (EU).

Interest rates are rising globally but particularly in the US, although as of the latest US Federal statement, rate hikes may slow down. This impacts currencies as a higher US dollar exchange rate pressures airlines with revenues in non-dollar currencies, slicing margins.

The US Federal Reserve and other central banks have been shifting away from supporting the markets, through a withdrawal from quantitative easing (QE) and interest rate rises, which will eventually result in the end of the era of cheap money.

Oil prices increased significantly in 2018 peaking at US\$86/bbl (Brent Crude) in October before falling back down to US\$55.63/bbl in late December 2018. While the drop in the oil price during the fourth quarter of 2018 gave airlines a slight reprieve, there is concern that they will rise again.

Labour costs are becoming a more significant issue for airlines, specifically in relation to pilots and skilled technicians. Maintenance costs are also rising due to more expensive labour and rising interest rates, which is pushing up prices for airlines and aircraft owners.

Passenger travel continues to grow above the long-term ten-year average of 5.5%. However, the latest data from the International Air Transport Association (IATA) shows a slight cooling in passenger growth over 2018, with profits, while still positive, also reducing for most airlines as they grapple with higher costs.

While the IATA figures remain a growth story for 2019, the cooling in industry-wide RPK growth ties in with the increasing number and strength of macroeconomic headwinds that are beginning to affect carriers around the world, putting pressure on margins. Airlines are particularly impacted by rising interest rates in terms of debt finance costs as well as escalation on aircraft orders.

As passenger numbers continue to rise, airlines have demanded more lift from aircraft leasing companies, which have grown in scale and number. In 2018, the leased aircraft portfolio increased by 629 aircraft to 8,109 aircraft, according to analysis from FlightAscend Consultancy, which also has identified that over the past decade, 100 new names have entered the commercial operating lease sector.

The wall of liquidity in the leasing space has continued throughout 2018, with more new leasing companies forming. Merger and acquisition (M&A) activity also increased across the leasing spectrum. Most market players agree that this M&A activity will continue through 2019.

In this ultra-competitive leasing environment, with its high OEM backlog and crammed delivery slots, lessors seeking to build new technology aircraft portfolios are forced into the already crowded sale-leaseback market pushing down lease rate factors in some deals to sub-0.5 levels and relaxing maintenance reserves requirements and return conditions. A downward turn in the industry cycle is predicted to help curb such excess and force more meaningful valuations over the next 24 months.

An emerging trend is for airlines to push for shorter leases on aircraft from 12 to eight, or even six years. This would have a positive impact on the airlines balance sheet under IFRS 16.

Aided by new investors piling into the sector, aviation financing has become much more mainstream and therefore much more attractive. Commercial banks are reporting high demand for debt products, while the increased volume of aviation capital market deals has fuelled significant investor interest, specifically for leasing companies issuing secured and unsecured bonds, and asset back securitisation (ABS) deals. Airlines have benefited too issuing more, and more-competitively priced, enhanced equipment trust certificates (EETCs) – with some from non-US issuers.

While the low interest rate environment has helped airlines and lessors raise competitively priced funds, it has also impacted banking margins with pricing remaining at very low levels. Most bankers therefore welcome the upward trend in interest rates, which may eventually lead to a contraction in the level of market competition.

Banks are preparing for the impact of more restrictive regulations that could lead to a reduced balance sheet. Basel IV could require banks to hold more capital reserves against certain loans they issue. This would likely be the case for unsecured loans but secured loans might qualify as specialised financing which could enable them to continue to be assessed under current Foundation and Advanced Internal Ratings based approaches, i.e. no change. Where Basel IV requires more capital allocation, it should cause banks to increase pricing; however, the competitive marketplace makes it very difficult for them to execute such a strategy currently.

There is a general acceptance that a slow moderation/correction in the industry cycle has begun. Many support the notion that the market will continue to experience a gradual moderation as opposed to a sharp fall, with growth likely to have peaked. However, the building headwinds are expected to worsen and most banks consider the current macroeconomic environment to be the sign that the cycle has turned.

## REGIONAL OUTLOOK

Respondents were once again asked to rate their levels of optimism for the industry over the next 12 months in the various regions of the world.

Overall, the concerns were concentrated on certain pockets of the world – excessive growth in China and South East Asia, while positive, also evoked concern over the ability of certain carriers to cope with building macroeconomic headwinds. India was the region where confidence was falling the most compared to last year in the wake of the continued troubles experienced by the main carriers.

North America was viewed with the most optimism as all market players are confident that the major US carriers are on a more secure financial footing. There was an overall sense that South American countries may be coming out of a prolonged slump, despite the significant political change in the region and the signs of stress for some of the main carriers, Avianca Brazil the most recent casualty.

Though still regarded as a strong market, Europe presented a very mixed picture for many, with the economy slowing down and a lack of clarity on Brexit and other political issues. The Middle East was a concern, due in part to the geopolitical issues, but mostly due to the big three Gulf carriers all vying for the same traffic and their business models showing signs of stress. The African airline market has much, albeit still unrealised, potential, but the ongoing challenges continue to drive low levels of optimism.

OPTIMISM LEVELS OF REGIONAL GROWTH			
	LESSORS	AIRLINES	BANKS
Africa	2.54	2.00	2.56
Middle East	3.23	2.50	2.89
South America	3.38	2.50	2.78
North America	4.31	3.00	4.44
Europe	3.54	3.00	3.89
Rest of Asia	3.85	3.50	3.67
India	3.31	3.00	2.78
China	4.54	4.00	4.00

*Average 1 (very pessimistic) – 5 (very optimistic)*

## FINANCING TRENDS

Airlines and lessors have been capitalising on the general availability of diverse sources of funding. Sale-leaseback transactions are being used more and more frequently by airlines due to the competitive pricing. Airlines are also utilising their purchasing power to push for more attractive terms on other forms of commercial bank debt, including pre-delivering payment (PDP) financing. Providing PDP financing is almost a must to win certain business, which is now being provided by lessors more than ever before.

Supported sources of financing from export credit agencies continue to be well below historical levels due to the health of the primary market but also because both major aircraft manufacturers still do not have full access to their domestic ECAs. This funding gap is being partially filled, at present by insurance-backed sources from the Aviation Finance Insurance Consortium and shortly with a new product from Marsh and Airbus, dubbed Project Balthazar. However, there are concerns that these will not be enough to serve as a replacement for the US Export-Import Bank, UKEF and Coface if there was a severe downturn.

Japanese investors continue to ramp up their investment in the sector with a significant uptick in Japanese Operating Lease (JOL) and Japanese Operating Leases with Call Option (JOLCO) transactions.

The capital markets remain very active and innovative, accounting for almost 28% of financing for new deliveries. The market saw 14 aircraft asset backed securitisations (ABS) totalling approximately \$7.6bn in 2018, with strides being made to transform the ABS product to a more transparent and tradable product on both the debt and the equity side. Most expect the ABS market to remain active in 2019.

Sidecars also continued to be an investment channel in 2018 with CALC and Avolon closing deals.

## AIRCRAFT

New technology aircraft are largely well into the delivery phase but this has been hampered by entry-into-service issues affecting the new engine types, which has impacted airline operations around the world. Although confidence is high that these issues will be addressed, the longer a solution takes, the more difficult it will be for airlines to manage capacity issues.

Despite high development costs, the majority of leaders believe that Boeing will likely launch a new middle-of-the-market (MoM)/ new midsize aircraft (NMA), aircraft in due course, although they are divided on how successful this aircraft will be and the extent to which it will cannibalise other existing aircraft types.

Production rates are a concern for most lessors, particularly those who worry about supply chain issues and/or a change to the delicate market equilibrium (where capacity growth slightly lags passenger growth) should rates rise further. Production rate rises that result in much more capacity coming online than there is demand for would have a depreciatory effect on aircraft values and lease rates. Maintenance capacity and availability, as gluts of new technology aircraft enter the checking phase, are also a concern for airline operators and owners.

## TECHNOLOGY

The aviation leasing industry is widely agreed to be a follower rather than an innovator of technology. However, in order to solve a pressing industry problem, the leasing community are pushing ahead with a very modern solution to the issue of novations. The Aviation Working Group's Global Aircraft Trading System (GATS) aims to digitise the transfer of leased aircraft ownership using an electronic ledger to record the transfers. KPMG is delighted to be involved in the design of GATS. The system, which is poised to launch in the first quarter of 2019 and to be fully active by the end of the year, has been greeted favourably by all of the lessors who participated in this report, although they all recognise that it is still early days.

## FINAL THOUGHTS

Industry growth has begun to moderate. Airline profitability is coming down from its peak. Macroeconomic headwinds are continuing to build and are challenging weaker airlines to maintain growth and profitability. Further bankruptcies and consolidation in the airline market is expected, while M&A activity is predicted to increase among leasing companies. Growth in passenger demand, however, remains strong, so those airlines and lessors with strong balance sheets and experienced teams could see these headwinds as a tailwind to further growth.





# Global Leaders in Aviation Finance

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# The State of the Aviation Industry

Rising costs in 2018 have led to a more negative outlook for 2019 despite sustained passenger growth.



Airlines are the lifeblood of the aviation market. When airlines succeed and prosper, the rest of the market prospers. The obverse, however, is also true: a general decline in the health of airlines impacts the whole market (albeit lessors have shown their ability to move aircraft quickly to where the demand is). Exogenous shocks aside, the fortunes of airlines tend to be restricted to certain jurisdictions during downturns, which is when lessors show their ability to move aircraft quickly from stressed situations to areas of greatest demand, managing their fleet and profitability through the cycles.

Over the past decade, as the global economy has improved, airlines have grown in profitability, matured in terms of employing better capacity management and cost controls, and have benefitted from the explosion in demand for passenger air travel. Airframe and engine manufacturers have booked orders and reported record deliveries, with plans to further push up production to historically high levels. Leasing companies are busier than ever as demand for lift continues, which is attracting many new entrants – backed by new investors – into all sectors of the leasing market, from brand new aircraft to mid-to-late-life equipment. Banks, too, are eager to lend despite impending constraints imposed by new capital regulations; commercial debt finance is more popular than ever despite the lower yields, while structured capital markets transactions are becoming more standardised and tradable as investors pile into the sector.

### MACROECONOMIC AND GEOPOLITICAL HEADWINDS

Airlines, lessors and banks are operating within a global environment where a multitude of exogenous factors are colliding at once presenting numerous challenges.

Geopolitical threats are building. Notably the ongoing US-China trade dispute has resulted in forecasts that 25% tariffs could drive a 2-3% decline in global GDP, which is historically linked to traffic growth. IATA is predicting just 4% traffic growth in 2019 if tough

and restrictive protectionist measures are implemented. The departure of the UK from the European Union (EU) is categorised as a restrictive and protectionist measure that could severely impact the aviation industry there, especially in a no-deal Brexit scenario (at the time of writing, an exit agreement has not yet been passed by the UK parliament).

Interest rates are rising globally, but particularly in the US; this impacts currencies as a higher US dollar exchange rate pressures airlines with revenues in non-dollar currencies, slicing margins. In India and Indonesia for example, currencies are at a 20-year low against the US dollar. This is a punishing situation for airlines that pay for their costs – mostly jet fuel and lease rentals – with US dollars but book revenues in local currencies.

The US Federal Reserve increased interest rates in September 2018 by 25 basis points (bps) to a range of 2%-2.25% and a further rise of 25bps in December 2018 to the 2.25-2.5% range. The US central bank had planned for at least two further rate rises in 2019, but this may change depending on the fallout from the trade war between the US and China and the general health of the US economy. In Europe, the European Central Bank (ECB) ended quantitative easing (QE) in December 2018 and is expected to plan the first in a series of interest rate hikes from September 2019. A “hard” Brexit, however, could radically alter these plans. The Bank of England has stated that after an increase in August 2018, there will not be another rate rise before Brexit in March 2019, but that too could change in the event of a hard Brexit.

### AIRLINES

Passenger travel continues to grow above the long-term ten-year average of 5.5%. However, the latest Economic Performance of the Airline Industry report from the International Air Transport Association (IATA) has shown a slight cooling in passenger demand. In 2018, demand measured in revenue per kilometre (RPK) grew by 6.5%, down from 8.0% growth in 2017. IATA expects passenger demand to drop to 6.0% growth in 2019. Capacity measured in

available seat kilometres (ASKs) rose by 6.0% in 2018 compared to 6.6% in 2017, with predictions for 5.8% growth in 2019. Passenger load factors have therefore continued their slight upward trend from 81.5% in 2017 to 81.9% in 2018 and are forecast to reach 82.1% in 2019.

The same IATA report also highlights the profitability of the world airlines. Net post-tax profits stand at \$32.3bn for 2018 (down from \$37.7bn in 2017). Profits as a percentage of revenue fell to 3.9% in 2018 (from 5% in 2017), with return on invested capital of 8.6%; this has been driven by a strong economy and a change in industry structure and behaviour – with airlines focused more on delivering returns for investors. IATA forecast profits of \$35.5bn in 2019 but the various headwinds could impact this.

Analysts are broadly positive on the fundamental strength of the market. Betsy Snyder, director of S&P Global Ratings, is optimistic regarding the growth prospects of the airline industry pointing to the desire among millennials and Generation Z to travel and experience the world, while the older generation are also spending their retirement traveling. “The trends for continued traffic growth look very good, at least for the next few years barring some unforeseen event or a steep decline in global economic growth,” she says.

Moreover, airline profitability has improved to such an extent that analysts see many airlines being cushioned from some of the sharper shocks to operations, such as fuel cost increases and fluctuations in the value of the US dollar. “The profitability of airlines in the past few years has really improved,” says Marjan Riggi, senior managing director, Kroll Bond Rating Agency. “It’s almost like there’s been a little bit of a structural shift in their cost management. Many of them have de-levered. Their costs have gone down. The load factors are up because that affects revenue. In general, airlines are healthier. This year, however, the cost of running an airline has risen due to fuel. All that said, airline profitability, as a whole, was very strong last year and although lower this year, will still be profitable.”

While the IATA figures remain a growth story, the cooling in industry-

wide RPK growth is tied to the increasing number and strength of macroeconomic headwinds that are beginning to affect carriers around the world, putting pressure on margins.

Craig Fraser, managing director, FitchRatings, agrees that on the surface the industry looks healthy but when you dig deeper, there are many reasons to be cautious. “One of the biggest risks in the industry right now is actually complacency,” he says. “Things have been going so well for a long time. By some measures, this is the longest upturn we’ve had in the aviation sector, but we need to keep in mind that this is a sector with a high structural risk profile. Performance can turn very quickly, and there are a lot of signs of complacency if you look around, whether it is executive commentary about cyclicality, discussions about future production rates, or cash deployment choices.”

Fraser also highlights the dampening global GDP forecast, volatile oil prices and rising interest rates, along with the continued increase in capacity. “We still see a lot of capacity coming in to the market, with production rates going up,” he adds. “From a rating agency perspective, one of the biggest suppliers to the aviation sector is the credit markets, and our firm’s view is that we’re late in the credit cycle, with the overall market starting to turn, and I think we’re seeing some indication of that, in the aviation credit markets as well.”

Airlines are particularly impacted by rising interest rates in terms of debt finance contracts as well as escalation on any aircraft orders they have made. One banker points out that even a 50 basis point increase in interest rates could have a significant impact on borrowing costs for airlines with floating rate debt, which has been the norm in the low interest rate environment of the past decade.

“Some airlines have been requesting interest rate hedges for new aircraft deliveries,” says Korea Development Bank’s Winston Yin, who adds that he has seen more requests for proposals (RFPs) from airlines explicitly for fixed-rate funding than ever before. “Increasingly, airlines are requesting fixed-rate funding from the outset, but



if not they are certainly insisting on the optionality to fix funding rates in the future.”

Oil prices increased significantly in 2018 peaking at US\$86/bbl (Brent Crude) in October but fell to US\$55.63/bbl in late December 2018. While the drop in the oil price during the fourth quarter of 2018 gave airlines a slight reprieve, it is likely that they will rise again. Citi, however, predicts that the average oil price will be \$60/bbl in 2019 but it could be driven higher for a variety of reasons. IATA reports that airline fuel costs will rise from an annual worldwide spend of \$180bn in 2018 to \$200bn in 2019, representing 24% of total airline operating costs. Fuel costs will always represent a headwind for airlines to tackle but oil price rises may provide opportunities for Original Equipment Manufacturers (OEMs) and lessors as airlines turn to more fuel-efficient aircraft. Fuel hedging has been sporadic for the younger airlines. Legacy carriers continue to hedge their fuel requirements despite having experienced losses in the past. Whether or not airlines are hedged, and to what extent, will be a deciding factor in the coming period if fuel turns upwards once again.

Labour costs are becoming a more significant threat to airlines, specifically because pilots and skilled technicians are in scarce supply and are backed by stronger unions. Maintenance costs are rising due to more expensive labour and rising interest rates, pushing up prices for airlines and aircraft owners. IATA is forecasting an average increase of 2.1% for unit labour costs in 2019, which will further squeeze airline profit margins over the next 12 months.

**“By some measures, this is the longest upturn we’ve had in the aviation sector, but we need to keep in mind that this is a sector with a high structural risk profile. Performance can turn very quickly, and there are a lot of signs of complacency if you look around,”**

*Craig Fraser, FitchRatings*



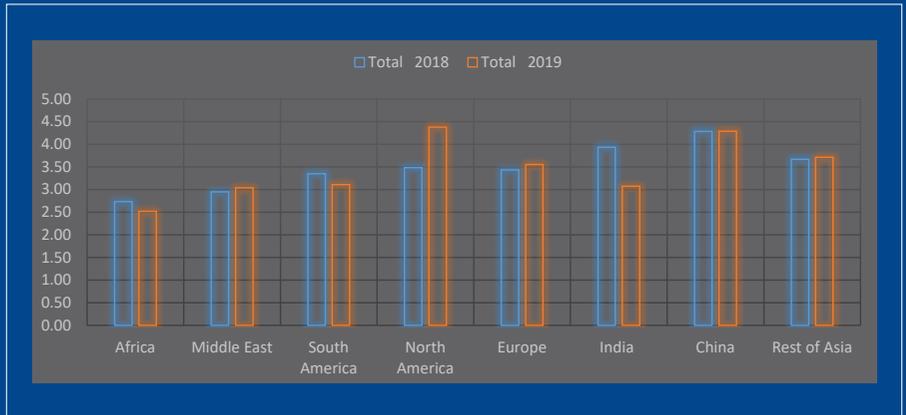
**REGIONAL OPTIMISM LEVELS**

Respondents were once again asked to rate their levels of optimism for the industry over the next 12 months in the various regions of the world. A score of 1 was the most pessimistic and 5 was the most optimistic.

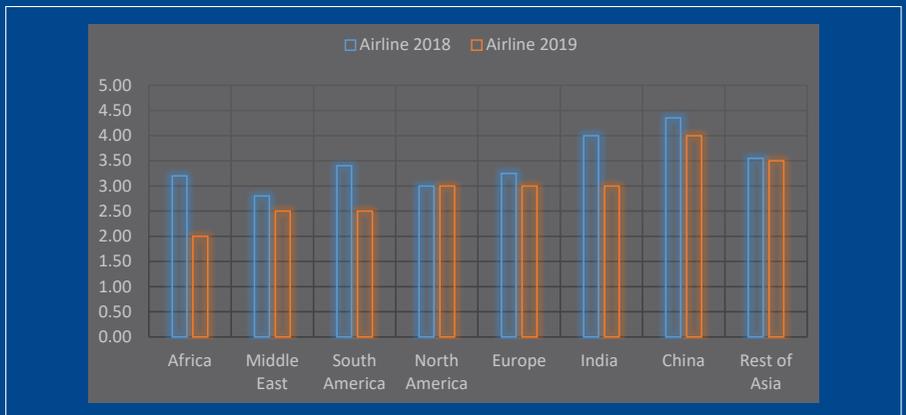
Overall, the concerns were concentrated on certain pockets of the world – excessive growth in China and South East Asia, while positive, has also evoked concern over the ability to deliver the necessary supporting infrastructure and the ability of certain carriers to cope with building macroeconomic headwinds facing the sector over the next 12 months. India was the region where confidence was falling the most compared to last year in the wake of the continued troubles from their main carriers. The overwhelming majority of responses recognised that although India has the most potential for significant growth in air travel, it has failed to yet capitalise on this potential.

North America was viewed with the most optimism as all market players are confident that the major US carriers, in particular, are on a more secure financial footing than ever before and are well prepared for the coming downturn. There was also a sense that South American countries may be coming out of a prolonged slump, despite the significant political change in the region and signs of stress among some of the main carriers, Avianca Brazil being the most recent casualty.

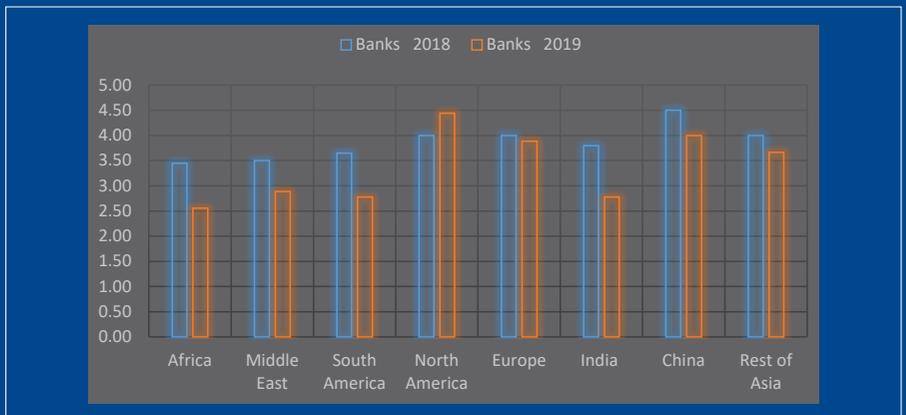
Though still regarded as a strong market, Europe presented a very mixed picture for many. One respondent stated that his optimism level for Europe was both 5 and 1 – a facet of the muddy political climate with a lack of clarity on Brexit and other political issues. Fundamentally, respondents were in agreement that passenger growth would remain strong but given market stresses, further airline issues and consolidation were likely. The Middle East was also a concern, partly due to the geopolitical issues but mostly due to the big three Gulf carriers all vying for the same traffic and the fact that their business models are showing signs of stress. The African airline market has much, albeit still unrealised, potential with the ongoing challenges continuing to drive low levels of optimism.



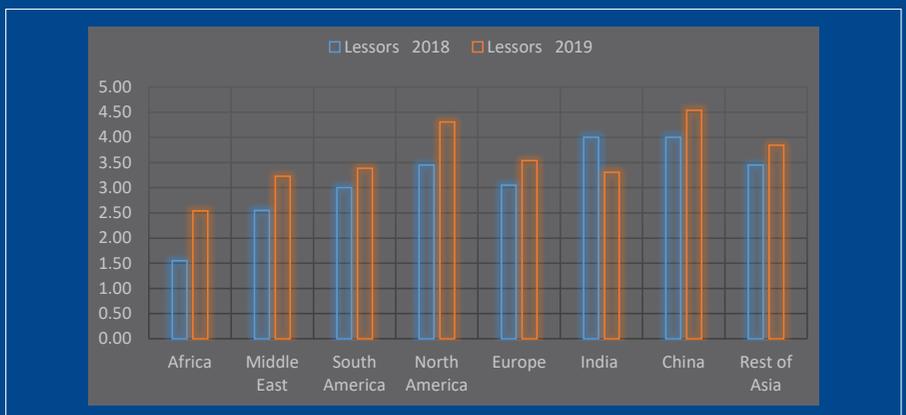
AVIATION INDUSTRY REGIONAL OPTIMISM



AIRLINES REGIONAL OPTIMISM



BANKS REGIONAL OPTIMISM



LESSORS REGIONAL OPTIMISM

Macroeconomic headwinds are impacting airlines around the world. Although those with strong cash management are coping with increased costs, signs of strain are showing in weaker carriers as airline profitability starts to be impacted by increased costs – specifically the oil price rises in the Autumn of 2018 – which is only now filtering through to the bottom line (although the retreat in price will give some reprieve).

Increasingly, as the market turns, there will be a division of the world’s airlines into two distinct groups: the first group that are financially strong and able to withstand a rising cost environment, and the second group that will show signs of weakness during the seasonal down period (which for most will be the winter period). Robert Martin, CEO of BOC Aviation, warns that this will be the most difficult winter period for airlines in the past five years: “While we believe the industry, as a whole, will be very profitable over the next year, there are going to be those airlines that are making a lot of profit – generally either in domestic US or with pricing power and international routes – and those that will suffer that generally sit in emerging markets with depreciating currencies against the US dollar and are particularly being hit by fuel costs.”

There are signs that some airlines are turning to leasing companies for assistance through the seasonal low period. “We have seen a number of customers – most pronounced in the past three months heading into winter in the Northern hemisphere – requesting maintenance reserve deferral to help cashflow through the winter,” says Mike Inglese, chief executive of Aircastle. “We are also seeing customers, in places where the strength of the dollar, the rise in oil prices and interest rates is a triple-whammy, starting to talk about deferring deliveries of newer aircraft as they look at their capital expenditure plans.”

Weaker airlines in Europe have found the operating environment far more difficult with six bankruptcies in 2018: Primera Air, VLM, Small Planet Airlines’ German and Polish units, Azur Airlines, SkyWork and Cobalt. UK regional carrier, Flybe has been put up for sale. Icelandair has broken covenants and failed in a bid



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*Robert Martin, BOC Aviation*



to acquire troubled Wow Air, which may be acquired by Frontier parent, Indigo Partners. Norwegian too is continuing to struggle in the competitive marketplace. Further consolidation is expected in the European market as a result.

Airlines in North America are faring better; buoyed still by the efforts made in cost reduction and capacity management during the past few years. According to IATA, North American airlines are forecast to make net post-tax profits of \$16.6bn in 2019, equal to \$16.77 per passenger – the highest of any region. Moreover, despite economic recovery in larger South American markets such as Brazil, there are still signs of continued stress, with Avianca Brazil becoming the most recent airline casualty.

Geopolitical issues in the Middle East have been well documented with Qatar still experiencing some challenges with its neighbours. The real worry for banks and lessors, where this region is concerned, is airline overcapacity. “The Middle East market is worrying,” says Frank Wulf, global head of aircraft finance, Norddeutsche Landesbank (NordLB). “For years there has been overcapacity. Now with the dispute between the coalition and Qatar, you clearly see that this has an impact on economic development. Construction is falling, impacting both sides, not only Qatar. It is important to resolve this issue very quickly, but airlines are struggling because of the growing competition in this very narrow market. They all fly to the same destinations, they all run after the same passenger groups, so this is where I see quite a bit of tension that will kind of continue for the next one to two years.”

In Asia, despite traffic numbers remaining high, the major airlines have posted falls in profits for the latter half of 2018 after being hit by rising fuel costs, lower yields and intense competition.

The troubles faced by some Indian carriers are well known – Air India has been in financial difficulties for years and has failed to find a buyer, while Jet Airways is reported to be struggling to pay staff and seeking ways of raising funds as lessors begin to take back aircraft. Indian carriers face rising fuel costs in addition to rising state taxes. Even the healthier airlines have

experienced difficulties caused mainly by the various technical problems with their new technology aircraft, and have either curtailed revenues or raised costs as they leased in additional capacity at short notice.

Airlines in Asia are particularly exposed to foreign exchange risk and are at the mercy of the fluctuations in the value of the US dollar. The fundamentals are positive for this region, particularly in China, with passenger demand continuing to rise alongside strong regional economic growth. However, this level of demand and market potential also gives rise to intense competition, which is putting pressure on yields on top of the rising operational costs. Most respondents from banks on this question point towards the stresses building in Asia as a cause for concern.

DVB’s Vincente Alava-Pons, managing director of aviation finance EMEA at DVB Bank, attributes the recent fall in airline fortunes in some regions to a lack of discipline.

“While the airline market has matured and overall airlines – specifically in the US – have become more disciplined, carriers in growth areas such as Asia are showing a lack of discipline,” says Alava-Pons. “Airlines that didn’t adjust their core structure in the good times will not be able to do so during the bad times.”

Alava-Pons points to rising interest rates and rising fuel costs as signs of the cycle turning downwards, resulting in “bad times” for airlines that have lost the ability to pass on costs to the consumer – such as fare depression in very competitive markets.

“This is clearly happening in those markets and even some segments in Europe, carriers are unable to pass on costs,” he says.

Alok Wadhawan, head of aviation finance at Investec, agrees: “Fuel spiked at \$80/bbl plus this year, if it returns to this level, it will place optimum pressure on airlines to raise their fares. [In areas in] Asia, that are far more price sensitive, as soon as fares rise, you will see a fall in travelling rate.”

He adds: “Asia is where the problems are in terms of emerging markets with oil prices and interest rates going up. A perfect storm could build up if this persists. In general, Asian airlines

**“We are also seeing customers, in places where the strength of the dollar, the rise in oil prices and interest rates is a triple-whammy, starting to talk about deferring deliveries of newer aircraft”**

*Mike Inglese, Aircastle*



in quite a few countries are not as financially strong as their European and US counterparts because of competition, which is fast growing every year. The strength of the US dollar has put additional stress on emerging markets airlines – you see that in Turkey, South Africa, India and Indonesia, where the currencies have fallen by about 10-15%, plus oil has gone up by 10-15%. South America too is impacted by the same issues and signs of stress are building there too.”

Ruth Kelly, chief executive of Goshawk, states that airlines need to be assessed individually rather than regionally. She believes the most successful airlines – those able to ride out the current and approaching economic pressures – will be those carriers that are able to adapt to the changing conditions. “An airline’s ability to adapt in terms of its cost base, the flexibility of its cost base, its ability to downsize a little bit if it needs to, the flexibility and ability of the management team to foresee what’s coming, and plan and change in advance are all things that we would look for in terms of trying to pick the winning airlines,” she says.

AerCap’s chief executive officer, Aengus Kelly, is confident that airlines are insulated from the sharp shocks of the past that have previously brought down many large carriers, and although he agrees profits will fall, he does not foresee major airline bankruptcies: “We have been through a period of unprecedented airline profitability over the last several years and at the moment the industry is still profitable and can afford these increased costs,” he says. “It is no longer the case, where we were 10 or 15 years ago, where a surge in costs could quickly put quite a lot of significant airlines into bankruptcy. We don’t see that happening at the moment. We see reduced profit margins for sure but I don’t see the situation where major airlines will be falling over at the rate we saw historically.”

John Plueger, chief executive officer at Air Lease Corporation (ALC) is equally phlegmatic. “[The strong dollar] might dampen things in the short-term, but there have been many times in the last 10 years that we’ve had currency fluctuations and we’ve had a stronger rising dollar in the face of emerging



**“Asia is where the problems are in terms of emerging markets with oil prices and interest rates going up. A perfect storm could build up if this persists.”**

*Alok Wadhawan, Investec*



markets. This is nothing unique. Airlines have shown an amazing adaptability to really deal and cope with this,” he says.

### LESSORS

As passenger numbers continue to rise, airlines have demanded more lift from aircraft leasing companies, which have grown in scale and number.

In 2018, the leased aircraft portfolio increased by 629 aircraft to 8,109 aircraft, according to analysis from FlightAscend Consultancy, which has also identified that 100 new names have entered the commercial operating lease sector over the past decade.

“For me, the most interesting is the longer-term change, where 10 years after 2008 we have almost 100 new names in the commercial operating leasing space,” says Rob Morris, global head of consultancy at FlightAscend Consultancy. “Some of those are ownership changes (SMBC from RBS for example), but the vast majority are new entrants clearly attracted by the potential margins that operating leasing offers. Given recent margin compression driven by the increasingly competitive nature of the sector and also the propensity of new names in the lower echelons of today’s rankings, perhaps we are set for some wave of consolidation amongst the smaller players? And it certainly feels unlikely that in another ten years’ time we could have another 100 new entrants!”

There has been a much-discussed wall of liquidity that has entered the leasing space over the past few years, with Chinese banks famously entering the leasing sector in droves and a renewal of investment from private equity companies. This continued into 2018 with many more new leasing companies establishing – Zephyrus Aviation Capital (funded by Virgo Investment Group), Cerberus Aviation Capital, Sirius Aviation Capital and Elevate, among others – with many more new sidecar and joint venture agreements also being established mostly by the more mature lessors to enlarge their ability to acquire aircraft off their balance sheets and to bring new investors into the sector.

Merger and acquisition (M&A) activity has also increased across the

leasing spectrum. GIC, the Singapore sovereign investment fund, has invested in turboprop and regional aircraft specialist lessor, Nordic Aviation Capital (NAC), buying shares from both Martin Moller (NAC’s founder) and EQT VI (its partner since 2015). ORIX Aviation took a 30% stake in Avolon. The Carlyle Group bought Apollo Aviation Group, which operates more in the late midlife aircraft space. BBAM’s acquisition of Asia Aviation Capital’s fleet bumped its ranking back up to the top five leasing companies, while Goshawk’s acquisition of Sky Leasing Ireland boosted its fleet significantly.

Most market players agree that this M&A activity will continue. “People want scale,” says Stephen Hannahs, chief executive of Wings Capital. “Scale provides the ability to access different types of financing. Leasing is fundamentally a spread business at its core. You will see more acquisitions. There will be fewer players out there because more people are finding dance partners.”

“There’s huge demand in this space and any platform that has a decent fleet and a bit of scale would be a serious target,” agrees Fred Browne, chief executive officer of Aergo Capital, which is majority owned by private equity player, CarVal. “For the foreseeable future, the M&A trend is very real.”

Firoz Tarapore, chief executive of Dubai Aerospace Enterprise (DAE), which acquired AWAS, agrees that consolidation will continue but stresses that it has to be for the right reasons: “We have always maintained that if you are going to acquire a company, you have to do so because it further your strategic interests,” he says. “The two or three platforms that traded in 2018 were all strategic plays for the buyers. If there is a market event in 2019, this will cause many sellers – who are on the sidelines wringing their hands about how long they can continue to operate on a sub-scale basis – to accelerate their exit plans. For us, an acquisition has to be about more than just size.”

Over the past decade, there have been many new entrants into the leasing space. These entrants are bifurcated into those that are concentrated inside China and those outside, explains Khanh Tran,

**“We see reduced profit margins for sure but I don’t see the situation where major airlines will be falling over at the rate we saw historically”**

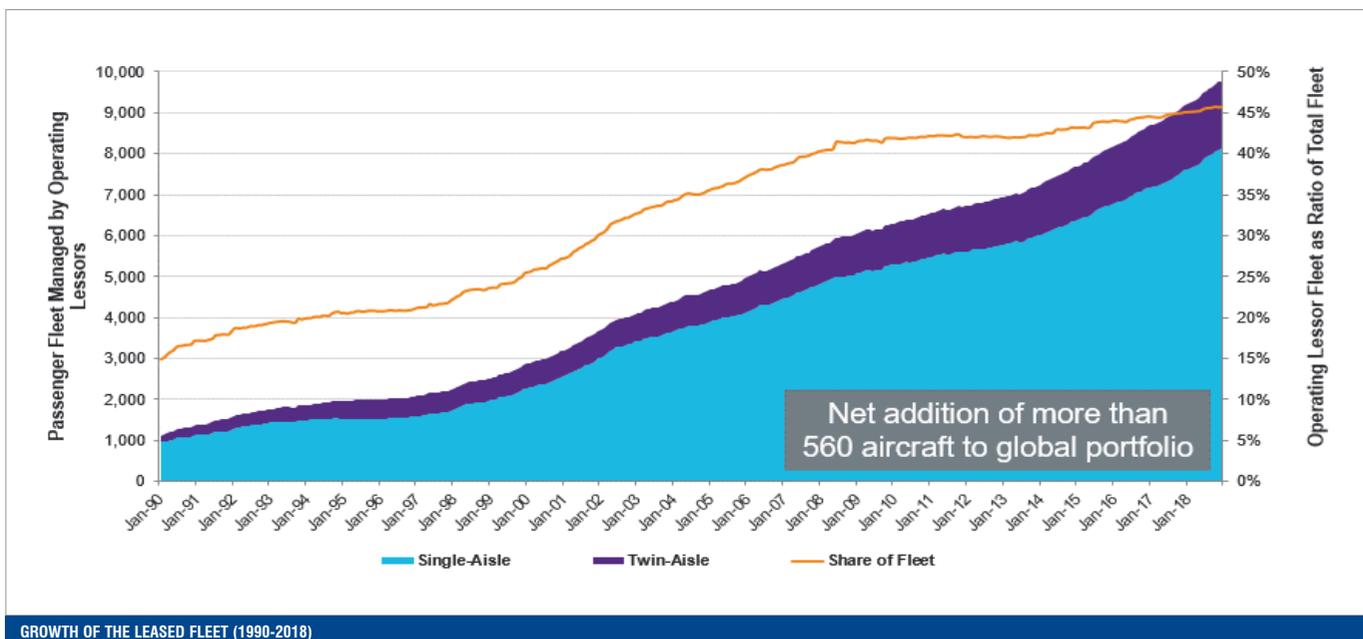
*Aengus Kelly, AerCap*



TOP 30 LEASING COMPANIES (RANKED BY NUMBER OF AIRCRAFT)				
Manager	Total Portfolio	On Order	Est Portfolio Value (\$mn)	Current Rank
<b>GECAS</b>	<b>1,229</b>	<b>369</b>	<b>23,602</b>	<b>1</b>
AerCap	1,056	362	32,975	2
Avolon	521	400	18,725	3
BBAM	498	0	20,499	4
Nordic Aviation Capital	471	48	6,285	5
SMBC Aviation Capital	422	196	15,723	6
ICBC Leasing	377	122	15,448	7
DAE Capital	352	1	10,257	8
Air Lease Corporation	336	382	14,559	9
BOC Aviation	331	171	14,051	10
Aviation Capital Group	310	171	8,769	11
Aircastle	246	25	5,533	12
ORIX Aviation	236	0	6,922	13
Unconfirmed Operating Lessor	233	0	6,049	14
Apollo Aviation Group	229	0	3,225	15
CDB Aviation Lease Finance	214	197	7,164	16
Macquarie AirFinance	197	60	4,387	17
BoComm Leasing	195	34	7,562	18
Boeing Capital Corp	194	105	1,608	19
Castlelake	180	0	2,284	20
Goshawk	168	40	6,333	21
Jackson Square Aviation	154	30	6,154	22
Avmax Aircraft Leasing	148	0	402	23
Standard Chartered Aviation Finance	137	0	4,498	24
China Aircraft Leasing Company	133	201	4,579	25
Falko	119	0	642	36
Deucalion Aviation Funds	102	0	1,948	26
Regional One	88	0	309	27
ALM - Aircraft Leasing & Management	84	0	2,860	28
Cargo Aircraft Management	84	0	1,037	29
Elix Aviation Capital	83	0	666	30
<b>Grand Total</b>	<b>12,263</b>	<b>3,526</b>	<b>336,886</b>	

Source: FlightAscend Consultancy

Aircraft portfolio count includes all in service & stored jets and >50 seat turboprops managed by operating lessors, all roles (owner/asset manager). On order aircraft excluded from estimated portfolio value.



Source: Flight Fleet Analyser

Data as of end November 2018

chief executive officer of Aviation Capital Group (ACG), which secured a minority equity investment from Tokyo Century Corporation in 2017. “For those outside China, there are a few names left that are looking for growth opportunities, but what is unclear is what will happen to the many smaller Chinese leasing companies – will they be acquisition targets for the larger Chinese lessors, or for those located outside of China?”

There are 60-plus leasing companies in China, a number widely considered to be unsustainable; most see the market within the country as ripe for large-scale consolidation. “With the number of lessors that have entered the market over the past 24 months, there has to be more consolidation,” says Hani Kuzbari, managing director of Novus Aviation Capital. “Even within the established space, among the top 20 or 30 leasing companies, we will likely see a few come to market.”

This wall of liquidity and new entrants has created an ultra-competitive leasing environment as these companies strive to execute ambitious strategic growth plans. With the manufacturers’ delivery slots full until after 2020, lessors seeking to build new technology aircraft portfolios are forced into the already crowded sale-leaseback market.

Kieran Corr, global head of aviation finance at Standard Chartered, explains that as new entrants have come into the sale-leaseback market, the number of aircraft offered in the market has fallen: “There is a significant amount of liquidity chasing the same deals when you look at the number of players seeking to acquire new technology aircraft, and there is a smaller number of transactions,” he says, “which is depressing lease rates.”

Most lessors complain about the number of bidders on deals with airlines – especially in the sale-leaseback market – which is sometimes in excess of 30 bidders for one aircraft; this has served to drive down lease rate factors (LRFs) to sub-0.6 levels and in some cases sub-0.5 levels. Airlines are seeking to take advantage of this market dynamic to demand that reduced or no covenants or other restrictions be placed on lessees, including reduced or no maintenance reserves and less stringent return conditions. This situation, however, is

viewed almost universally by lessors as unsustainable.

“We’re losing lots of transactions which we are hearing are being done at 0.5 levels,” says Goshawk’s Kelly. “We haven’t been able to be very active in the sale-leaseback market because we just haven’t been making that margin that we need to make at those kinds of lease rate factors. Some lessors must be doing transactions which have to be very marginal by our calculations.”

Peter Chang, CEO at CDB Aviation Lease Finance, described the current sale-leaseback margins as unsustainable because they contaminate the entire system. He blames airlines for overordering with the specific intent of flipping the aircraft to lessors. “The manufacturers make a sale to an airline, who order twice as many aircraft as they can use for their own airline operations, as a way to access working capital. The lessors are being asked upon to provide a service more than just intermediary in terms of the traditional sense of operating lease financing,” he says. Chang suggests that by placing bulk orders, airlines can order aircraft for significantly lower prices than leasing companies, and can then sell these aircraft onto the lessors in sale-leaseback transactions that value the aircraft at more than the capital cost, using the difference for working capital purposes.

“It’s a drug effect,” adds Chang, “and it’s not sustainable. The drug will wear off. Eventually, they have to go back to running the airline at a profit, and manage their fuel prices and group costs, etc. We’re allowing this cheap capital to seep into our business, and that causes a lot of unforeseen consequences. We will come to the point where many lessors are providing working capital to sustain an airline.”

Some market players comment that if the airline passes on its capital savings on an aircraft purchase to a lessor in a sale-leaseback transaction then, depending on the capital cost and over a 25 year period, a lease rate factor of 0.5 “may not be quite as bad as it seems”, but most still maintain that this business model is still unsustainable over the long term.

Brad Smith, chief executive of Kahala Aviation, says that the way lessors are incentivised now is pushing a shorter-

**“People want scale. Scale provides the ability to access different types of financing. Leasing is fundamentally a spread business at its core. You will see more acquisitions. There will be fewer players out there because more people are finding dance partners.”**

*Stephen Hannahs, Wings Capital*





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*Peter Chang, CDB Aviation*



term goal of building market share and signing deals today, rather than focusing on longer-term returns. “Incentives are much different today than they were a few years ago,” he says. “Certain parts of the leasing sector has become more of an asset management industry and less of an investor driven industry. Ten years ago, people were still putting a lot of their own money into the deals and/or they were getting paid mostly on a carried interest, so they were dependent on how successful the deals were and how much money the deals made. Now, I think it’s become very much you’re going to get your salary and a bonus set on deal targets. I think people are perversely incentivised just to put on assets. The problem is you can buy an aircraft now and put it on a lease rate factor only marginally higher than the real depreciation rate and everyone high fives and has a nice closing dinner but the guy who is going to be taking those impairment charges might still be in high school because it’s going to be in 15 years before those deals start coming off lease.”

In such a fiercely competitive market, airlines are pushing lessors to provide pre-delivery payments (PDPs), to take multiple aircraft and reduce return conditions and maintenance reserves. “What I am pushing for more these days are shorter leases,” says an airline executive. “The good thing about long-term debt is that it is pre-payable, so if the situation changes, it can be refinanced or you sell the aircraft, but a long-term lease is locked in. Lessors are flexible, but leases are not.”

An emerging trend is for airlines to push for shorter leases on narrowbody aircraft from 12 to eight or even six years. This also has a positive impact on the airline’s balance sheet due to IFRS 16. “We have never bothered about the impact of leases on our balance sheet because analysts always calculated lease rental as eight times your adjusted debt. Now, they have to calculate that number accurately as a present value of your non-cancellable lease payments. If I have a 12-year lease, its double the balance sheet impact of a six-year lease, which is why I am pushing for shorter lease terms.”

Wings Capital's Hannahs notes that more airlines are leasing aircraft for shorter periods. "Some customers have requested a six year lease for a brand new 777. When I asked why they want a short lease, their answer is because in this competitive environment they don't know what their business model is going to look like after that period. They want a certain portion of their fleet to have flexibility to exit a type or exchange with a different aircraft," he says. "Airlines look at leasing very differently today than in previous decades. It's more of an active tool in the financial officer's tool chest. Maybe in the 1980s it was more typical for airlines to lease to conserve capital or to efficiently utilise the tax attributes of the asset. It is only recently that airline profitability allowed them to effectively use the tax benefits associated with asset ownership."

As well as a lower purchase price for aircraft, some lessors have very low cost of funds that can help lower LRFs to win deals. The place where many of these deals are being done, and with a profit, is in the JOL/JOLCO market, where the value of the tax depreciation available to Japanese aircraft owners is priced higher than for other owners which is driving a lower LRF.

Martin Bouzaima, chief executive office of FPG Amentum, which as the name suggests is majority owned by Tokyo-headquartered Financial Products Group (FPG), the largest JOLCO arranger in the Japanese market believes there are many drivers in play.

"The industry has this habit of looking at lease rate factors," he says. "It is an easy metric, but is also distorted by a lot of factors. We have heard about LRFs in the low 0.5s, some SLBs even dipping just below 0.5. We tend to have lower LRFs for longer leases, obviously. Then there are some foreign currency deals, say in Yen or euros, or at least partially denominated in Yen or euros, which see lower US dollar-equivalent LRFs. A further driver behind the low LRFs that have been observed recently is the residual value assumptions. The appraisers attribute a much lower long-term depreciation rate to NEO and MAX aircraft relative to CEO and NG aircraft. From what we see from a day-to-day trading aspect, the leasing industry

overall seems to agree with this and that is probably the main driver behind the lower LRFs that we have been seeing."

Aside from JOL market deals, AerCap's Kelly suggests that LRFs as low as 0.5 remain uncommon and when LRF numbers are released to the market it is almost always by an airline. "What we do know about lease rate factors is a bit of an urban myth – the real numbers are very different," says Kelly. "You might have a lease rate factor that's quoted at 0.62 plus; 0.65 is probably where a lot of them are. However, if it's a 0.62, it'll probably be in 2016 dollars, which then escalates or it's subject to some form of adjustments on delivery. For someone to have a 0.7 lease rate factor, that's 8.4% annualised yield; this does not cover costs. Those who have engaged in that market have generally taken a view that there's a residual value upside and that they're going to make a gain in those circumstances to get it through the approval process. That's a very dubious thing to do but no doubt a small minority do. Look, if someone's going to lose money, they won't last a long time in the industry; the same as any business."

Overall, the market does not see such low LRFs becoming commonplace but equally yields are unlikely to rise back over a 1% LRF since the market remains competitive and, for now at least, awash with liquidity. Additionally, given that the credit profile of airlines is so much stronger than it was 15-20 years ago, airlines are predicted to continue to push for a reduction or elimination of maintenance reserves to be replaced with letters of credit. Aengus Kelly doesn't see this trend as negative or detrimental to the industry but he does warn lessors to be more wary. "If you are closing a sale-leaseback transaction with a very weak credit, a low lease rate factor and you don't take maintenance reserves, then you're going to get what you deserve sooner or later."

## BANKS

The aviation bank market has been through a difficult decade following the global financial crisis. Many banks were hit hard by the fallout from the global financial crisis and the consequent downturn in the aviation cycle resulted in many banks exiting the aviation sector

**"Incentives are much different today than they were a few years ago. Certain parts of the leasing sector has become more of an asset management industry and less of an investor driven industry."**

*Brad Smith, Kahala Aviation*



altogether. Some so-called “tourist” banks that had entered the sector before the crisis were very quick to disappear when times were hard but some more major banking players also exited the market. As the economy recovered, however, liquidity shifted back into the sector as investors searched for yield in more esoteric asset classes – which is how aviation assets were viewed – and banks sought to capture new sources of liquidity. There was also a strong push to finance aircraft in the capital markets as bank debt dried up. That drip of aviation capital market deals has become a torrent, specifically for leasing companies issuing secured and unsecured bonds, and executing ABS deals. Airlines, too, issued more-competitively priced, enhanced equipment trust certificates (EETCs), some from non-US issuers, albeit at much lower levels. Only a few rated airlines are able to tap the capital markets, leaving many to tap the secured loan market.

Aided by new investors piling into the sector, aviation financing has become much more mainstream and therefore much more attractive. “Investors are much more comfortable with this asset class,” says Bertrand Dehouck, managing director and head of aviation finance EMEA, BNP Paribas. “It was viewed negatively for decades but post-2008, that thinking has gradually turned favourable as people witnessed the resilience and value of this sector. But investors also turned to this sector due to the lack of other opportunities, which is where the contraction will come, we believe, with the rise in interest rates when many investors may redirect their money away from aviation.”

New and old banks returned to the aviation banking sector tempted by margin and fee income from bank debt as well as capital market products. The return of the bank market, particularly over the past two to three years, has been impressive, but it has also resulted in far more competition.

“It is a changing market,” adds Dehouck. “There is a lot of liquidity and therefore a lot of competition. We have to know how to resist and adapt to the competition... We are a long-term player and have been in this market for 30-plus years so the modus operandi for us is to



**“What we do know about lease rate factors is a bit of an urban myth – the real numbers are very different... If someone’s going to lose money, they won’t last a long time in the industry; the same as any business.”**

*Aengus Kelly, AerCap*



continue to run our platform across a wide variety of solutions for our clients.”

More Chinese banks have also entered the sector on the banking side and other Asian banks are also very active, albeit less so in the capital markets, which tends to be dominated by US and European banks.

“Mainland Chinese banks are very active, although they are primarily focusing on their domestic market, plus maybe a handful of selected international carriers and lessors,” observes Frank Wulf, NordLB. “Asian banks outside of China are also fairly active, especially the Japanese, who are also being very aggressive in terms of pricing in order to secure new business. So, there’s substantial competition on the lending side for us as well as from the very active capital market, primarily in the US.”

Those investors that were courted by the banks following the crisis have become much more prolific investors in the sector lending cheaply directly to lessors, helping boost the leasing market specifically to the extent that many airlines would opt for sale-leaseback deals – which carry very low lease rate factors – as opposed to bank debt to fund their deliveries.

Much like in the leasing market, where increased competition has led to a lack of conditions such as maintenance reserves, banks are also reporting a loosening in security and covenants in the race to secure mandates.

“I see a definite increase in risk on the banking side,” says NordLB’s Wulf. “The standards of documentation, security documents in particular, have gone down. You would accept certain features in the documentation for, let’s say, smaller, less-experienced lessors that previously you would only accept for top notch lessors. So there’s a constant downward spiral and this reminds me very much of things prior to the last crisis. A lot of industry players, financiers, left the market and are quite oddly coming back now, so I’m a bit concerned that this is a recurring theme.”

Winston Yin of The Korean Development Bank (KDB), says that covenants are also becoming much less restrictive in such a competitive marketplace. “Many deals have almost no covenants and this is likely to continue

unless there is a major correction,” he says. “On the secured debt side, requests for pricing to be as low as possible, with looser covenants and sizeable balloons are common. This is not a reflection of KDB as a conservative lender, but more a reflection of the markets and where deals are getting done, and where structures are being pushed aggressively. Banks have to be disciplined in this market but each to their own. Some banks will have to go down the credit curve drastically in order to win some transactions, and others will have to adjust expectations. We’ve seen pricing tighten immensely over the past 12, 18 months, even within the last six months, so I think banks are taking the view that they would rather adjust their return expectations to win the deal than hold tight and end up with nothing.”

Bénédicte Bedaine-Renault, head of aviation finance EMEA at French bank Natixis, also sees these pressures on the banking market. “Covenants have lightened for the past few months, and we see that liquidity is driving obligors towards more flexible terms. Unsecured debt is increasing, notably for lessors which are already or aiming at being investment grade within the next few months. Duration and amortisation is not changing much, probably because the economic life of aircraft is not changing, although we could question that when checking the size of the open balloons contracted by banks in the market.”

Olivier Trauchessec, managing director – head of transportation Americas, MUFG Bank, views the current banking market as more measured: “I find that the bank market has been very disciplined for the past three to five years,” he says. “Banks can be very squeezed in terms of pricing, there’s no question. We see margins being quite low, and it can be difficult really to make money in the banking sector, especially in North America and in Europe. But, in terms of structure when you look at advanced rates, balloons, governance and increment, I don’t think that they’re too crazy. There has been a situation where we’ve seen some players who were very keen to position themselves for capital markets transactions that have provided favourable terms for a

**“Investors are much more comfortable with this asset class. It was viewed negatively for decades but post-2008, that thinking has gradually turned favourable as people witnessed the resilience and value of this sector.”**

*Bertrand Dehouck, BNP Paribas*



# **Airline Economics** GROWTH FRONTIERS LONDON 2019

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## Main conference days

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warehouse facility, but overall it's been a fairly reasonable market, I find it to be optimistic that it is."

Jennifer Villa Tenny, president of aviation lending at CIT Bank, agrees that maintaining discipline is paramount. "We have remained very disciplined even through the massive influx of capital into the lending space over the past few years. In our view, there are still well-structured transactions to be done with satisfactory loan-to-value ratios for both borrower and lender, realistic margins and good collateral. That said, if some of this capital does exit, we would expect more demand to flow to secured financings, less aggressiveness in terms of advance and margin, and less relaxation on covenants and the like in order to win transactions."

While the low interest rate environment has helped airlines and lessors raise competitively priced funds, it has also impacted banking margins, with pricing remaining at very low levels. Most bankers therefore welcome the upward trend in interest rates, which – as Dehouck hopes – may eventually lead to a contraction in the level of market competition.

Banks are currently preparing for the impact of more restrictive regulations that could lead to a reduced balance sheet. Basel IV could require banks to hold more capital reserves against certain loans they issue. This would likely be the case for unsecured loans but secured loans might qualify as specialised finance which could allow them to continue to be assessed under existing Foundation and Advanced Internal Ratings based approaches, i.e no change. Where Basel IV requires more capital allocation, it should cause banks to increase pricing; however, the competitive marketplace makes it very difficult for them to execute such a strategy.

One banker agreed that a bank's ability to offer long-term secured financing could be reduced, if impacted, and there will be a shift – more so than there was after the financial crisis – towards banks distributing their loans more widely and to new channels such as insurance companies, pensions funds, asset managers and others. "More structures will also likely be developed,"

he says, "more structured and secured private placements."

European banks would likely be more impacted by Basel IV (if more capital needs to be allocated against aviation debt) and are making plans to restructure their product offerings to remain competitive.

Non Basel banks, however, are preparing to capitalise on the restrictions that Basel IV could impose on their competitors by using their balance sheet to offer long-term financing that will not be curtailed under the new capital environment.

This new environment may also force a return of support from the Export Credit Agencies (ECAs) and the US Export Import Bank (Eximbank) if bank debt becomes prohibitively expensive. Likewise, demand for insurance-backed products from AFIC and Balthazar will rise, along with demand for capital markets products.

#### CORRECTION AND EXPOSURE

Over the past year, the aviation economic cycle has continued to be rather benign with no sharp falls. However, market participants broadly agree that the cycle has peaked but rather than suffering a steep decline, the market is undergoing a slow correction, with one respondent describing the past few years as a "mini cycle".

"I do see a correction in progress," says one airline executive, "Over the past few years, many airlines were profitable, which led them to add capacity and launch more routes but, as oil costs rose and competition put pressure on fares, yields began to fall and most airlines in Asia have now posted two quarters of falls. Although airlines in North America and Europe are still posting profits, they are making less with even the larger carriers issuing profit warnings. There is always this delay or lag because airlines can't react quickly enough to spikes such as oil price rises. I don't think there is going to be a plummet to the bottom of the cycle; this is just a correction or a mini-cycle, and we are just now reaching the bottom. Hopefully now, the cycle will turn and slowly rise, rather than rocket back up."

Many support the notion that the market will continue to experience, a

**"We've seen pricing tighten immensely over the past 12, 18 months, even within the last six months, so I think banks are taking the view that they would rather adjust their return expectations to win the deal than hold tight and end up with nothing."**

*Winston Yin, KDB*



gradual correction as opposed to a sharp fall, with growth likely to have peaked. The building headwinds are expected to worsen, however, and most banks consider the current macroeconomic environment to be the sign that the cycle has turned.

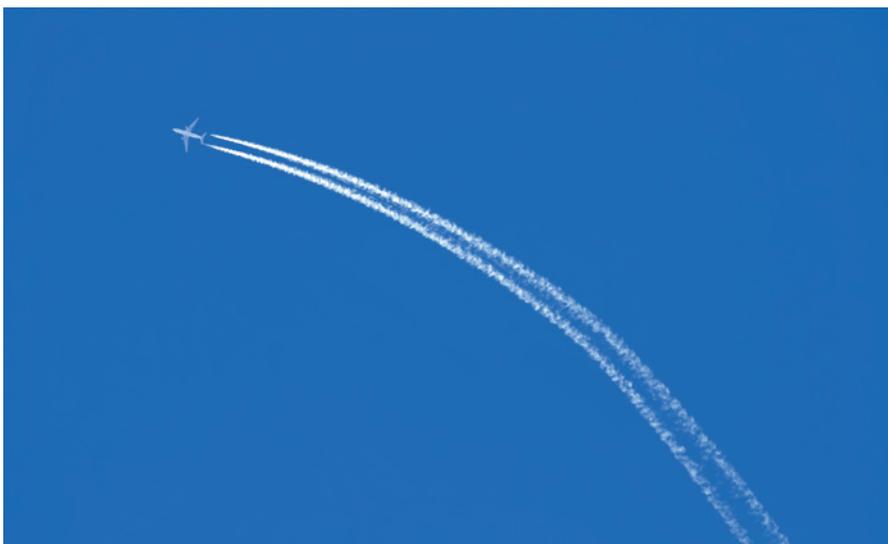
“The macroeconomic environment is not particularly supporting of further strong medium-term growth,” says Arnaud Fiscel, head of transportation, corporate banking department, Bank of China (UK). “In light of higher costs and demand – at best – at par, it is legitimate to expect shrinking profits for airlines, with gradually weakening cash positions and potentially further bankruptcies or consolidation of weakest players. From that perspective, recent price softening on commodities markets is welcome; since the tail end of 2018 we have indeed observed that most astute players have been benefiting from the significantly improving market conditions to fill in their fuel hedging books.”

Wadhawan, too, agrees that the airline market is in decline, as demonstrated by the fact that many carriers are reporting falling operating margins. Vinodh Srinivasan, managing director and co-head of the structured credit group at Mizhuo Securities views the current aviation cycle as being in the process of normalising rather than contracting.

Some of the legacy carriers, the more mature leasing companies and the aviation banks are welcoming a turn in the market, and viewing it as an opportunity rather than a threat to their business because it will reduce the competitive landscape.

AerCap’s Kelly, however, does not predict a largescale reduction in competition in a downturn scenario. “I don’t think we’re going to see a mass exodus from the industry because the industry’s a very investible sector,” he says. “At the right returns, it’s a growth industry, it’s a global business, it’s got hard assets, dollar assets – these are very attractive aspects for investors. A lot of capital that has come into the industry will stay but I think we’ll see a good chunk leave when the going gets tough.”

The increase in debt providers should mean less asset volatility than what was witnessed 20 years ago, says Kelly. “Twenty years ago you might have had



**“I don’t think there is going to be a plummet to the bottom of the cycle; this is just a correction or a mini-cycle, and we are just now reaching the bottom.”**

*Anonymous airline executive*

a good asset like a 737 or an A320 but that didn't matter because the absence of debt capital meant that the volatility of the asset was very high. Twenty years ago there was a handful of banks in the world who could take and hold \$100million in a syndicated facility, but that's nothing today. We have over 20 lenders in Taiwan alone. This is a huge change in the industry. There is now a lot more understanding of the industry by the debt providers and the management teams are far more professional. When the going gets tough, I think you'll still find significant pools of dedicated capital for good assets. Now if you have a bad asset you're going to struggle, that's for sure."

The impression for many bankers is that those aviation banks that remained in the sector through the difficult post-crisis period and for those that came back are now more prepared for a stressed situation.

"Banks are better prepared, they are also willing to probably invest a bit more into areas like asset management, more detailed research into aircraft, more detailed appraisals, looking for instance, for things like the maintenance condition of the aircraft, which is very important in a problem situation," says DVB's Alava-Pons. "Banks probably would be more prepared to actually stick it out and stay in the business. Overall, the bank market is better prepared. This doesn't apply for everybody, of course. We have already seen one or two banks, which were probably testing the aviation market, also stopping again but it's not really representative."

For the largest lessors, the rating agencies are bullish on their continued success and ability to ride out choppy economic waters. "The larger lessors we rate have experienced management teams who have gone through these downturns before, who have good airline relationships and good credit departments, so they're on top of this situation," says S&P's Snyder.

Rises in interest rates do not impact leasing companies in the same way as airlines, and in fact some leasing respondents have actually welcomed the rising interest rate environment, since it pushes up inflation that assists companies that own depreciating assets,

as well as allowing them to increase lease rates that are currently at very low levels for new aircraft types, specifically.

"Rising interest rates should bring up lease rates in the long-term," says Fred Browne, CEO of Aergo Capital. "But in the short-term there is an oversupply of aircraft that is keeping rates low."

AerCap's Kelly agrees that rate rises can be good but only when they are accompanied by an improving economy: "That is generally when you have your most profitable periods because you do see inflation and asset prices increase." But, he warns, this depends on the velocity of the rate rise. A sudden spike makes it harder for lessors to pass on costs to lessees, which is what happened during the financial crisis.

Wings Capital's Hannahs adds that this transition from a low interest rate environment to higher rates will be difficult since although the correlation between interest rates and lease rates is high, there is a delay between rates rising and higher lease rates. "Stable interest rates are better; once you get to a higher rate environment, lease rates will eventually adjust," he says.

Further concerns were aired by respondents that rising interest rates could be detrimental for some leasing companies, particularly those that may have mismatched liabilities and revenue. "A lessor who is rolling in commercial paper and has a lot of fixed rate leases is going to be hit quite hard," warns Robert Korn, president and co-founder of Carlyle Aviation Group (previously Apollo Aviation Group), which is a prolific issuer of ABS paper that allows the company to lock in fixed rate, long-term funding. "I don't see interest rates being beneficial in a rising market for any lessor, other than serving to kick competitors out of the way," he adds.

Some leasing companies have been fixing lease rates for lessees in a bid to win deals; however, in a rising interest rate environment, lessors that are not term matched may not be able to recover these extra costs when they rollover debt or refinance bonds.

Korn adds that rising interest rates will create "unplanned financing costs for some lessors that will create distressed sale opportunities which could be advantageous for us".

**"Rising interest rates should bring up lease rates in the long-term. But in the short-term there is an oversupply of aircraft that is keeping rates low."**

*Fred Browne, Aergo Capital*



S&P's Snyder sees such a scenario as a serious issue for the broader market. "What does concern me is the amount of liquidity chasing these assets," says Snyder. "There are some new investors in this space, and some new startup lessors, and I'm concerned about how they'll respond if airlines come under pressure because they don't have the re-marketing expertise. They may be more inclined to lease and/or sell their aircraft at any rate."

Stronger leasing companies are expected to be better able to manage the fallout from the rise in interest rates than some competitors. That fallout could potentially involve repossessing and replacing aircraft. Airlines would suffer from rises in interest rates, particularly the knock on effects on foreign currencies against the US dollar. On the flip side, there is an inflection point in the interest rate cycle where leasing aircraft becomes more attractive than ownership, but that is also dependent on the availability of capital and the depth of the money available for individual airlines.

Many lessors are seeking an investment grade rating because the leasing business is so capital intensive. ORIX Aviation's Meyler describes an investment grade rating as "fundamental" and it becomes even more important in a downturn and rising interest rate environment.

"It's all about the liability side of the balance sheet in terms of how you can compete, especially when you're competing with companies that have a very strong investment grade rating, such as ALC or SMBC, or that have a parent company with a very high credit rating like ORIX," he says. "The availability of those companies to access debt at significantly cheaper cost than you; if you don't, you're not on a level playing field... There's no question that to be - at least in the newer aircraft space, you either have to be investment grade or you have to be owned by someone who's investment grade to be able to compete in this market in the future."

Aircastle achieved an investment grade rating in 2018, which was the endgame in a specific strategy for the leasing company to reduce its secured debt funding. "This business is about funding, and if you look at the income statement, the two biggest expenses are



**"I don't see interest rates being beneficial in a rising market for any lessor, other than serving to kick competitors out of the way... Unplanned financing costs for some lessors will create distressed sale opportunities, which could be advantageous for us."**

*Robert Korn, Carlyle Aviation Partners*



interest and depreciation,” says Inglese. “I can’t really control depreciation, but I can try to control funding cost, which is a function of my credit rating and my leverage.”

Aircastle began its unsecured debt transformation over eight years ago. In the period before the financial crisis, the company had 100% secured debt, borrowed from traditional aviation banks and financed in the ABS market. Post-crisis however, the vast majority of those funding sources evaporated that led Aircastle, along with many other companies, to revitalise their funding strategies and work to attract new sources of capital.

“In late 2009, early 2010, we were seeing investment opportunities that would yield double-digit unlevered returns, but there was no bank that would lend money to buy a 10-year-old airplane, and there was no ABS market,” Inglese recalls. “In order to seize those investment opportunities, we had to find a new source of debt capital. Having achieved investment grade recently, and having just completed our inaugural capital raise with the BBB- ratings, is an important part of maintaining our place in the mid-age marketplace as a disciplined investor who will find

opportunities regardless of market conditions. The investment grade market is much deeper and much broader than the high yield market, and we think that having that access and maintaining that rating will be an important differentiator going forward.”

Many in the industry believe that the financial crisis put existing companies on a more secure footing after they broadened their sources of funding. However, there are an equal amount of people in the industry who believe that those lessons have been forgotten during the elongated upcycle and amid the flood of liquidity – and new competition – into the sector.

Barrett remains confident of the future for the business in a downturn environment and sees more competition as an opportunity. “It is a more challenging market,” he says. “There is still a lot of capital in the industry and there are many new entrants and that can be a challenge. But we are very well positioned – we are well capitalised with a high quality fleet; we have a strong experienced platform with many customers located around the world. More competition is also an opportunity since many new lessors want to buy assets and we are happy to sell to them.”

**“It is a more challenging market. There is still a lot of capital in the industry and there are many new entrants and that can be a challenge. But we are very well positioned... More competition is also an opportunity since many new lessors want to buy assets and we are happy to sell to them.”**

*Peter Barrett, SMBC Aviation Capital*



# Aviation Finance

Aviation finance has been in plentiful supply during 2018 and is predicted to remain so for the next 12 months, despite headwinds facing airlines, appetite for aviation debt is strong.



Airlines, lessors and banks all navigated through a transitory period following the financial crisis, which changed the landscape for aviation finance. Despite a tricky few years, banks and leasing companies became proficient at tapping into the new sources of liquidity that flooded into the sector seeking yield that was reduced or nonexistent in more traditional channels. That liquidity remains today as investors from private equity and insurance firms, fund managers and the capital markets, are attracted to the aviation sector by its fundamentally strong growth rate and long-term, real asset-based returns.

DVB's Vicente Alava-Pons opines that such interest is driven by the lack of growth or stagnation in other industries, pointing to shipping as one obvious example. "Some industries are not performing as expected so money is shifting away from other industries, such as shipping and real estate, which have probably peaked," he says. "But banks and investors are entering the aviation industry because assets have become more mainstream – recognized as steady, stable and liquid assets. They're probably the most movable assets you can imagine but the industry is also attractive having experienced the longest positive cycle."

Despite signs that the positive cycle has tipped into a downcycle – albeit more of a slow correction than a fall – Boeing anticipates that stable growth and broad, diversified funding will continue to support efficient aircraft financing in the next year.

"The aircraft financing market remains healthy, with adequate commercial liquidity, providing a wide range of efficient options available for our customers," said Tim Myers, president of Boeing Capital Corporation. "We expect another year of balanced funding for commercial airplane deliveries in 2019, mirroring the broader industry, primarily split between bank debt, capital markets and cash."

According to its annual Current Aircraft Finance Market Outlook (CAFMO) report, released in December 2018, Boeing forecasts continued strong demand for new commercial airplanes in 2019, resulting in about \$143 billion

in deliveries by major manufacturers, which has the potential to grow to more than \$180 billion by 2023. In addition to new aircraft delivery financing, Boeing estimates the secondary aircraft market will drive refinancing requirements in the range of \$43bn per year.

"In 2018, the market for used aircraft remained exceptionally resilient, with demand exceeding supply. The cargo market recovery has further stimulated the demand for freighter conversions, bolstering residual values. These factors should help support continued strength in the secondary financing market."

"Driven by a growing understanding of aviation's strong growth potential and the industry's attractive returns, we continue to see innovations and first-time entrants into the market, providing increased capacity for funding new deliveries as well as pre-delivery payments, mezzanine debt financing and the secondary aircraft market," Myers adds.

Boeing expects the funding mix for deliveries to be balanced between commercial bank debt and capital markets and cash. It adds that strong industry fundamentals are attracting more participants and investment in both new deliveries and the used aircraft market. Boeing predicts airlines and lessors to experience some of their lowest historical financing costs. The manufacturer also expects the capital markets to continue to grow, bolstered by unsecured borrowing.

#### **BANKS: LIQUIDITY AND COMPETITION**

Commercial bank funding for new aircraft deliveries reached \$50bn in 2018. According to Boeing, the slowing pace of regulatory changes, combined with attractive risk-adjusted returns, has encouraged banks to deploy capital into the aviation sector. Statistics from Boeing suggest that the aviation banking market continues to spread out beyond the traditional confines of North America and Europe, with Asian banks now accounting for a major source of liquidity. 'China and Japan accounts for more than 40 percent of all bank debt for new aircraft deliveries. This trend is expected to continue, with nearly 17,000 aircraft to be delivered into Asia over the next 20 years.'

**"Banks and investors are entering the aviation industry because assets have become more mainstream – recognised as steady, stable and liquid assets. They're probably the most movable assets you can imagine."**

*Vicente Alava-Pons, DVB Bank*



Japanese banks are very active in this sector, specifically utilizing efficient equity financing structures such as JOLs and JOLCOs. Korean investors are also becoming more involved in the sector, attracted by dollar assets and structured products.

The entrance of new money into the sector has been positive for airlines and leasing companies, as well as banks in the beginning of the post-crisis period. There are a few signs that some of this money is beginning to consider a move back to more traditional channels but there is little evidence of a wholesale exit from the market at this point in time. Investors and new banks are making returns, have invested over the long term and are happy to stay. Airlines and leasing companies continue to benefit from this interest in the sector but some banks are feeling the pressure from such sustained investment.

“We have worked with some insurance companies as lenders into commercial loans, and we have also structured secured private placements sold to institutional investors,” says one banker who asked not to be identified. “The main issue today is the over-liquidity in the bank markets that drives the spread downward below the minimum level required by the institutional investor.”

Alava-Pons agrees to an extent that competition is impacting yields but states that the growth rate of the industry is feeding interest. “The perceived impression is that the risk-adjusted returns are still attractive but there is the realisation for credit transactions that yields are being compressed,” he says. “We are in a situation where new players have entered the market, realised the situation and have taken up a small part of the pie or pieces of pie. Whenever I speak to my competitors, they will say that they are really struggling to get any deals. The pie overall is increasing but the amount of players that want to eat from the pie is increasing faster.”

**BASEL IV**

The impact of more restrictive capital requirements legislation on the aviation banking market has been debated in the industry for many years. The delay in the finalization and implementation of the Basel IV changes has allowed banks



**“We have worked with some insurance companies as lenders into commercial loans, and we have also structured secured private placements sold to institutional investors”**

*Anonymous European banker*

to continue lending without significant impediment to their business models. But that is still set to change.

Based on guidance issued late last year, secured aviation finance may be considered specialised finance. If this is the case, banks can continue to apply the Foundation and Advance Internal Ratings Based approach (A-IRB) for the calculation of credit risk for such loans, i.e. no change to the bank's capital requirement calculation. For unsecured loans, however, banks will be required to allocate more capital to the loans thereby driving up the cost of those loans. The implementation date is January 1, 2022.

Banks – specifically European banks that followed A-IRB for their capital requirements -- have been preparing for big changes to their business model. This may not be as severe, however, if indeed banks can continue to use A-IRB for secured aviation loans.

If banks have to move away from AMA and allocate more capital to their aviation loans, NordLB's Frank Wulf states the regulatory changes will make long-term lending "almost impossible", resulting in an emphasis for the bank to focus more on short-term financing solutions as well as taking more originating and structuring roles for bank financing deals and preferring agent, security trustee and service agent roles to generate fee income.

He says: "It is alarming that in a world where politicians are telling us that there is not enough lending, that they take initiatives which could almost make it impossible to at least do what is actually required for the industry. You can argue and say leasing companies trade more these days, so for them a six-year loan could work on a narrowbody aircraft, but there are still a number of airlines that like certainty and want 12-year or even longer financing, which could see such financing becoming increasingly difficult [if A-IRB cannot be applied]."

"Change is inevitable," says Dehouck. "You adapt to regulation. BNP Paribas is extremely well prepared in the sense that not only are we a big capital provider using our own balance sheet to the aviation sector for airlines as a resource, at the same time, we're a big capital provider in arranging and structuring and distributing capital

market products. We have one of the leading European US dollar distribution houses, which we believe is an advantage for us."

Dehouck says that there is still some debate within the bank on how Basel IV will affect its book. "I think those questions just define the fact that Basel IV is unclear and has not been repriced in the market at all, for the time being," he adds. "Furthermore, there is still enough liquidity, so it will be crazy to stop being active and/or to reprice at this juncture in this cycle. The worst scenario for the market, for our clients and for the manufacturers, would be that banks are forced to apply [Basel IV repricing] into a downturn market which would be disastrous. Unfortunately very negative unattended consequences are the by-products of regulation."

Natixis' Bedaine-Renault agrees that there will be some changes: "Natixis is preparing for the change. Speaking more broadly, it is expected that Basel III may materialise in an increase of margins in order to compensate for the additional capital," she says. "We don't see it yet, and maybe it's because it is considered as far away or maybe because some banks are not computing it today, but I think it's worth inquiring what the impact is going to be here."

DVB's Alava-Pons says that banks should be increasing pricing but the over-liquidity in the market is creating a difficult environment.

"We're trying to prepare for it and we should, by definition, increase pricing since we need to reserve more capital but it's completely overcompensated in a negative way by the liquidity in the market," he says. "We cannot overcompensate for the amount of excess liquidity in the market. It doesn't mean that we're not going to deal with it. Normally, every transaction DVB is subject to the same review, but then depending on how competitive priced it is, we may then take a smaller or a larger slice in the transaction."

DVB has an advantage in certain transactions due to its experience and reputation for managing older assets. However, Alava-Pons admits that other lenders have adopted this strategy in such a crowded market "There's only so much you can earn if the pricing is going

**"It is alarming that in a world where politicians are telling us that there is not enough lending, that they take initiatives which could almost make it impossible to at least do what is actually required for the industry."**

*Frank Wulf, NordLB*



down,” he explains. “It’s almost like a linear function – the lower the pricing goes, the more you have to distribute to the right parties. We take our banking relationships as seriously as our aviation relationships to make this work.”

He adds that the future of commercial banking could be certain companies becoming more like asset managers. That has been a trend in the recent past of course, when many bank owned aviation portfolios were effectively leasing companies that were subsequently spun off. Banks will undoubtedly need to readdress their long-term strategies for aviation investment.

“We are moving towards a strategy that is not just lending, but which provides more solutions to our clients, which is notably investment banking, but we are trying to work on more optimised solutions with our teams looking at the whole capital structure right up to the equity,” says Bedaine-Renault of Natixis. We are looking at the value-add, this is notably dictated by Basel III, but also by the fact that technology is changing our work environment. If you are not changing the way you approach business, then eventually, you may have some issues. Natixis’ latest Strategic Plan focuses on deepening client relationships, and also digitalizing its way of working in order to optimize not only the client experience but also the value-add that we are trying to build.”

NordLB’s Wulf points out that even without the full implementation of Basel IV, banks are struggling to be competitive in the long-term financing space. “In this current funding environment, banks are actually less competitive on long-term financing, so we’re trying to be more competitive also by using more innovative structures on the shorter end of the market, and that usually then channels again into portfolio transactions and into warehouses. We’re quite active on the PDP side and on some bridge facilities, which is where we will still be of value for our partners.”

The changing strategies being introduced gradually by advanced Basel banks are being viewed by other non-Basel banks as an opportunity to attract more business. Bank of China and Korean Development Bank, spoken



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*Bénédicte Bedaine-Renault, Natixis*



to for this report, both highlighted the availability of their balance sheets for short and long-term aviation finance.

“The first impact of Basel IV will presumably be a widening of pricing conditions for unsecured loans and secured loans in the event they were not exempted,” says Bank of China’s Fiscel. “Most banks would likely be required to set more equity aside when providing long-term financing, which would have a direct impact on debt margins. The most impacted banks would be those that have been using the advanced internal ratings-based methodology as opposed to banks that have been using the more conservative, standard methodology, who are expected to be less impacted. The question is when the advanced-methodology banks will begin pressing back and absorbing or passing on those extra costs resulting from the implementation in 2022 of the new regulation [if the loans are not exempted].”

Another prominent banker at a large European bank states confidently that long-term secured financing will be affected following the implementation of Basel IV where more capital is required against those loans. “The banks will need to distribute more widely their loans to new channels, such as insurance companies, asset managers and pension funds, and some new structures will be developed such as the structured/secured private placements,” they say. “ECA and US Ex-Im Bank may come back sooner rather than later if commercial bank financing becomes much more expensive and if the export credit agencies re-open their business. The new structures, such as AFIC, Balthazar and CRI will supplement commercial loans and the capital markets will continue to grow.”

### THE FUNDING MIX

For now, the bank market remains fully open for airlines and leasing companies, with tough competition keeping margins compressed. Airlines specifically are capitalising on the liquid market to finance their deliveries but also to rationalise their funding mix. One airline executive reports that the company is taking bank debt while it can get it, since the offers are flooding in – more so since they have posted solid

profits over three years: “When you hit a speed bump, all the offers can suddenly disappear, so you have to take bank financing when it is offered because the leasing companies will always be there,” he says.

Leasing companies are being used for financing more than ever before. DVB’s Alava-Pons observes that airlines have so much choice that they are making serious demands, specifically in sale-leaseback transactions: “Airlines can now actually say that they are only going to award a mandate if we take a minimum of five aircraft and provide PDP,” he says. “We want to provide PDP financing but it’s almost a must to win certain business. Leasing companies can only provide PDP if they have a strong parent or if they have strong banking relationships. And lessors can only offer five to six aircraft in one go if you have the capital muscle to do so. An airline will only look at you seriously if you can offer scale but also competitively price the lease. Capital/equity, banking relationships and access to funding (e.g. capital markets) is absolutely key.”

### Pre-delivery payment financing

The competitive nature of the sale-leaseback market driving ultra-low lease rate factors has grown so fierce that pricing is only one of the many sets of demands from airlines pressing their advantage in the current environment. PDP funding is attractive since purchase agreements are so expensive – 30% of the final purchase price of an aircraft – and financing can cover all of that cost, freeing equity and lowering weighted average cost of capital. However, PDP financing can be difficult to attain, even under normal market conditions. While most airlines use cash to secure their delivery slots, some airlines seem to be pushing from a position of strength to secure PDP financing.

AerCap’s Kelly warns that rising interest rates may result in less liquidity for certain airlines, particularly those with PDPs. “PDPs are a huge bill,” he says. “Airlines have been complacent about PDPs. When the market turns, PDP funding is the hardest thing to secure. If things keep going the way they are, some airlines will struggle a bit with PDPs.”

**“The first impact of Basel IV will presumably be a widening of pricing conditions for unsecured loans and secured loans in the event they were not exempted,” says Bank of China’s Fiscel. “Most banks would likely be required to set more equity aside when providing long-term financing, which would have a direct impact on debt margins.”**

*Arnaud Fiscel, Bank of China (UK)*



Bank of China's Fiscel sees PDP funding as largely now being addressed by the leasing companies. GECAS has been a regular provider of PDP financing for its clients. In January 2018, GECAS arranged a sale-leaseback along with PDP financing for Viva Air in a transaction for ten A320ceo aircraft. CALC too has provided PDP financing for Viva Air in January in another purchase and leaseback agreement for five Airbus A320-200ceo series aircraft. And in July, GECAS signed another contract with Okay Airways for the purchase-and-leaseback with PDP financing of two 737 MAX 8s. These are only examples of public deals; the true level of lessor support is much higher.

PDP financing is a simple concept but a relatively complex instrument, according to Fiscel. "It's a fairly simple short-term financing tool. From a security standpoint, however, this complex instrument demands a careful analysis; the lending to an airline willing to secure a delivery slot significantly differs from a more traditional aircraft financing solution with an asset security. Although usually full recourse to the obligor, a PDP facility is only secured by a partial assignment of the Purchase Agreement, entitling creditors to take delivery of the aircraft should the airline default. The structure therefore calls for caution: banks – which are not as equipped as operating lessors with dedicated technical and marketing teams – will wish to avoid having to take delivery of an aircraft. As consequence, lenders will focus on the transferability of the purchase contract to another operator, hence careful assessing the value of the assignable price at which they may be able to step in."

Fiscel further explains that the purchase price of an aircraft with similar specifications can vary widely between airlines depending on the order size or indeed the relationship between the airline and the manufacturer.

"For a financier, it is often difficult to get clarity on the net purchase price which was agreed to be paid by the airline. An airline may manage to negotiate more competitive terms and contractually agree to pay less than other operators for an aircraft with similar specifications. However,



**“Airlines have been complacent about PDPs. When the market turns, PDP funding is the hardest thing to secure. If things keep going the way they are, some airlines will struggle a bit with PDPs.”**

*Aengus Kelly, AerCap*



the manufacturer will be reluctant to assign to lenders the full benefit of the purchase agreement, setting the price – at which the lender may be able to step in post airline default – at a value significantly greater than the actual net price negotiated by the airline.”

He adds: “The concept of a different step-in price somewhat limits the ability of banks to quickly remarket the aircraft position, and may reduce the incentive for the manufacturer to exercise the call option that is often requested. This does make PDP funding challenging as lenders have to be comfortable with both the step-in price agreed with manufacturer and the level of equity paid by the airline which is essentially the bank’s protection in a default situation, while assessing the value of that particular delivery slot a number of years out.”

PDP financing is therefore rather unappealing for banks and is usually reserved for strong banking relationships or those with balance sheets and the ability to attract new clients. “From that perspective, it may be simpler to fulfil PDP with unsecured financing, albeit at higher margins,” says Fiscel. “Interestingly, we have recently seen many operators fulfilling their PDP needs through revolving credit facilities secured by unencumbered aircraft or engines.”

Lessors, however, are equipped both to take delivery of aircraft and to assess the value of a slot and the manufacturer views the lessor as a client so the lessor would be able to secure a lower sellable price akin to an airline. Equally, for lessors seeking to build market share and which have not placed direct aircraft orders, PDP financings are a way to build a relationship with an airline, attract business away from a competitor and a way to secure earlier delivery slots.

“Up to mid- 2000s, with major manufacturers’ support, the banking market was very supportive of the PDP financing; the interest has slightly faded away since, as a result of the conditions imposed by manufacturers and several years of airlines’ record profits,” says Fiscel. “Most airlines still use cash for their PDP obligations but as cash reserves will most likely shrink, I foresee an increased need for PDP financing support.”

Some banks are trying to become more innovative when it comes to PDP financing. As mentioned above, NordLB has been quite active in PDP finance. In May 2018, the bank’s Singapore branch acted as mandated lead arranger (MLA), lender, security trustee and facility agent for a working capital loan of approximately £300 million to PAAL Cetus Company – a subsidiary of Ping An – to finance PDP payments for nine aircraft on lease to Aeromexico. Industrial and Commercial Bank of China acted as the initial lender and MLA. This deal adopted a specific structure that balances between a conventional PDP finance and a working capital loan, which sits on top of a lessor PDP financing to the lessee. Such alternative structures – including options to transfer to special purpose vehicles or the lender can make PDP financing attractive and reduce risk for lenders.

#### EXPORT CREDIT AND SUPPORTED FINANCE

Export credit agency (ECA)-supported transactions continue to be well below historical levels. At first sight, this is not that unusual since the industry is awash with liquidity and airlines are accessing cheap financing elsewhere. However, the levels are much lower than in previous upcycles since both major aircraft manufacturers still do not have full access to their domestic ECAs.

The European ECAs, although open for business, are curtailed in supporting large ticket Airbus assets unless they can be absolutely sure and provide evidence that the sale contract was in no way connected to the ongoing fraud investigation by the UK Serious Fraud Office (SFO). UK Export Finance (UKEF), however, has been actively supporting Rolls-Royce engines fitted onto Boeing aircraft. In October, 2017, Norwegian Air Shuttle (NAS) closed a Japanese Operation Lease with Call Option (JOLCO) financing of one new 787-9, powered by Rolls-Royce Trent engines. Due to the Rolls-Royce engine component, UKEF guaranteed the debt portion of the deal. More recently, in September 2018, EL AL Israel Airlines funded one Rolls-Royce-powered 787 with a \$125 million loan from Citibank

**“Most airlines still use cash for their PDP obligations but as cash reserves will most likely shrink, I foresee an increased need for PDP financing support.”**

*Arnaud Fiscel, Bank of China (UK)*

with support from UK Export Finance (UKEF). UKEF fully intends to continue with an extension of such support for Rolls-Royce-powered Boeing aircraft.

SACE, the Italian export credit agency, has also begun to support some aviation assets, guaranteeing financing for one Boeing aircraft delivered to SunExpress in late 2017.

The US has been without a fully functioning ECA for nearly four years, which is as long as the US Export-Import (Ex-Im) Bank has lacked a quorum for its Board of Directors. Although the US President's four nominees for the Board have been awaiting Senate confirmation since 2017, no action has been taken, despite strong bipartisan support. The US Government shutdown over the holiday period makes it unlikely that this issue will be resolved until further into 2019.

In 2014, Ex-Im Bank support for Boeing accounted for 40% of all of its transactions. Today that figure is below 1%. Aircraft Finance Insurance Consortium (AFIC)-backed sources of finance have emerged during that time to fill this vacuum. AFIC, which is a syndicate of insurance companies, has financed more than 30 aircraft in 2018, twice the volume of its initial year of operations.

In 2018, AFIC closed its largest portfolio financing to date for Ethiopian Airlines, which comprised eight aircraft – five Boeing 737MAX-8s and three Boeing 777F cargo aircraft. The deal also represented AFIC's largest amount of financing for an airline in 2018, utilizing over \$600 million of AFIC supported senior debt financing. The transaction was funded by Societe Generale, ING and SMBC. The AFIC supported financing of the five 737MAX aircraft was combined with a junior loan financing furnished by Investec to provide Ethiopian Airlines with 95% financing for the aircraft at an attractive all-in cost. The first aircraft was delivered on June 30, 2018 and the last aircraft was delivered on December 29, 2018.

No doubt buoyed by the success of the AFIC product, Marsh S.A.S – a different team from Marsh LLC which is the broker for all AFIC deals, which has separate reporting lines and appropriate Chinese walls in place -- is working with



**“Boeing states that the new supported sources of finance are “not a satisfactory replacement for the US Export-Import Bank, which remains a critical tool, particularly in the event that commercial financing conditions decline.”**

Airbus and another insurance syndicate, dubbed Project Balthazar, which will assist some airlines with backing for Airbus assets. The first deal is reported to be close to finalization.

Despite the success and the volume the insurance-backed sources are providing to the market, Boeing states that the new supported sources of finance are “not a satisfactory replacement for the U.S. Export-Import Bank, which remains a critical tool, particularly in the event that commercial financing conditions decline”.

Boeing suggests that export credit agency funding will continue to account for a “small share” of aircraft financing in 2019 because “markets are anticipated to remain healthy and resilient”. However, should the market take a deeper downturn, however, as some industry players predict that the ECAs will once again become more in demand. This is, of course, their *raison d'être*: namely, to be a counter-cyclical source of finance.

### FRENCH AND JAPANESE EQUITY

Since only very few rated airlines are able to access the public bond markets, most aircraft will be financed with secured loans, AFIC supported debt or other efficient equity products. The most popular and available low-cost equity structures in the aviation market today are JOLs and French Tax Leases. The latter are only available for the very few airlines that capitalise on the Sino-French double tax treaty. A stand-out deal from 2018 that incorporated the French lease for two 777 Freighter aircraft on lease to Turkish Airlines, with debt that was supported by AFIC.

By contrast, the JOL and JOLCO products, have been used effectively by many airlines for many years. The past year has seen a significant uptick in transactions as the Japanese equity market ramps up its investment into aviation assets.

One of the most impressive deals in 2018 was a repeat deal from British Airways (BA), which was the \$608 million debt financing of 11 new aircraft – two 787-8s, two 787-9s and seven A320neos – using an enhanced equipment trust certificate (EETC) structure that incorporated Japanese

equity in a dual JOLCO structure.

The ramp-up in liquidity from Japanese investors through newly active Japanese banks has caused changes in the market relative to how it was viewed twenty years ago during its last boom time.

“In the late 1990s and 2000s, Japanese equity investors would target the very best credits, focusing on new equipment and the most liquid aircraft, usually narrowbodies” says Fiscel. “Working alongside Japanese equity would ensure a stringent pre-screening process by the Japanese arrangers and investors. Adding to good quality credits and assets, a healthy equity buffer usually set around 25-30% would ensure risk-remote debt opportunity. Today, with increased investors’ appetite, the Japanese market remains a very active resource; Japanese structures have become more widely available, including for second-tier credits and/or on less liquid second-hand widebody aircraft. Interestingly, we note that JOL-based offers increasing compete against more traditional leasing solutions in sale and lease back transactions.”

FPG Amentum and ORIX Aviation have already stated that they are heavy JOLCO users, and many more leasing companies that have the relationships with Japanese banks – ACG for example – also are taking advantage of the renewed equity interest from Japan. As a result, this product will remain popular even though it is limited to Japanese banks and certain jurisdictions. ABL Aviation has recently partnered with SBI Group – one of the largest financial companies in Japan – to focus on opportunities in this space. According to Ali Ben Lmadani, chief executive officer of ABL Aviation: “Recent large JOLCO transactions with high-quality airlines like Vietjet, Ethiopian, Emirates and SAS demonstrate the insatiable equity appetite in the Japanese tax lease market. The JOL market, too, remains robust and more and more players are entering this market. We look forward to expand our JOL and JOLCOs investments with the help of the SBI network of banks.”

### LOANS AND REVOLVERS

Bank loans remain prevalent for airlines and lessors, with pricing remaining at

**“In the late 1990s and 2000s, Japanese equity investors would target the very best credits, focusing on new equipment and the most liquid aircraft, usually narrowbodies... Today, Japanese structures have become more widely available, including for second-tier credits and/or on less liquid second-hand widebody aircraft.”**

*Arnaud Fiscel, Bank of China (UK)*

historically low levels and covenants being loosened in response to market demands and competition.

Leasing companies are becoming attuned to securing debt at very low levels in revolving credit facilities and in more conventional but large scale financing. On the secured debt side in 2018, some of the stand out deals came from leasing companies in Asia. Vermillion, the aircraft leasing joint venture between CK Asset Holdings and MC Aviation Partners, refinanced a \$950 million secured loan facility. CDB Aviation also successfully closed a \$700 million seven-year secured financing facility that covered a fleet of 19 Airbus and Boeing aircraft. In June, BBAM closed a \$1.3bn non-recourse aircraft secured financing to support its acquisition of a pool of 65 aircraft from AirAsia. This deal – split into two facilities: a two tranche \$574.5million facility taken by Fly and a two-tranche \$695.7 million facility for BBAM subsidiary, Incline – was the largest secured aircraft term loan in Asia, which was syndicated to 19 banks. In the US, Wings Capital closed a \$500 million secured loan facility that has the option of being upsized to \$750 million with a syndicate of six banks.

In one of the largest deals of the year, in May 2018, Macquarie AirFinance closed a \$3 billion non-recourse aircraft secured term loan facility, using a pool of 133 aircraft and two engines as collateral, coupled with a \$1 billion unsecured revolver in a wide-ranging restructuring of its entire financing arrangements that succeeded in diversifying its funding sources and optimizing its unencumbered and encumbered asset pool. The deal refinanced and upsized a previous \$1.8bn Spitfire term loan used to acquire a portfolio of aircraft from AWAS in 2016.

There is an observed trend for warehouse facilities as new lessors and investors build up aircraft portfolios to refinance into the very popular aviation asset backed securitisation (ABS) market.

Most of the large leasing companies capitalised on the buoyant financing markets in 2018 to expand or upside existing or indeed sign new revolving credit facilities, many of which were unsecured.



**“At our current scale and the scale at which we want to be, we need the access of investment grade rated pools of capital,” says Tarapore. “Our metrics are already very strong on just about every dimension with one exception – the percentage of unsecured funding”**

*Firoz Tarapore,  
Dubai Aerospace Enterprise*



BOC Aviation upsized an oversubscribed unsecured syndicated loan from a launch amount of \$500 million to \$750 million, with a syndicate of 19 banks.

In March 2018, AerCap increased its \$600 million unsecured revolver to \$950 million and extended it for four years. In May, ALC extended its unsecured revolver to 2022 and amended the total revolving commitments to \$4.5 billion from \$3.9 billion, priced at LIBOR plus 105 basis points with a 20 basis point facility fee. Later in the year, DAE signed a new unsecured \$750 million five-year revolver with a group of nine international banks, while Airastle upsized its revolver to \$800 million from \$675 million and extended its tenor by two years.

The move to unsecured financing is very attractive for leasing companies in particular since having unencumbered assets is viewed favourably by the rating agencies when considering enhancements to ratings, especially to investment grade, as it allows them to access much more favourable pricing in the capital markets.

### CAPITAL MARKETS

The capital markets financed almost 28% of new aircraft deliveries in 2018, with most of that financing accessed by lessors. Since there are only very few airlines that are rated today, it is only a very few that regularly enter the capital markets. The US carriers are however prolific issuers, specifically to tap the EETC market, while other European carriers and some Chinese airlines have issued senior bonds for working capital and to finance their aircraft deliveries. Access to the capital markets for leasing companies, however, has also exploded in recent years as lessors have found more ways to raise money in this capital intensive business.

Many lessors issue senior secured, and increasingly, unsecured bonds, with most of the largest lessors tapping the markets in 2018 in large amounts. AerCap and ALC regularly tap the senior unsecured bond market with issuances of over \$1bn. ALC has also initiated a \$15bn medium term note (MTN) programme to issue unsecured, fixed and floating rate notes more efficiently.

Airastle, SMBC Aviation Capital, ACG and DAE have all issued unsecured notes in 2018.

An advantage these particular leasing companies have when they are raising debt is that they are rated as investment grade by the corporate rating agencies (DAE is not yet rated investment grade by all agencies but it is a stated goal). This is a major achievement for a leasing company and gives them access to much cheaper funding.

NordLB's Wulf observes that it is "absolutely right" that there has been a lot of unsecured capital markets action because "it's easier and simpler, structures have been well-developed, documentation has been well-established, so it's an easy process," he says. "Lessors are also seeking to have 50% to 70% of their capital requirements in the unsecured space."

DAE is on the path to becoming investment grade rated by all the credit rating agencies. DAE has set as a goal becoming investment grade rated by all the credit rating agencies. "At our current scale and the scale at which we want to be, we need the access of investment grade rated pools of capital," says Tarapore. "Our metrics are already very strong on just about every dimension with one exception – the percentage of unsecured funding. In 2018, we dramatically increased our unsecured funding percentage and in 2019 we are scheduled to increase it further."

The conventional wisdom is that rating agencies, among other requirements, like to see lessors ensure no more than 30% of their assets are encumbered to be considered for an investment grade rating. The reality, however, is more nuanced.

"We look at each case individually – many larger lessors are way more than that," says S&P's Snyder. "Obviously we do like to see a lot of unencumbered assets because historically what happened with ILFC during the financial crisis, when they had a substantial amount of short-term debt maturities, but they had a lot of unencumbered aircraft, they were able to refinance those assets using them as collateral."

Kroll Bond Rating Agency also has no hard and fast rules for awarding investment grade ratings when

**"Lessors are also seeking to have 50% to 70% of their capital requirements in the unsecured space."**

*Frank Wulf, NordLB*



### Dollar dominance

Bankers are reporting that more airlines are requesting more non-dollar transactions, although lessors remain reluctant to offer non-US dollar leases. Notwithstanding this, airlines in China are reported to be pushing for leases in renminbi.

DVB's Alava-Pons observes that Euro transactions are increasing, but not significantly. "There should be more, especially now in this environment where the euro is weakening against the dollar. Banks still prefer risk-matched funding. From a funding perspective, the delta between dollar funding and euro funding is increasing, which means it will be much more competitive to fund in euros than in dollars, but purely from the risk perspective, actually you don't want to do so."

KDB's Yin says that airlines will continue to consider and request funding in currencies other than US dollar adding that for example KDB will always consider Korean won-dominated financing, although this is really only attractive for Korean carriers with a high level of won revenue. Transactions also continue in other currencies, notably in euro in Europe, pounds for UK carriers as well as Japanese Yen. This is expected to continue and possibly increase but not in great numbers for the reasons Alava-Pons sets out.

observing secured versus unsecured debt. “Such ratios don’t apply to all leasing companies because it is very much dependent on the structure of their leases,” says Marjan Riggi. “We take the view that if a lessor is an orderbook player that they should have almost all of their assets unencumbered because they need money to finance PDPs and they need much more flexibility around the aircraft because delivery dates may vary from plan. But if a leasing company was more sale-leaseback focused, it is healthier to have a higher level of secured aircraft financing because those deals are amortising and match-funded.”

Riggi adds that raising debt in the unsecured bond markets with three, five or seven-year money, is typically not going to match the lessor’s debt liabilities. “For orderbook lessors, one of the major ratios we assess is their average remaining lease term and debt maturity buckets,” she adds, “because the longer they both are, the closer they are to match funding.”

Rating agencies also ensure that they examine lessors debt maturities versus their financing needs to ensure they are spread out and are manageable, even during periods of stress.

“Lessors who tend to access the unsecured capital markets do spread out their maturities between shorter and longer-term debt,” adds Snyder. “They are very conscious of how to spread out three, five, seven and even 10-year notes when they access the capital markets.”

AerCap’s Kelly says that whether the split between encumbered and unencumbered assets makes sense is irrelevant. For him what is important is having the ability to tap into the biggest market in the world – the US unsecured bond market. “You should naturally have a bigger proportion of your debt in that market than other markets,” he says, stressing however the vital importance of maintaining relationships with other lenders and playing in more markets. “It’s crucial to have diversified funding sources but you can only have alternative sources if you’re active in other markets,” Kelly adds. “You can’t just show up in Tokyo or Taipei for the first time in several years, never having done a deal and ask for money. That discussion is only going to go one way.



**“Obviously we do like to see a lot of unencumbered assets because historically what happened to ILFC during the financial crisis, when they had a substantial amount of short-term debt maturities, but they had a lot of unencumbered aircraft, they were able to use refinance those assets using them as collateral.”**

*Betsy Snyder, S&P*



I believe that there's a real benefit to having a significant amount of secured debt. I also believe that you have to have those relationships and they have to be active. But for a balance sheet of our size where we're spending \$6 billion a year on capex, and \$3 to \$4 billion a year of refinancing, it's not feasible to have the majority of the funding coming from \$100, \$200, \$300 million dollar deals. You have to be able to hit the market where you can do a billion in an afternoon."

ORIX Aviation's James Meyler agrees that the split ratio is largely irrelevant and the focus should be more on the tenor. "The term of the debt available is more important than just the percentage because that clearly is going to give the ability to withstand a prolonged period of correction," he says. "Having multiple capital sources with good tenor, which is well-staggered, I believe is more important than a hard 70/30 split on unsecured/secured."

Meyler believes that lessors should issue debt closer to five years to be able to withstand a potential cycle downturn. "For a three-year issuance, by the time you've absorbed your costs on issuing those bonds and the various structuring/investment banking and legal fees, the amortisation of those costs over the short period of three years doesn't make it particularly attractive. Having said that, as part of a programme where you have varying maturities, you cannot have them all five years. If you're issuing every six months, you probably want some variances in that."

Matched funding is deemed to be preferable to ensure a steady return on long-dated assets. However, industry sources state that some players – mostly new entrants – are not learning from past mistakes made by the great Guinness Peat Aviation (GPA) and later ILFC, and have succeeded in raising very low priced debt over short three, or five years to finance 12-year leases. "When those loans need to be rolled over, interest rates have gone up and the lease margin has been squeezed," says Robert Martin, CEO of BOC Aviation. "Only now are some lessors realising that they're either loss making or very marginal in profit making. This is the same mistake that was made in 2008 by

ILFC and CIT, and before them by GPA in 1990, when they had relied on either short-term commercial paper or had big debt balloons mature at once. The risk depends on what mix of tenors people are using to issue in debt securities, so we're very careful. We've bonds spread across the whole curve up to 10 years. Some of our competitors are just doing three-year deals, and even with call options at year one."

Generally though, banks and rating agencies seem confident with the ability of leasing companies to get their funding mix right.

When asked about a potential risk related to aircraft leasing companies that fund themselves with debt maturing significantly earlier than the useful life of their financed assets, BNP Paribas's Dehouck says: "Overall, we're not worried. "When we look at how the lessors are matching their financing with their liabilities, there are certainties, which attach to their aircraft. So, we are not looking at the fact that aircraft have 25 years of useful life. We're looking at cashflows that are committed and those tend to be five, six, seven years in that range. It seems to us to be fair and relevant for the lessors to fund themselves on those type of maturities. [With] a mix of three, of five, of seven and 10 years, the average funding maturities gets to where the lease maturities are."

### EETCS

Enhanced Equipment Trust Certificates (EETC) remain a popular way to finance large new aircraft portfolios but in 2018, only four noteworthy deals came to market (totalling \$1.8bn – less than half the 2017 issuance) – United Airlines in January, American Airlines and Spirit Airlines both offered privately-placed EETCs in 2018, as well as BA in March in the first non-US EETC deal brought to market in some time.

The trend for EETC transactions to be issued with a AA senior tranche continued in 2018, achieving superior pricing on the notes as well as satisfying investor demand for more secure paper. Airlines are tapping into the private placed market more so than in other years in an attempt to diversify their investor base and capture demand for

**“For orderbook lessors, one of the major ratios we assess is their average remaining lease term and debt maturity buckets because the longer they both are, the closer they are to match funding.”**

*Marjan Riggi, Kroll Bond Rating Agency*



paper secured on vintage aircraft – as in the case of American Airlines, but also to capture demand for less senior paper as in the case of Spirit Airlines who added two C tranches of notes to two older EETC transactions. The American and Sprit transactions were both reported as oversubscribed and achieving a very satisfactory blended yield.

**ABS**

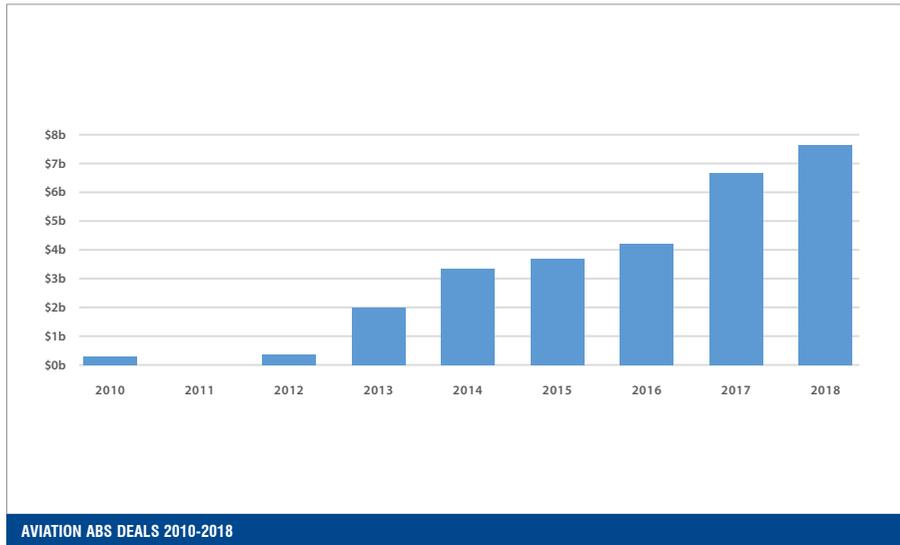
Leasing companies have become more and more attuned to the use of the ABS product. Issuance has blossomed since the markets restarted around 2014. In 2018, 14 separate deals totalling \$7.583bn in volume were closed successfully. This can be compared to 12 deals totalling \$6.602bn in 2017, seven deals totalling \$4.151bn in 2016, five deals worth \$3.659bn in 2015 and six deals, totalling \$3.362bn, in 2014.

“Over the last couple of years, there’s been much more investment into the aircraft ABS space,” says Anthony Nocera, senior managing director of ABS commercial, Kroll Bond Rating Agency. “Part of this is because investors are looking for yield relative to the rating, the single-A and triple-B rating. Aircraft ABS is a very unique asset class – it incorporates complicated assets overlaid with a somewhat complicated structure – which takes a lot of diligence and education to become comfortable with this type of risk.”

At present, those investors that have examined it and invested already consider it to be a very attractive product to buy into, especially on the A-notes, which have an excellent performance history over many years. “It certainly seems a reasonable alternative to what else is available and whatever else is going to be available,” says Meyler, adding that if the pricing structure does change in a rising interest rate environment, those same investors will need to decide “whether or not they want to get paid more for that risk”.

ABS paper – particularly the A notes – are pricing much more tightly at approximately one percent over US treasuries, which gives rise to the question as to whether investors are being adequately rewarded for a relatively illiquid investment.

For Dehouck, the pricing is a result



AVIATION ABS DEALS 2010-2018

Source: Finsight

**“Over the last couple of years, there’s been much more investment into the aircraft ABS space...Aircraft ABS is a very unique asset class, which takes a lot of diligence and education to become comfortable with this type of risk.”**

*Anthony Nocera,  
Kroll Bond Rating Agency*



of the current market dynamics and the search for alternative investments. “The reality is, if interest rates do increase, ABS pricing should increase. At some point, bond investors will see other alternative classes of assets that might be better priced or priced at the same level but with better risk adjustments. But as of October 2018, we didn’t see any pullback.”

ABS structures are also being utilised for aero engines as well as aircraft. In 2018, Willis Lease Finance closed West IV, its fifth ABS transaction. “WEST IV was very heavily oversubscribed,” says Dan Coulcher, SVP and chief commercial officer for EMEA at Willis Lease Finance. “We expect ABS structures to be a financing option for Willis for many years to come. The fact that we’ve managed to do five in what is considered quite a niche industry shows that the market has good appetite for it and we believe the residuals of engines are stronger than aircraft; they just require a lot more management. That will continue. The low interest rate environment has driven a lot of funding into aviation assets for people searching for yield. If interest rates went up enough, maybe that means savers will start pulling out, but we haven’t seen that.”

The vast majority of those interviewed for this report believe that the aviation ABS market will remain active into 2019 despite rising interest rates and increased volatility that may impact pricing. As a proportion of the whole, approximately \$200bn ABS market, aviation notes comprises a very small fraction of that with only \$7.6bn issued in 2018, which was a record year. “This is a drop in the ocean,” says Mizhuo’s Srinivasan, “there is a lot of room to grow.”

Robert Korn, CEO of Carlyle Aviation Partners, which has issued many ABS deals over the past few years, sees that interest rates are rising and impacting prices of each tranche of debt but states confidently that “there is no lack of investor interest or capital”.

The aviation ABS product has evolved over the past year to introduce tradable equity or E note sales – initiated by the GECAS STARR and ALC Thunderbolt II deals, followed by

Castlelake’s two CLAS transactions and BBAM’s inaugural Horizon ABS deal. The idea is to create more liquidity in E notes and the secondary paper but this development is at the very beginning of its evolution, and more tradable deals are required before a substantial market can be created.

“We are just at the tip of the iceberg here,” adds Srinivasan. “There have only been three deals on the tradable equity side, with maybe 20 investors on each equity deal. As that market grows and some of the efforts by lessors to become more transparent are proven, people will understand more of what goes into the model, what are we looking for in terms of IRR, and they will be able to effectively opine on lease rate renewals. They will be able to haircut sale prices. They’re going in with their eyes wide open. They will understand the potential downside and the potential upside. Investors are beginning to appreciate the fact that this is a longer term investment and the fact that it’s tradable means they can get out of it if they want to, which wasn’t possible in the past with traditional E note sales to single investors because they had to either find a single buyer of the e note or sell the planes.”

John Plueger, CEO of ALC, is confident that having a tradable equity product will attract more investors to the aviation ABS market. “Although it is easier to get debt investors than equity investors, it is clear to me that this is an untapped source of capital. The best way to attract investors to any market is to show more liquidity, a larger marketplace, a tradeable instrument that they can get in and get out of. I think we’ve created that with Thunderbolt II. We’re very bullish on this product and we held a special investor day session where we talked about the importance of transparency. That session was very well-attended, with a high degree of interest. We think we’ve unlocked and opened the door here. And I do believe we’ll continue to see a good, robust ABS market community next year.”

Not everyone is convinced that the tradable E-note market is feasible as a working market. “It is possible to trade E notes technically, but it is really illiquid and these notes barely trade. Some dealers send runs but they tend to

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*John Plueger, Air Lease Corporation*



be axes rather than real markets,” says Bedaine-Renault from Natixis.

The key to the success of this secondary market is transparency. This is a significant debate in the industry due to the obscurity of certain details in aircraft transactions. These range from aircraft purchase prices for new aircraft deliveries for PDP finance right down to the secondary purchase prices for aircraft in secured vehicles such as ABS structures. Although there is general agreement that there is a lack of transparency on aircraft values that are subject to actual trades, there is also a general acceptance that this will not be made public soon. That could be starting to change in the ABS market at least. In the Thunderbolt I transaction, which closed in 2017, ALC added a revolutionary earn-out structure, where equity partners buy-in at a certain level where they would expect to generate a return of the FlightAscend forward curve of both lease rates and sales values. This means that if ALC outperformed these market lease rates and better-than-market sales prices, the investors and ALC would share in the upside. The bondholders in TBOLT I also had a similar benefit since at the point of most risk in any ABS transaction – when leases expire – the servicer, ALC, was incentivised to perform well. This structure relies on ALC disclosing the lease and/or sale price to its investors. Thunderbolt II built on this structure to enhance transparency further for equity investors as well.

The aviation industry has traditionally shrouded its deals in secrecy; airlines and operators rarely if ever publicise the purchase price of their aircraft, whether from manufacturers nor in the secondary market, or disclose the pricing of their financing agreements or lease rates. For ALC, the only piece of information they agreed to be kept secret is the individual lease rate with an individual airline, which is a private contract. The Thunderbolt II deal team designed a financial model that discloses information, including lease expiration dates, maintenance cashflows, top-up liabilities at lease expiry, and even lease rates on a pooled basis. Moreover, the model tells the investor exactly how much equity sits

behind the bonds as well as exactly how much the servicer makes and how much the equity holders make for their different roles in this structure. This information allows investors to sensitise the model to assess any scenarios that they want to run to track predicted performance.

MUFG’s Olivier Trauchessec sees the e note market as very promising. “I like the structure but overall I like the broader theme, which is to try to be more transparent. That’s what investors are looking for; they want to be able to trade in and out of securities if and when they need to, but they need transparency on future performance to be able to do so. The more trading there is, the more investors you’ll see.”

Despite the shallow, fledgling market, some trading is picking up.

“We are seeing an increase in activity in the sale of E notes,” says Standard Chartered’s Corr. “Historically, it has not been a very deep market, but it is deepening with innovations such as distributed equity structures. That will continue particularly as new investors come into the sector – there is certainly renewed interest from Asia for this paper.”

Chinese lessor, CALC, launched its own debut ABS vehicle in January 2018, which was also China’s first ABS denominated and settled in foreign currency, and listed on the Shanghai Stock Exchange.

“CALC was able to bring in a lot of new ABS buyers,” says CEO Mike Poon. “Although the interest rates have risen, the ABS product in the aviation market is still very attractive, especially for this long term pension money extension. Compared to other alternative investments, compared to other products in terms of the security and cash flow certainty, the aviation ABS aircraft product is still the most reliable and robust income stream they’re looking for. So, I’m still very optimistic for more ABS players in this market. Of course, the pricing may be slightly different year by year, but the ABS buyers find this product really attractive compared to alternatives.”

For GECAS’ Declan Kelly, although he expects interest rates to have an impact on ABS pricing in future deals,

**“I like the structure but overall I like the broader theme, which is to try to be more transparent. That’s what investors are looking for; they want to be able to trade in and out of securities if and when they need to, but they need transparency on future performance to be able to do so. The more trading there is, the more investors you’ll see.”**

*Olivier Trauchessec, MUFG*



for him the greater concern at the moment is the quality of the asset pool in some ABS transactions. “The growth of the ABS market has been phenomenal,” he says. “But interest rates are going to have a major impact on it. There is still a large investment pool coming in but on the flip side, can people find the right aircraft? I’m more worried about the quality of the assets being put into them. A slight premium is being paid to source assets to go into those products, which is what you need to be careful of.”

There is general agreement in the marketplace that the popularity of the ABS market and the ways in which the assets in the portfolios are appraised are driving up valuations of aircraft. “Finance drives asset values in any asset class,” says Wings Capital’s Hannahs, “If finance is easy and liquidity is broad, people find it easier to pay more.”

### SIDECARS

Leasing companies have been capitalising on the wall of liquidity to expand beyond their balance sheets and set up new joint venture companies, or sidecars, with new partners to invest and finance aviation assets. Notable deals this year include CALC’s China Aircraft Global (CAG), a \$1.25bn CALC-sponsored sidecar formed with four institutional co-investors, which plans to invest over six years in a portfolio of new commercial aircraft on lease to global airlines. Poon described CAG as the “perfect structure for a lessor to maximise its capital efficiency” whilst retaining client relationships and securing management fees.

In 2018, Avolon set up a new joint venture agreement with Cinda Financial Leasing called Jade Aviation, which acquired seven aircraft from Avolon for \$337 million. Avolon retained 20% equity in Jade Aviation and has committed \$17.2 million in equity to help grow the portfolio. Standard Chartered set up SDH Wings International in 2017, which Kieran Corr says has been very successful to date: “This is an exciting development because it allowed new capital to come into the sector and partner with people with proven leasing capabilities – it’s almost a transfer of industry know-how. It’s a way for new entrants to learn about

the leasing sector and develop their own infrastructure in time.”

SMBC Aviation Capital’s Peter Barrett is more stoic: “They’re a good thing if they work,” he says. “There have been many over the years and some frankly haven’t played out well at all. You need to have an aligned interest between the leasing company and the investor. If you have a leasing company who wants to do XYZ and an investor that wants to achieve ABC, keeping those two interests together for a long period of time doesn’t happen that often. Sometimes it does but it often tends to diverge. It depends on the individual circumstances.”

There is also the risk of conflicting interests with sidecars since leasing companies will manage products it owns on its own balance sheet and assets it manages for its shareholders. The challenge for the manager is to define the split between the allocations of assets to the company portfolio and the managed sidecar. “You need to avoid adverse selection,” says Hannahs, who has managed several sidecars during his career. “Wings managed portfolios were created to allow us to expand our capital base as our shareholders own the sidecar and we manage it. If you have an independent party that you are managing assets for, there can be tension to be managed.”

As an asset manager and lessor, ORIX Aviation has been successfully managing co-investment, or so-called sidecar investments for over 15 years, having set up its first JV with Carlyle in 2003. “We did multiple portfolio JVs throughout the 2000s with Cargill, Magnetar and most recently with Merx,” says Meyler. “For us, certainly, it’s part of our business model as an asset manager but an asset manager with a balance sheet. Clearly, we want equity in the deals and we want to be getting the return of our investment above just fees. That works very well for us. If I was an investor coming into the market, I would be very happy to pay a management fee to a platform such as ORIX Aviation to have huge resources available to see it through a cycle and share the equity risk. That makes an awful lot more sense and that will continue because people will always want to invest in leasing.”

**“CALC was able to bring in a lot of new ABS buyers. Although the interest rates have risen, the ABS product in the aviation market is still very attractive”**

*Mike Poon, CALC*





# Aircraft Market

As Boeing continues to debate the market for a new middle-of-the-market aircraft, deliveries of new technology equipment have been accelerating but airlines have been blighted by engine entry-into-service issues that have grounded aircraft.

**T**echnology has long been at the forefront of aviation. Technological advancement for commercial airliners is ongoing but takes time to develop. The latest airframe and engine technologies are impacting the aviation industry in many ways. Furthermore, digital technology is disrupting the market in terms of airline and aircraft operations as well as financial technology development.

### EQUIPMENT

Aviation technology is forging ahead with new airframes and engines now coming on line that promise lower fuel burn, less noise and more efficient flying. Designing and producing new commercial aircraft, however, is expensive and takes a long time to come to fruition, from design through to the lengthy regulatory approval stage. The A320 Neo narrowbody aircraft program, for example, was launched in 2010, but the first commercial delivery did not occur until January 2016, with deliveries only now ramping up. The Neo and the Boeing 737Max are only re-engined airframes and as such came to market in a shorter timeframe. The Boeing 787 Dreamliner and the Airbus A350 aircraft, however, are both designed from a clean sheet and are considered to be the most technologically advanced aircraft flying today. These programmes took much longer to move from concept to delivery stage. The 787 programme, at a cost of approximately \$32bn, was first announced in 2003 as the 7E7, with the first test 787 aircraft rolled out in 2007 and the first commercial delivery made in 2011.

### NEW AIRCRAFT

The long-term cost and commitment needed for the development and launch of a clean sheet commercial aircraft programme is the main reason why manufacturers take so much time and effort examining the market and demand for new aircraft. The so-called new middle-of-the-market (MoM) aircraft or New Midsize Airplane (NMA) concept from Boeing, which would carry between 220-270 passengers and have a range of 5,000nm, has been under discussion for some years. The

aircraft has a preliminary entry-into-service date of 2025. To date, Boeing says it has sought advice and input from more than 60 airlines on issues such as configuration, cargo capabilities and other critical technologies. With so many contributing voices, Boeing says it has a variety of opinions on the best design for the aircraft. The participants of this report had variety of views regarding the potential success of the NMA but most expect Boeing to launch the programme.

One airline executive sees a major market for the NMA aircraft in South East Asia as those markets continue to develop and evolve, but notes the lack of suitable airport infrastructure to accommodate the predicted rise in air travel demand. “The airport infrastructure is not growing at the same pace and secondary airports are in short supply. Metropolitan cities continue to dominate travel and so before a MoM aircraft can become feasible, a demographic and economic shift towards smaller towns will need to materialise.”

GECAS’ Declan Kelly states that Boeing has likely already made up its mind to launch the NMA and that its past decisions have been “pretty accurate”; however, he does warn Boeing to ensure that any new variant does not cannibalise the 787 or the 737Max. “The narrowbodies have a lot more capability, and they’re certainly moving up into the middle of the market space,” he says. “And you’re seeing the A330 and the 787s play in a space closer to the narrowbody market. That mid-market has a large spread of aircraft already. That would shape any decision-making, and it would certainly shape our decision-making, but at the moment, our view is it’s just too large of a spread to require another variant.”

OEMs disagree on the predicted size of the middle of the market aircraft sector, which ranges from just 700 to 5,000 aircraft, with an average around 2,000-2,500 aircraft – still too few to justify a new aircraft programme.

Andy Shankland, executive director at Plane View Partners, who advises airlines on their fleet replacement needs, questions whether the market for the NMA is large enough to justify the programme. “Boeing knows very well

**“The narrowbodies have a lot more capability, and they’re certainly moving up into the middle of the market space. And you’re seeing the A330 and the 787s play in a space closer to the narrowbody market. That mid-market has a large spread of aircraft already. That would shape any decision-making [on the NMA]... our view is it’s just too large of a spread to require another variant.”**

*Declan Kelly, GECAS*



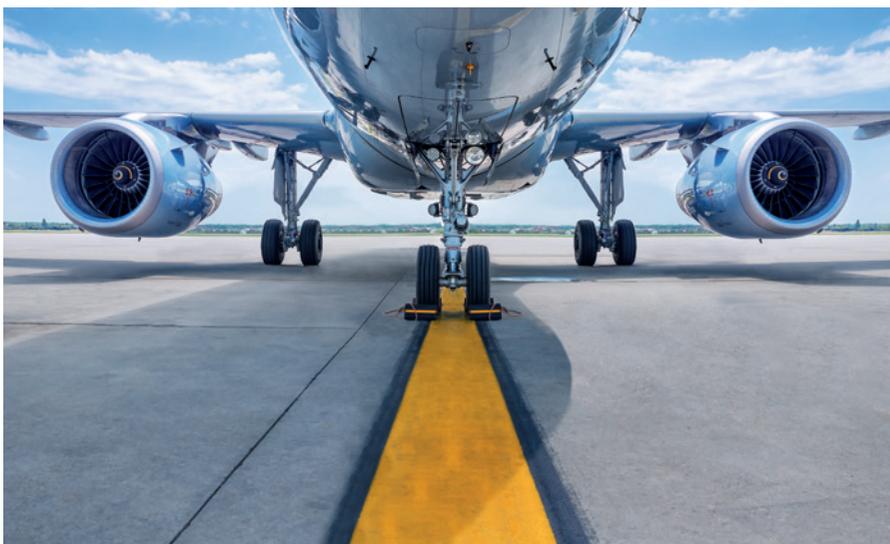
how to design a great airplane, so if they design an airplane to do that mission, it will do the mission very efficiently,” he says. “The real question is whether there are sufficient airlines with space in their fleet to support this new ultra-efficient 220 to 270-seater aircraft.” Shankland refers to the growing trend for airlines to simplify their fleets with fewer aircraft variants, which he suggests could limit demand for a brand-new aircraft type, if it does not allow another type to be eliminated from an airline’s fleet at the same time.

SMBC Aviation Capital’s Peter Barrett says the price point of the NMA would be a decisive factor in its success but he also doubts whether Boeing will launch another new aircraft. “It is a pretty big decision for Boeing. The last time Boeing launched a brand new airplane was the 787 – it’s a fantastic airplane but it cost an awful lot of money to build and had a huge number of challenges. The question is has [Boeing] learned from that?” He also highlights the uncertainty over the engine choice. “All of the new engine types have had challenges, and all the engine manufacturers are facing their own corporate challenges that may not be resolved quickly.”

The efficiency and performance of the engine choice will be the key factor in the decision to launch the NMA and indeed in its eventual success. Engine manufacturers are facing immense pressures to increase production rates, solve the entry-into-service issues with numerous engines quickly and also produce parts for existing engines as well as maintain them. Plane View’s Shankland says that the engine OEMs are “probably pushing the limits of today’s technology” which is one of the reasons for many of these teething problems. “Without more radical thinking,” he says, “I think we’re probably reaching an asymptote of current aircraft design.”

### ENTRY-INTO-SERVICE ISSUES

Two of the greatest challenges for airlines and lessors alike is asset selection, deciding which new aircraft to invest in, often many years in advance, as well as then managing the transition of the existing portfolio from current technology to new technology in an orderly way. That orderly transition has



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*Andrew Shankland,  
Plane View Partners*



been impeded significantly for some airlines as deliveries of their new aircraft have been blighted by entry-into-service issues with the new engines – both the CFMi LEAP and the PW1000GTF on the new narrowbodies and the Trent 1000/900 on the 787 – having been recalled for shop work. This has caused capacity and operational issues for airlines, while also boosting demand, values and lease rates for older aircraft and engines. (For a full review of all of the entry-into-service issues with new technology engines, please see the *Airline Economics Aero Engine Yearbook 2018*).

“Without doubt, [the entry-into-service issues] have affected the popularity of the current generation of engines,” says Jon Sharp, former chairman and founder of Engine Lease Finance (ELF). “We’ve had many lessees simply extend the leases of the the V2500s and both the CFM56-5B and -7B, which has been great business for us and we’ve also invested some more in some of those engine types by placing orders direct with manufacturers. What we haven’t done is place orders direct with the manufacturers for the new-generation engines.”

Sharp goes on to explain that ELF has not placed direct orders for the new technology engines due to caution over investing in new technology that may be radically changed during the entry-into-service stage due to upgrades or other changes in spec that would impact the value of those early orders. “This phase is also heavily backed up by manufacturer support, which of course the manufacturers offer the product support function and they do it for free. We don’t do this for free,” he says. ELF has concluded a number of sale-and-leasebacks for both engine types with airlines but still sees a very long future for the older engine types that do not reach a peak for shop visits until 2023/4. “We haven’t reached that peak yet and those engines are going to fly for years afterwards.”

The entry-into-services issues with the new engines have placed even more pressure on engine OEMs, which are not only increasing production rates on new tech engines but are also facing rising demand to produce more material for -5B and -7B variants, since demand

is increasing as new tech engines are taken off wing for shop visits. There is a similar situation in the widebody market as well-publicised issues with the Trent 900/1000 engines for the 787 aircraft rumble on and take up time and shop space needed to cope with rising demand for parts and overhauls for older technology engines such as CF6 and Trent 700 programmes.

#### VARIANTS

The number of new technology aircraft coming online today is impressive. However, with the addition of the forthcoming 777X and potentially the NMA at some point, some market players are beginning to comment that there are simply too many aircraft variants. “We will always say there are too many aircraft variants,” says Goshawk’s Kelly. “We are at a strange point in the market because there’s so much new technology being introduced today, and the general trend is towards fewer models and less variance. We’re not particularly concerned that there are too many models, we choose the ones we want to invest in – the ones we think are most liquid and will preserve their values most; we stay away from the more niche varieties.”

Craig Segor, chief executive officer of Plane View Partners, suggests that there is a much greater degree of convergence in the Airbus and Boeing product lines particularly with what the lessors are seeing as their primary assets; the A320s, the A321s, the MAX 8s, the MAX 10s, and the 787, A330 and A350 on the widebody side. “This is where the lessor community has concentrated a lot of their efforts,” he says. “For the mainstream, the majority of the lessors, they concentrate on a small number of variants and I believe it will continue to be so.”

Engine lessors are less concerned about variants of aircraft because the number of engine variants is much lower and most engines are transferable between airframe, which is what makes them such investable, long-term assets.

“The current number of engine types across the programmes is of less concern to us as an engine investor,” says Willis Lease Finance’s Dan Coulcher. “If you have an IAE-powered A319, A320 or

**“Without doubt, [the entry-into-service issues] have affected the popularity of the current generation of engines. We’ve had many lessees simply extend the leases of the V2500s, and both the CFM 56-5B and -7B.”**

*Jon Sharp, Engine Lease Finance*



an A321, it's the same engine, it's just a thrust change. We tend to buy higher thrust engines so they can operate across all three types. The days of having three engine types for the 747 and then on the previous version of the A330 did cause investment and re-marketability issues. The 787 is a big enough market with both Rolls-Royce Trent 1000 and GENx options. You can make investment cases for both on market share and number of airline operators. Rolls-Royce though, we have concerns because of their aftermarket control, which means their residuals are an unknown to us, so it's harder to confidently invest in the product but we are investing in the GENx. We're investing in both engine types for the A320Neo without any real concern."

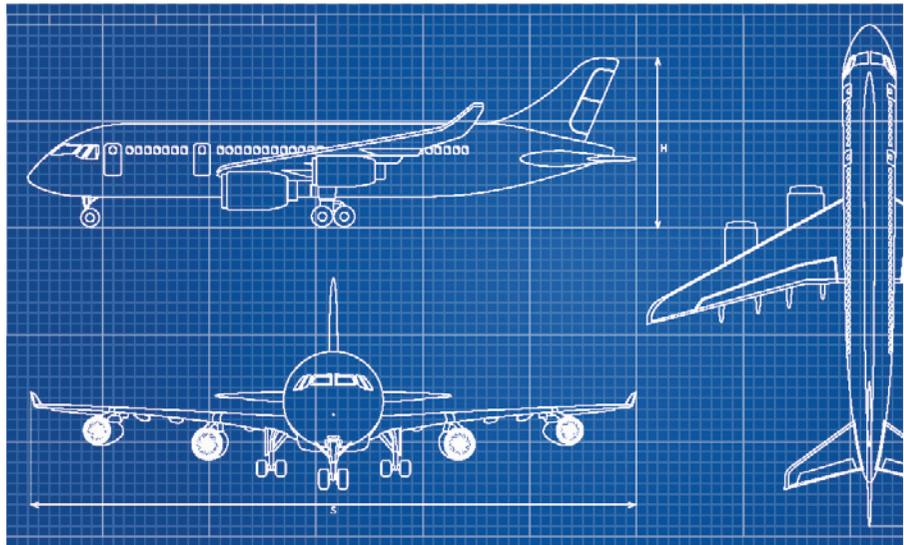
ELF's Sharp suggests that the discussions about supplying different engine types to the proposed NMA aircraft could introduce new technologies and pose further issues. "The more engines you have, the more you segregate and separate the user base and therefore the liquidity in the engine begins to erode," he says.

Sharp adds that a greater concern around variants should be production rates and the fact that engine overhauls for the new-generation engines will begin in significant quantities in around 2026, straining capacity. "The big issue is that overhaul shops are already full but they're going to need to increase that capacity by about 30% by the year 2026, which is a massive challenge for this industry.

One airline observer is also concerned with maintenance capacity. "My concern is that too many variants will result in MRO saturation and a depleted spare pool for older aircraft. Logistics challenges compound this issue," he says.

## PRODUCTION RATES

The airframe OEMs' current rate of production is between 57 to 60 aircraft a month and it has been suggested that this figure could move up to 68 to 70 a month. Engine OEMs for the new narrowbodies are reported to be producing seven engines a day, equal to more than 200 a month. The potential production rate increases, which effectively imply



a 6.8% to 7% annual growth rate, are worrying almost everyone in the industry, especially given the prospect of a choppier operating environment featuring rising interest rates, volatile fuel prices and a strong dollar.

"For us, the threshold for a manageable increase is around 6% ASM growth," says Segor. "The reality is airframe manufacturers are incentivised to make airplanes and they will continue to do so at a growth rate the market can support. There will need to be a rebalancing in the future, but we should expect increasing production rates at least until there is a supply chain limitation."

Shankland adds that there is no incentive at all for the OEMs to reduce production rates. "As long as there's a buyer that wants the aircraft and as long as there's financing available, the OEM will always choose to deliver that airplane and therefore will continue to increase or at least keep production rates where they are."

Firm order backlogs are also much larger than they have been in the past, which is another incentive to raise production. But the problems occur when there is a steeper downturn than expected.

"If you go back far enough through multiple cycles, you've seen OEM's ramp up a bit too much and then when the music stops, they run into issues as to capacity," says ACG's Tran. "When you look at growth projections now of 6-8% and where the volume comes from, I don't know if they can actually sustain

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*Craig Segor, Plane View Partners*



those kind of levels in the longer term. It's going to be tough. We've seen this music play before."

ELF's Jon Sharp believes it would be a mistake for engine OEMs to ramp up production further at this point in the cycle. "I am concerned with the very high production rates of aircraft and engines. CFM is currently producing seven LEAP engines a day and they're swiftly going to up to nine engines a day. That is just an extraordinary production rate. If I see storm clouds on the horizon now, the oil price volatility in particular and the interest rates ticking up, then I get concerned that the system is due for quite a big crash because of those very high production rates."

The real brake on production rates comes from supply chain capacity issues, which most say are at breaking point now.

Declan Kelly says: "Most rational people would say that 70 a month is not achievable. The supply chain just cannot support it. 60 feels right to maintain the growth. To go to 70, you would have to radically change the supply chain."

Stephen Hannahs agrees, adding that the entire industry and infrastructure could not handle that rate of aircraft production. "Presently, I don't think the industry can absorb it. The infrastructures to support those aircrafts, i.e. pilots and flight crews, are not being brought on fast enough. It's one thing to produce an aircraft but you've got to fly it. I don't think we're ready for pilotless airplanes yet."

Hannahs adds that MRO capacity is also insufficient to support any further increases. He cites one example where Wings Capital had taken a young A321 back from Monarch that had engines in outstanding condition but it needed a gear replaced. Unfortunately, he was unable to secure shop time to carry out the work. "We had signed a new LOI for that airplane within about 65-70 days on a long-term lease with a good credit, but it took us five months to have the gear overhauled. So, the plane sat idle. We finally delivered the airplane, but the MRO was busy, the supply chain just wasn't there, and so we had to wait. The infrastructure to support these new deliveries is currently, in my view, insufficient to support rapid growth."

## OEM M&A

Airbus and Bombardier have now concluded their partnership on the former C Series, now A220, with that programme now in full swing, meanwhile Boeing and Embraer, have agreed terms, which were approved by the Brazilian government on January 10, 2019. The sense is that these partnerships by the two large airframe manufacturers with the regional OEMs will create a broader user base for those aircraft which in turn could generate more interest – possibly from lessors – in those products.

"We've already started to see the impact of the Airbus-Bombardier C Series (now A220) tie-up," says Segor. "Even though it is the same airplane, with Airbus on board, it's easier to convince an investment committee or a risk management department that this is a viable investment for a lessor. We've already started to see some of that interest with some of the sale leaseback campaigns that have been going on for incumbent operators. If the Embraer and Boeing marriage happens, I think that we'll see a similar halo effect on the E2 with the association of the Boeing name."

Mike Inglese comments that Airbus essentially saved the C Series project, but views the Embraer-Boeing tie up as a different animal.

"There was an industrial logic to getting Boeing and Embraer together on the commercial side in the famous duopoly to have a regional jet. Embraer introduced the E2 product on time and under budget, which isn't a phrase you hear often in new programme development. Boeing's broader marketing sense and scale and an industrial supply chain infrastructure can benefit the Embraer programme and ultimately, we think it'll be good for the programme, good

for Embraer and good for the E2 as an asset in the marketplace."

The general sense is that this support of the new regional jets will result in more orders from leasing companies although as they are still niche products, this will be slightly more muted than predicted.

Speaking at the *Airline Economics Growth Frontiers* New York 2018 conference in October, John Slattery, president and CEO of Embraer Commercial Aviation, stressed that the proposed tie up with Boeing is fundamentally different to Airbus' partnership with Bombardier, which was an acquisition of an aircraft programme. "The Boeing and Embraer conversations are a full carve-out of Commercial Aviation from Embraer, including all the engineering, the development work, the programs, the services, everything from the E145s to the E1s and E2s," he said. "Our transaction gives us an amazing tailwind as we go forward for, let's say, innovation, other opportunities on innovation as we look forward, and access to a bigger balance sheet. So, I think it's going to spur competition."

Not only competition but also innovation. Slattery commented that he would like to launch another aircraft program with Boeing to broaden Embraer's stable of products and he pointed to a new turboprop. "The business case for a state-of-the-art turboprop is extraordinarily robust, in my opinion," he said. "The incumbent platforms are aged. They're 1980s technology, 1980s materials. They're not comfortable from the passenger perspective. They're not kind to the environment, and they're not economically efficient, relative to what you could replace it with today. There's a large incumbent operator base around the world."



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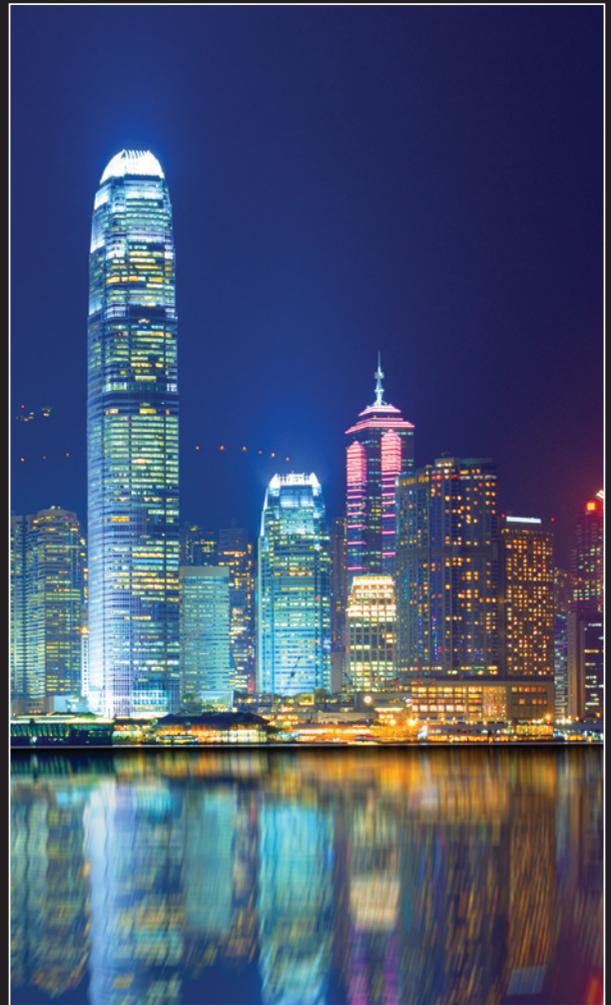
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# Digital Transformation

The aviation sector is not immune from the digital revolution and is forging ahead in the use of distributed ledger technology to solve the industry challenge of novations.



Advances in computer technology are cited very often as a major disruptor in almost every major industry. Banking and finance, especially, is being challenged by the onslaught of digital firms offering user-friendly mobile and virtual banking and other products and services, presenting legacy brick-and-mortar firms with two options – change internally or acquire those same disruptors to leap-frog the development of digital technology. The aviation industry, however, while certainly not excluded from this global drive to digital, is – as many have stated – more of a follower than a leader in this regard.

“Although aviation has traditionally been among the most innovative industries, it might not necessarily appear as the most natural market to benefit from newest technology trends such as artificial intelligence,” says Bank of China’s Fiscel. “Aviation remains a bespoke, tailored market. One could however expect tremendous opportunities from recent hi-tech developments, including the use of blockchain technology in aircraft maintenance or parts history reducing documentation and facilitating aircraft transitions between operators.”

Aviation banks, which remain for the most part heavily relationship-based, are leading the charge by virtue of their enterprise efforts toward digitalisation.

DVB is contemplating using data analytics more and more for risk management purposes mainly. Access to accurate market data such as true market sale values and losses is a function of transparency. Access to most transactional data is limited by confidentiality agreements but Alava-Pons argues that the market should work together to provide anonymised data to help build better risk models.

Natixis agrees that aviation finance is moving towards more predictive models based on statistics and automated calculations. “This may be pushed forward in the near future,” says Bedaine-Renault, who expects blockchain and/or Distributed Ledger Technologies (DLT) to keep on transforming broader future. business operations in the future. “We expect this deep transformation to happen over the course of several years,” she says. “DLT will allow for more streamlined operations around our activities, from structuring to settlement, from cash flow computing and handling to collateral monitoring and valuation. By allowing the various actors of our market to share a single version of the

truth in real-time or quasi real-time, DLT should considerably improve the operational efficiency of our activities which are traditionally labour intensive especially on the servicing side. This should also allow for a better service to our clients.”

Blockchain or DLT has the potential for major disruption in every industry but is being utilised more and more by airlines, MROs and parts suppliers. Honeywell for example has recently launched a blockchain parts repository.

One airline executive says: “Blockchain has very high impact possibilities for the sector but will take time for the market to adapt. Additionally, blockchain will also carry with it compliance and/or setup costs and these costs are yet to be determined.”

For the leasing companies, big data is an issue from the corporate level to aircraft management needs and something that all companies are grappling with.

“We have huge amounts of data, huge amounts of cash flows and huge amounts of information about our aircraft, which are necessary and have a real value impact on our aircraft, so we have to maximise our use of technology,” says Goshawk’s Ruth Kelly. “Having said that, lessors are not leaders or pioneers

in technologically advanced thinking. We tend to be followers and users of other people's innovations rather than necessarily pushing the agenda ourselves beyond the basics."

The leasing market remains heavily paper based although certainly the larger companies are moving towards more digital technologies that will enable them to automate more of the standardised functions to become more efficient internally.

That said, one of the most forward thinking technological systems in the aviation industry is being pushed forward by the leasing community to solve a major issue for lessors – novations.

One the main challenge airlines and lessors wanted to solve was to reduce the time of novations – an ownership change of leased aircraft – which was a burden for airlines and held up trading for lessors.

The aim of the Aviation Working Group's Global Aircraft Trading System (GATS) is to simplify the trade of leased aircraft in particular. Currently, the process involves reissuing a lot of paper documents to the lessee, including the lease agreement, warranties and shareholder certificates, among others. This incurs many costs and can take anywhere between six to nine months on average, and requires the active involvement of the lessee.

"Very few other industries have this situation where you have the lessee so fully involved," says David Swan, chief operating officer of SMBC Aviation Capital.

The basic concept of GATS is for aircraft to be put into a bare trust structure to facilitate electronic trading by simply selling the beneficial ownership of the trust assets. Documents can then be shared and signed electronically using distributed ledger or other established technology. All of the leasing companies that are members of the AWG have signed up to use this system, which is poised to launch in the first quarter of 2019 and will be fully active by the end of the year. KPMG says that it is delighted to be involved in the development of GATS.

The lessors that participated in this

report are all favourable about the potential of GATS but recognise that it is still early days.

"The concept is really positive in terms of efficiencies around trading of aircraft," says Goshawk's Kelly. "Aircraft are traded more and more extensively every year, and generally, there aren't really huge problems trading aircraft, but the GATS initiative which make it more efficient and easier to do, so I'm not sure it's going to materially increase the level of aircraft trading but hopefully it will make it easier and more efficient."

The potential for further development of this technology is already being planned.

"The exciting thing is where you can go to next," adds Swan. "You could use the system potentially to store all of the aircraft documents, the records, all the other lease documents, the warranties, all in one place. When you do your deal at day one, you save it all into this system. It's all secure so that it's ready to trade."

Going one step further, having a global system of data set up by OEMs for all new airframes and engines would enable back to birth tracing of maintenance records, as well as fast scanning of bar codes for example for parts suppliers. For airlines, having integral, back-to-birth digital records would be invaluable for maintaining aircraft, since data will be more easily available and traced, as well as feeding into predictive maintenance tools.

For ORIX Aviation's Meyler, there is major potential for emerging technologies on the technical record side. "There is a huge opportunity for a worldwide system for aircraft records to be digitalised that are transferable very easily. Using technology, it's not expensive either, if all aviation parties to agree to all the various protections that are needed to make sure that the safety of the passengers and the aircraft are maintained. That absolutely will happen in the next couple of years."

Issues relating to data ownership and access are constantly debated in the marketplace, which is hampering development, but it is clear that this is the way technology is flowing.

**"You could use the system potentially to store all of the aircraft documents, the records, all the other lease documents, the warranties, all in one place. When you do your deal at day one, you save it all into this system. It's all secure so that it's ready to trade."**

*David Swan, SMBC Aviation Capital*





# Final Thoughts

**A**fter a bull run of 10 years of growth, airlines and lessors have grown more and more profitable, fuelled by a wall of investor liquidity that has been attracted to the yield and stable assets of the aviation industry in an ultra-low interest rate environment. After an elongated upward cycle, there is general agreement that the airline industry has peaked and a slow correction/moderation is underway.

Macroeconomic headwinds are continuing to build, creating challenges for weaker airlines to maintain growth and profitability. There is greater potential for more extreme volatility. Further bankruptcies and consolidation in the airline market is expected, while M&A activity is predicted to increase among leasing companies. The industry fundamentals remain strong, however. People keep travelling. Passenger demand remains in growth territory creating continued opportunities for the market actors. The trick for airlines and for leasing companies is to manage capacity and retain enough flexibility to manoeuvre through choppy conditions.

Rather than spur much hand-wringing, the turn in the cycle may

be cautiously welcomed by financially strong market players because a downturn tends to eliminate competition and present valuable opportunities for growth.

Legacy airlines that have used the boom times to shore up balance sheets and beef up cash reserves can capitalise on the coming opportunities as they seek to expand into routes freed-up by weaker competitors reducing networks and capacity, or exiting the market altogether.

Financially strong lessors will also seek to capitalise on a tougher operating environment in the hope that it will present opportunities for high value acquisitions as weaker less experienced lessors struggle.

A turn in the market may also finally grant banks the ability to push up margins and tighten terms in time for when regulatory changes begin to transform lending strategies.

The headwinds over the next 12-24 months are expected to shake up the aviation industry environment. Experience will be liquid gold. For some, these headwinds will prove a tailwind to further growth.



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