

# Aviation & Finance

## Recovery underway despite challenges

**Danielle Barron**

Ireland leads in aircraft leasing but how quickly people will return to flying post-pandemic is unclear

As the world began to shut down in March 2020, our highways and byways went quiet. So too did the skies, and their piercing blue was no longer criss-crossed with condensation trails. National and international restrictions on travel wreaked financial devastation on the aviation industry.

A recently published McKinsey report confirmed what everybody knew: that all subsectors of the industry, except freight forwarders and cargo airlines, suffered huge losses throughout the pandemic. In 2020 alone, airlines "haemorrhaged" \$168 billion (about €159 billion) in economic losses. Aviation has been here before – post 9/11 and during the economic crash, to name just two examples. But as people begin to take to the skies again, what does the future hold for everyone involved in air travel?

Cathal Guiomard is a former commissioner for aviation regulation and assistant professor of aviation management at Dublin City University Business School. He says that the pandemic has weakened the financial position of airlines and airports, making them less well placed to plan for the future in terms of expansion. Guiomard also points out that while the recovery in air traffic has been strong overall, it has been uneven, affecting different airlines in different ways.

"The low-cost short-haul carriers in some instances have reintroduced routes and flights up to and beyond what they had back in 2019 so they have come back to normal as such, but the long-haul companies are only back to 50 per cent of what they had in 2019," he admits. "It's an extremely uneven recovery and it leaves the airlines unsure as to whether there has been a permanent drop in long-haul travel or whether it's just slower to return.

"If this traffic does recover, then there will be a positive outlook for the airline industry, despite their large debts, but if

some of those shifts prove to be permanent that's a very different story."

The continued strong performance of the airline cargo subsector of the industry is no surprise to Guiomard, who points out that this was how PPE and medical equipment were transported around the world at the height of the pandemic. "The cargo transport element is more important than people realise and it is probably more important than it ever was. It is crucial."

Kieran O'Brien, head of aviation finance advisory with KPMG, acknowledges that the pandemic had a significant adverse impact on all businesses involved in aviation. He adds, however, that the sector has shown "excellent resilience" in that time, with support from leasing companies and governments being instrumental in the survival of a number of airlines. "It has been hugely encouraging to see that, once restrictions lift, pent-up demand is significant and the recovery in air travel is underway strongly in most parts of the world," he adds.

### Long term

Guiomard has an even bleaker take on what the pandemic may have done for air travel in a broader sense. He warns that some of the unprecedented unilateral actions taken, such as border closures and travel bans, may have long-lasting implications. "Through a very protracted process over half a century aviation was liberalised," he explains.

"Restrictions were lifted and airlines were privatised and could essentially decide where they want to fly. But one of the impacts of Covid has been a large step backwards, with Government investment in airlines again and a partial reversal of privatisation. We had bans on travelling and border closures, and it feels like we are moving away from the era where airlines were free more or less to fly wherever they wished. The big question now is whether some of that lost ground can be made up."

Guiomard also warns that the war in Ukraine will be more consequential in the medium term than Covid was for the wider industry. "The airlines' finances are weakened and this complicates life for leasing companies but it hasn't been devastating for them. The loss of aircraft in Russia is for some far more serious." Yet he points out a positive angle: the global pressure to reduce emissions results in pressure to use



# 66

**The low-cost short-haul carriers in some instances have reintroduced routes and flights up to and beyond what they had back in 2019 so they have come back to normal as such, but the long-haul companies are only back to 50 per cent of what they had in 2019**

the newest aircraft "so the leasing companies are in a position to provide those in as much as the airlines have the funds".

Joe O'Mara, head of aviation finance with KPMG, believes that the pandemic highlighted the resilience of the leasing business model in aviation. "Leasing groups were able to manage liquidity and support their airline customers through the most challenging time we have ever seen," he says. "This has led to an increase in the importance of the leasing, with lessors funding almost 60 per cent of new deliveries last year. Given that airlines will be severely capital constrained for the foreseeable future, this importance is likely to continue for the foreseeable future."

Ireland continues to be the world leader in aircraft leasing, however, notes KPMG's O'Mara. "The recovery in air travel is evident, the importance of the leasing chan-

nel has grown, Ireland remains at the centre of the leasing world and there will be need for airlines to fund new more fuel-efficient aircraft in the near term."

There has been a significant increase in repositioning of aircraft for new leases and new sales, says Carol Lynch, partner at BDO Customs and International Trade. "This is to be welcomed as it shows the aircraft industry focusing on getting aircraft back in the skies after the Covid years. We are also seeing a lot of new airlines start up in 2022, continuing a trend from 2021," she says.

With the increase in global security concerns, Lynch points out that companies need to be aware of their due diligence requirements when signing up to new leases and also when supplying aircraft parts. "These issues also need to be looked at in contracts," she says.

**■ The pandemic had a significant adverse impact on all businesses involved in aviation but parts of the sector are starting to recover**

As the world emerges blinking into the endemic Covid reality, some of these issues will be teased out at the Airline Economics Growth Frontiers Dublin conference at the RDS on May 8th-11th, where representatives from all stakeholders in the aviation industry will gather to discuss its future. But despite the overwhelming challenges the industry has faced in recent times, Guiomard remains optimistic.

"The aviation industry, particularly the long-haul providers, offers a service for which there is no substitute. As long as that remains the case, there is a very solid basis for demand for the industry's services."



Our Aviation Finance team is equipped with specialist expertise to guide you through:

- Tax, VAT, Customs
- Audit
- Risk Advisory
- Cybersecurity
- Talent Management
- Outsourced financial accounting and payroll.

To learn about our range of services and what we can **DO** for you, contact a member of our Aviation Finance team at [info@bdo.ie](mailto:info@bdo.ie) or visit [bdo.ie](http://bdo.ie)

**BDO**

Smart business advisors

BDO is authorised by the Institute of Chartered Accountants in Ireland to carry on investment business. BDO, a partnership established under Irish Law, is a member of BDO International Limited, a UK company limited by guarantee, and forms part of the international BDO network of independent member firms.

## Russia's invasion of Ukraine sets back return to flying

**Barry McCall**

Airline sector braces for long-term turbulence due to war in Ukraine

The consequences of Russia's war against Ukraine have spread far beyond that country's borders. While the human costs have been unimaginably and unconscionably high, the economic fallout needs to be calculated as well. Increased fuel costs, airspace restrictions, reduced consumer confidence and a rising cost of living have all combined to set back the post-Covid air travel sector recovery.

"This is the last thing the industry needed," says Thomas Conlon, associate professor of banking and finance at UCD. "It's certainly going to postpone what airlines were hoping would be a full recovery. It's creating a number of challenges and some of them relate to demand from customers. The inability to fly over Russian and Ukrainian airspace is also affecting them – 3 per cent of European flights are impacted by that."

Those restrictions can have a very significant impact, according to Dr Marina Efthymiou, assistant professor in aviation management at DCU. "If you're flying to Tokyo from Europe, it can add 1,400 nautical miles to the journey," she points out. "Certain countries are more affected than others. Sweden, for example, had a lot



of routes that flew through Russian airspace. Longer flights use more fuel, they take more time for customers, and create more environmental damage. It is a big problem."

That disruption is magnified by oil price increases. "Fuel usually accounts for around 30 to 35 per cent of the operating costs of an airline," says Efthymiou. "Oil had rose by 27 per cent in the first month of the crisis and by 14.3 per cent in the following month. Overall, there was a 126 per cent rise in the year up until then. Operating costs for airlines are significantly higher and those costs will be transferred to passengers at some point."

### Hedging

The blow has been softened by hedging in some cases. "The picture becomes more complicated when some airlines hedge," Efthymiou adds. "Ryanair is very good at reducing costs and that applies equally to fuel. They have hedged 80 per cent of their fuel require-

**■ There will also be long-term consequences for Russia due to its war in Ukraine.**

PHOTOGRAPH: IPHOTO

ments at \$63 per barrel. That was a very good deal. They now have a competitive advantage over other airlines which haven't hedged – until the second quarter of 2023 at least. Air France KLM have done the same at \$90 per barrel for 53 per cent of their fuel. American Airlines and United haven't hedged. They are disadvantaged relative to those who have. Smaller airlines are more affected by this, and it might lead to some going bankrupt."

The financial pressures on the sector have also been exacerbated. "Funding is becoming more challenging," says Conlon. "It is more difficult and more expensive now. Airlines run on very small margins, and some may run into liquidity problems. One thing we know is that airlines do go out of business from time to time."

And this comes at a time when interest rates were rising anyway. "The lessors will look at that and say they are happy," he notes. "Many of them have funded their businesses at historically low costs and there is no major shortage of capital at the moment. But they will have to go out for more at some point."

The leasing business has been badly hit, nevertheless. "It's terrible," says Efthymiou. "The Russians broke the deal and 513 aircraft worth \$10 billion were impacted. Only 32 of them came back to the lessors. That's a very small percentage. Aerpace had 135 planes leased to Russian airlines and they managed to get 22 of them back. They were the most successful. Most of the planes will probably never come back. And if they do, we don't know when. And Boeing and Airbus won't be supplying spare parts for those planes and their value will keep falling because they won't have maintenance records. It's the first time something like this has happened. They broke the Cape Town Convention. The lessors are now submitting insurance claims. The impact on insurance companies will be huge."

There are longer-term consequences as well. "Lessors will probably refuse to deal with Russia. Russia has lost its credibility," she adds.

Conlon agrees. "Russia was one of the big emerging growth markets for the industry. It is difficult to see how lessors could lease to Russian airlines in future. Insurers may change the terms and conditions as well. The lessors may be forced to look elsewhere for growth."

## New class of investor sees opportunity

**Sandra O'Connell**

More private equity money could enter the leasing sector as it recovers from the pandemic

The pandemic took an enormous toll on airlines. That presents opportunities to aircraft lessors.

"Airline balance sheets have been decimated by the pandemic. The Government supports and additional debts that have been taken on will mean most airlines will be severely capital constrained for the foreseeable future. Accordingly, the flexibility that leasing can offer airlines will likely prove even more attractive," explains Joe O'Mara, head of aviation finance at KPMG.

"The general view of lessors is that the crisis has served to strengthen the relationships between lessors and their airline customers."

The support the leasing community provided, funding close to 60 per cent of new deliveries and also entering into sale and leaseback "has been pivotal in most airlines surviving the crisis", he points out.

**“Lessors have managed this crisis [the pandemic] better than anyone could have predicted, and they are well placed to prosper as the recovery continues**

Perhaps the biggest shift has been capital markets' appetite for aviation finance. AerCap's blockbuster takeover of rival aircraft leasing firm Gecas last year created the world's biggest aircraft business, with the bulk of the \$30.5 billion (€30bn) price tag raised on capital markets.

That is representative of a wider shift.

"Since June 2020, investment-grade lessors have shown a remarkable ability to raise unsecured debt at reasonable rates, with bond raises in 2021 being at rates which were lower than those achieved pre-Covid. While this is reflective of the macro environment, it also highlights how aircraft leasing continues to become more mainstream and that there is a significant market confidence in the business model," says O'Mara.

The aviation Asset Backed Securitisation (ABS) market also rebounded a lot quicker than anyone expected and saw over \$8 billion of aircraft purchases funded via the ABS market in 2021. "Given these structures are predominantly located in Ireland, that was great to see and we hope it will continue to prosper," he adds.

Up until recent years the sec-

tor traditionally relied on bank debt but patterns of change were turbocharged during the pandemic.

"We have seen sales and leaseback become quite popular, with buyers of the aircraft being private equity managers rather than your traditional aircraft lessor. It's an interesting option, as it allows the airline to unlock immediate cash from their aircraft assets as well as reducing their monthly cash flow obligations," explains Andy Murphy of Waystone, a provider of institutional governance, risk and compliance services to the asset management industry.

It has also seen a large number of private equity and other investment houses look at dedicated aviation funds, some with a mandate to simply provide debt financing and some with a mandate to operate a full leasing fund. "It's an interesting development, and certainly something we think we will see more of going forward," he predicts.

Some investors are retracting or reducing their exposure to the sector, he notes. "However, we do see a large number of newer investor types enter the market, including large private equity firms and traditional investment managers. We have seen some partnering alongside lessors in joint venture types, others providing debt financing rather than equity, while some firms have looked to set up their own leasing platform entirely and building out their own internal aviation expertise and investment knowledge. Given the current market conditions, I would say a lot of these new investors are opportunistic by nature."

It helps that the sector has certainly proved so resilient.

"The ultimate doomsday event – the global fleet being grounded for two years – has happened and the sector has weathered the storm. I think aviation will come back quite strongly as a sector, albeit I think airlines and lessors will need to focus on new capital avenues and sources of investment capital," Murphy predicts.

New investors will need to come into the sector, and potentially new funding structures and strategies be devised, as banks retract.

"I think we will see more and more private equity money enter the sector, as well as investor capital managed by traditional investment managers, either as a joint venture or out-sourced agreement with alongside a lessor."

The last two years have certainly been the most challenging in the aviation sector has ever faced, says O'Mara, who adds that it is clear "a strong recovery" has commenced.

"From an aircraft leasing perspective, the resilience in the face of the wider market challenges has been extremely impressive. Lessors have managed this crisis better than anyone could have predicted, and they are well placed to prosper as the recovery continues. As the global centre for aircraft leasing, that is a huge positive for Ireland and its wider economy," he says.



# Aviation 'becoming more sustainable'

**Edel Corrigan**

Can the aviation industry meet COP26's goal of being carbon neutral by 2050?

Glasgow hosted the 26th UN Climate Change Conference of the Parties (COP26) in November 2021, bringing "parties together to accelerate action toward the goals of the Paris Agreement and the UN Framework Convention on Climate Change".

"It is one of – if not the most – widely recognised events influencing sustainability governance and policy along with the Destination 2050, Fit for 55 and Toulouse Declaration," says Dr Marina Efthymiou, course director for MSc in aviation leadership, and assistant professor in aviation management at DCU's Business School. "COP26 is relevant for aviation as the environmental literacy of citizens is increased and airline passengers are now more informed than ever on environmental issues."

Social criticism affects travel demand and passenger behaviour and, combined with the policy pressure, calls for aviation to mitigate its negative externalities, says Efthymiou. "In the last few years, aviation has taken huge steps in becoming more environmentally friendly. Recognising the severe impact of Covid-19, aviation remains committed to decarbonisation."

Linda Barron, chief executive of the Irish Centre for Business Excellence and Aviation Skillnet director, says 23 nations signed the International Aviation Climate Ambition Declaration, an output of Cop26. "The Declaration recognises the need for aviation to 'grow sustainably' and reiterates the International Civil Aviation Organisation's role to implement short-, medium- and long-term climate goals for the industry."

Ensuring the maximum effectiveness of the Carbon Offsetting and Reduction Scheme for International Aviation, and the development and deployment of sustaina-

ble aviation fuels (SAF) are key aims of the declaration, she says.

With one of the Cop26 goals being achieving carbon neutral status by 2050, can the aviation industry – which accounts for about 2-3 per cent of worldwide carbon emissions – meet the target?

"The answer is it can, but they'll have to be creative and think of sustainable ways of changing," says John Cotter, professor in finance and chairman of quantitative finance at University College Dublin. While moving to cleaner fuels and better technology will be part of the solution, they won't be the full solution, he says. "It's going to be a combination of approaches. A big player in all of this is going to government support and policies from government."

The outputs of Cop26 are not a surprise to the sector, says Cotter. "The sector is responding – it didn't come as a shock." The main trade organisation, International Air Transport Association (IATA), has recognised it as the number one challenge for the industry. "They see a very important role for government to incentivise improvements that reach the target and penalise situations where this would be disimproved."

### Challenges

The aviation sector acknowledges the need to reduce its carbon footprint but the sector does have challenges in this area, primarily due to being a highly regulated industry, which also makes it a conservative sector, says Barron. "The changes required across aircraft manufacturers, airlines, airports and the extended supply chain is enormous but there is great work being done and stakeholders are committed to meet the challenges."

Steps are being taken already to meet the goal and make aviation more sustainable in the run-up to 2050. "In December 2021 United Airlines flew the first passenger flight operating one engine on 100 per cent SAF with the other running on conventional jet fuel to prove there are no operational differences between the two," says Barron.

"The flight from Chicago's O'Hare International Airport to Washington DC's Ronald Reagan National Airport demonstrated that SAF is a scalable solution to help decarbonise the aviation industry. The airline

■ More direct routes for airlines would make an immediate impact on the sector's emissions and result in an estimated reduction of current fuel consumption by between 10 and 20 per cent

also announced new corporate participants joining the Eco-Skies Alliance, an effort to collectively purchase 7.1 million gallons of SAF this year including Microsoft, Salesforce and Visa."

Other airlines exploring SAF are Emirates and GE Aviation, which have committed to test flights using 100 per cent sustainable aviation fuel by the end of 2022.

Efthymiou explains how SAF can help reach the target. "SAF, for example, can contribute to achieving carbon neutrality by 2050 by 41 per cent and Market-Based Measures by 32 per cent. A proactive approach to fleet renewal is also key to decarbonisation along with evolutionary and revolutionary aircraft."

### A connected solution

It's not only the airlines that have to work to reach this goal, says Cotter. "A big part of reaching the target will be the companies who connect the planes to the passengers, such as aviation leasing companies, and those that build the aircraft themselves. He believes that those organisations should be incentivised to look for a solution. "Leasing companies are highly resilient and proactive in this space but they need support."

Cotter references the resilience of the industry when it was grounded in March 2020 and – for the most part – survived. "In a situation where their business had closed, they survived. It's a big challenge, but one that can be successfully met."

Efthymiou agrees that there are many ways the industry can respond to reach the goal. "The main ways in which the aviation industry responds to these challenges are evolutionary improvement in aircraft technology, deployment of electric and hydrogen-powered aircraft, operational improvement and airspace architecture innovations, use of Sustainable Aviation Fuels via the ReFuelEU initiative and Market-Based Measures like Emissions Trading Scheme and Carbon Offsetting and Reduction Scheme for International Aviation."

In addition, Barron says that more direct routes for airlines would also make an immediate impact and an estimated reduction of current fuel consumption by between 10 and 20 per cent.



**“The flight [using sustainable aviation fuels] from Chicago's O'Hare International Airport to Washington DC's Ronald Reagan National Airport demonstrated that SAF is a scalable solution to help decarbonise aviation – Linda Barron, Irish Centre for Business Excellence**



# For what's next in aviation

kpmg.ie/aviation



# Talent, track record and tax key for staying ahead

Sandra O'Connell

Aviation finance is a mature sector of the Irish economy but there are opportunities for it to grow even more

Ireland has a sophisticated aviation finance ecosystem that combines experience, expertise and a business-friendly environment, all of which will be vital to recovery. But there are challenges too.

"Ireland remains the centre of the world for aircraft leasing. Talent, track record and the corporate tax environment are key for us maintaining our competitive advantage. Given it's a mobile asset class, the personal tax regimes on offer in the likes of Singapore and Hong Kong are a concern, but to date we have not seen those jurisdictions take market share from Ireland," says Joe O'Mara, head of aviation finance at KPMG.

As a global sector it is subject to global macro-economic trends. "While it clearly demonstrated exceptional resilience during the pandemic, additional pressures of fuel prices and the invasion of Ukraine could well be negative to the sector," according to his colleague Kieran O'Brien, head of aviation finance advisory at KPMG.

He does not believe that events of the past two years will have a negative impact in the long term.

"Given the resilience the sector has shown we don't believe the sector has lost any sheen, it still attracts top talent and provides employees with the real ability to lead world-class companies from Ireland. Given the additional opportunities for growth and to lead real innovation in the sector it shows no sign of changing soon," explains O'Brien.

## Sustainability

Indeed, as international travel rebounds, there are opportunities on the horizon.

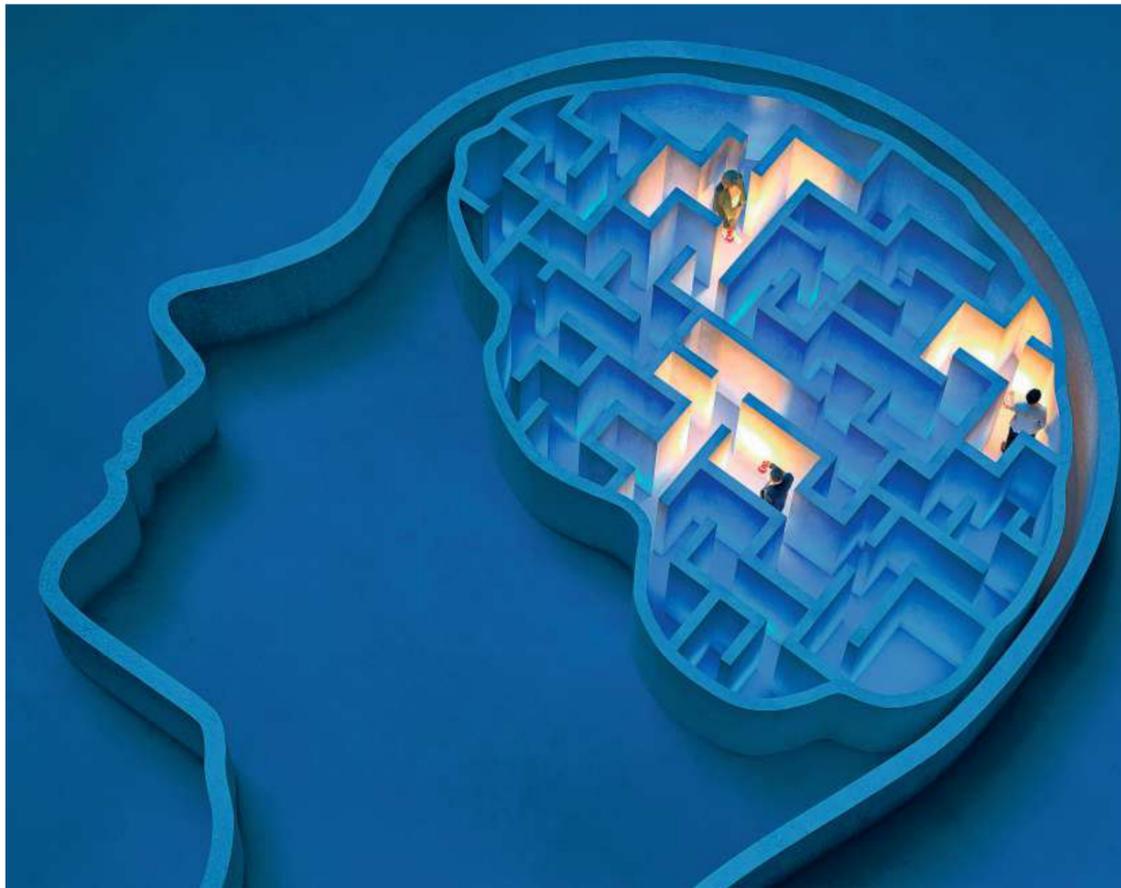
"There is no doubt that the growing ESG sustainability agenda will be impactful on all sectors and in particularly on aviation. However it does offer opportunities for the sector and Ireland. We have the opportunity to take a leading position in sustainable aviation fuel and the sector as a whole is looking at further innovation in efficient technology, electric and hydrogen-based engines, as well as vertical take-off and e-taxis, as some lessors have already done," he adds.

If Ireland is to keep up with such innovations, strengthening its skills base will be critically important.

Happily Ireland's third-level sector is one of the main pillars supporting the sector. Those looking to forge a career here have a number of courses open to them at institutions such as Dublin City University, University of Limerick and Carlow Institute of Technology.

University College Dublin's master of science degree in aviation finance is, for example, the only degree of its kind in Europe and is supported by leading aircraft leasing companies through internships, scholarships and research projects.

According to its founding academic director, Tom Conlon, Ireland is well placed



“

**Ireland needs to ensure that we retain a highly skilled and highly educated pool of aviation leasing professionals**

to retain its position as a global centre of excellence. However, "One of the challenges it faces is the cost of living. It's very expensive to live in Ireland, and this is very much an international business," he points out.

It's also very much a specialist industry, he points out. "To compete, the industry needs to be constantly developing talent. We need to keep expanding the education offering and upskilling the industry."

The skills required by the sector are diverse, from accountancy to technology and negotiation skills. "It's a very broad landscape. We need to ensure we have the people with the skills it requires," says Conlon.

On the job training is key too, and available through Skillnet Ireland. Through its Aviation and Aerospace Skillnets companies work collaboratively to respond effectively and rapidly to specific talent and skills needs in the sector.

"Ireland needs to ensure that we retain a highly skilled and highly educated pool of aviation leasing professionals," agrees Caoimhe O'Donnell, a senior development advisor at Skillnet Ireland.

"The global aviation sector is a dynamic one, and the talent and skills management of aviation leasing professionals required

for the industry are always evolving – now more than ever."

To continue to attract – and retain – good people in a tightening labour market, companies in the sector "will have to showcase a development platform that enables talented and ambitious people to improve and work on their skills," she advises.

The Aviation Skillnet supports the sector, maintaining and enhancing Ireland's position in aviation by investing in future research in such areas as sustainability, women in aviation, digitalisation and innovation.

## Resilience

Having come through the pandemic, and more recently Russia's invasion of Ukraine – and in some cases the seizing of leased aircraft – the sector has shown resilience, says Linda Barron, director of the Aviation Skillnet.

However she believes that it is only by pulling together and pooling data from right across the aviation ecosystem – from airlines to aircraft lessors to academia – that the sector will be able to capitalise on its biggest challenge to date – its ambition

■ **For Ireland to continue competing in aviation finance, it needs to be constantly developing talent, keep expanding the education offering and upskilling the industry**

to achieve net-zero carbon emissions by 2050.

Like many in the industry, she believes there is now an opportunity for Ireland to position itself as a centre for excellence in the development of sustainable aviation fuel (SAF), in the same way as it did for aircraft leasing.

"Ireland could have a huge impact on the sustainability front. The respect and history of Ireland in aviation is huge globally. The diaspora Ireland has around the world, in huge jobs, is enormous. Leasing was invented here and we could lead the way in sustainable aviation too," she says.

To succeed in that will require input from all elements of the ecosystem but Barron, whose Aviation Skillnet members represents nearly 150 companies, is optimistic it can be done. "There's a lot happening," she says. "It's all coming together."

## Soaring fuel prices a cause for concern

EDEL CORRIGAN

As travel starts to take off again, and the industry begins its recovery following a difficult couple of years, the aviation sector has been hit with another blow – dramatically increasing fuel prices. How will these fuel prices affect the industry and can anything be done to mitigate them?

John Cotter, professor in finance and the chair in quantitative finance at University College Dublin says that jet fuel prices were less than \$20 a barrel two years ago, but now are eight times higher. "It's a supply and demand issue. We have had in the last three years very close to zero demand. Fast forward two years and we have increased demand and a situation where the supply of oil is affected by the war in Ukraine – now prices are in excess of \$150 a barrel."

Global economic uncertainties and fluctuating oil demand and production are driving oil prices, agrees Dr Marina Efthymiou, course director for the MSc in aviation leadership, and assistant professor in aviation management, at DCU business school. "The Russian invasion of Ukraine is also driving the fuel cost and the airspace closures make routes longer, meaning that they need to burn more fuel. For example, a flight from Helsinki to/from Seoul is 2,150NM longer due to the Russian airspace closure."

In addition, the US banned all Russian oil and gas imports, and the UK decided to phase out Russian oil by 2022. "The EU stated that they will switch to alternative suppliers and become independent from Russian energy by 2030. On March 4th, jet fuel prices rose to \$141 per barrel, up 27 per cent on the month. On April 14th, jet fuel was at \$160 per barrel, 14.3 per cent higher than a month earlier and 126.2 per cent higher year on year."

### Oil prices

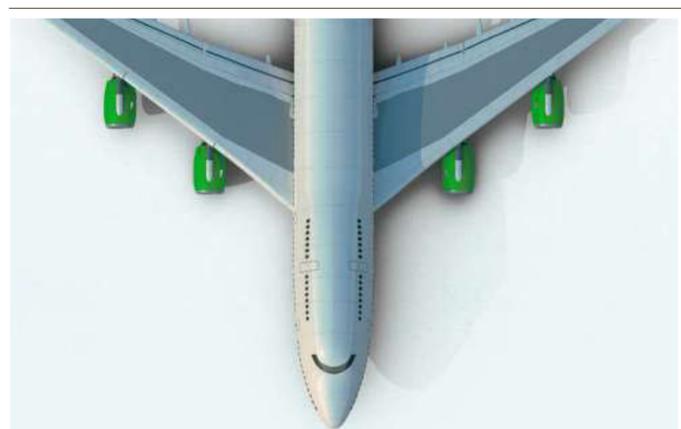
Cotter believes that while a shortage in supply affects oil prices, the bigger concern is volatility in oil prices. "We've seen very large swings over the last two to three years, which is more of a fundamental challenge to the industry because it hedges against oil price uncertainty and has to do that more now than it did two or three years ago."

Dr Efthymiou agrees. "The most worrying part for the aviation industry is uncertainty. It is unknown for how long the prices will keep rising and there are many disruptions in the industry posing threats to all carriers, especially the smaller carriers. It will be interesting to observe how the fossil fuel cost increase will affect the demand for sustainable aviation fuel."

Fuel accounts for about 30 per cent to 35 per cent of the total operating cost for an airline, and it is a cost which impacts the ticket price, says Dr Efthymiou. "Airlines are still trying to cut losses as they emerge from the pandemic, and a significant and long-lasting increase in their operating cost will soon be reflected in fares and the yields."

Cotter says that eventually, these rising costs will be passed on to customers. "Costs have increased so fares have to be increased to match. It will introduce discrepancies across the industry and long-haul flights will be more impacted than short-haul flights."

Making the whole industry more efficient, whether that's via using sustainable aviation fuel and improving technologies so planes fly more efficiently and maximise the fuel they use are a couple of ways to mitigate the sky-rocketing costs, says Cotter.



## Aviation Transaction Services

Providing certainty in your world.

Our highly-experienced corporate aviation team specialises in aviation transactions and has expertise in the relevant areas of accounting, tax and law.

The Waystone aviation team provides:

- special purpose vehicle incorporation
- aviation experienced directors
- company secretarial services
- bookkeeping and accounting
- share trustee, if required
- Registered Office services.

waystone.com



## 'Dramatic' rise in cyberattack risks

Danielle Barron

Organised crime and geopolitical tensions step up potential for cyberattacks

Cyber risk is an ever-evolving threat to organisations and the nature of the aviation industry means it has particular features that make it especially vulnerable to would-be hackers.

According to Eoghan Daly, a director with BDO who leads the firm's cybersecurity work, since the beginning of the Covid-19 pandemic the sector has seen a "dramatic" increase in the number of cyberattacks directed at staff, operations, and critical IT infrastructure.

"For some organisations in the sector, working from home, outside of the safety of organisational IT security perimeters, has become the norm," says Daly. Given this and other security-related risks facing the sector linked to the war in Ukraine, cyber security continues to be high on the risk agenda with the threat profile only increasing, he adds.

Major breaches associated with airlines such as British Airways, EasyJet and Cathay Pacific have been reported in recent years – Daly points out that there are likely to be many more that never hit the headlines. "In each case listed above, the report result was a breach of personal records, highlighting the value cyber criminals place on personal information."

Certainly, it is something of



■ **The common denominator in almost all cybersecurity attacks is that organisations have failed to constantly train and educate their people**

an understatement to say that the aviation industry collects sensitive information – this ranges from passenger information including passport details and data about their own employees, as well as sensitive legal and financial information related to purchasing and leasing contracts. Daly notes that intellectual property information related to prospective deals, purchase prices, pricing models and matrices is of immense value to would-be hackers. "The most valuable information in the sector is the price Boeing and Airbus charge for airplanes," he says.

### Payments

Among the most significant threats to the aviation industry in terms of cyber security is organised crime. Daly points out that aircraft leasing firms make payments for millions of euro on a regular basis. "Business Email Compromise (BEC) fraud is reasonably easy to prevent, but is still one of the most

common cyber-enabled frauds," he explains. "Many businesses do not have the correct email settings in place, enabling cyber criminals to spoof email addresses and initiate successful BEC frauds."

As geopolitical tensions continue to grow, this could also leave certain airlines vulnerable to a potential cyber attack. "Many airline brands are closely associated with their home country, such as Aer Lingus in Ireland and British Airways in the UK, and could become a target due to the fallout of the war in Ukraine," says Daly. "Disruption to summer holiday plans, and leaving passengers stranded overseas, would result in significant disruption and political pressure." There is also an ideological threat, as so-called hacktivists could potentially choose to target airlines and other actors in the aviation industry as a means of protest against its contribution to carbon emissions.

Carmel Somers is a board

member of Cyber Ireland, a member of the European Cyber Security Organisation (ECSO) and also leads the Cyber Skills Initiative at Technology Ireland ICT Skillnet. According to Somers, as air travel begins to pick up, "cybersecurity becomes front and centre in aviation again". And as aviation businesses increase their reliance on technology, to improve operational efficiency and reduce costs, they are also increasing their "attack surface", meaning the various weaknesses cyber threat actors can leverage to achieve their objectives. "Once you begin to introduce technology, unless you look at the risk involved and how you protect those transactions, you potentially leave yourself open at a lot of crossover points for cybersecurity breaches," says Somers.

She references a recent report that highlighted how 97 out of 100 of the world's largest airports have security risks related to vulnerable web and mobile applications, misconfig-

ured public cloud, dark web exposure or code repositories leaks. Interestingly, however, the report found that Dublin Airport was one of only three large international airports to pass all their tests without a single major issue being detected. "They are clearly doing a lot of things right," she says.

### 'Simple issues'

According to Somers, the common denominator in almost all cybersecurity attacks is that organisations have failed to constantly train and educate their people. "It is often simple issues like they're not protecting their websites, or they've got exploitable vulnerabilities or even something as basic as outdated software," she says. "It's people clicking links, it's people receiving emails. Most of the attacks are not hugely sophisticated – you do get those but most of the ones that impact companies are due to just not doing the basic hygiene and risk assessment of the system that they have. And if you are not doing the basic stuff right, then you are definitely not doing the big things right."

Technology Ireland ICT Skillnet has a portfolio of cybersecurity programmes, many of which are free of charge. It also subsidises programmes including master's programmes so that business people can understand the risks involved, says Somers. Education and awareness are huge, she says.

"It should be part of induction when you hire new people, and every year you should be retraining and reskilling, showing them examples of things you do not click on or reply to. There may be an investment but at the end of the day, the cost of a potential breach dwarfs that investment."

# Pandemic increases importance of leasing channel for airlines

**Barry McCall**

Benefits of leasing a plane outweigh the negatives especially for airlines carrying debts after Covid

According to some estimates, leasing now accounts for 51 per cent of the world's commercial aviation fleet and that number is only going in one direction.

"I would say that estimate is probably about right," says Andy Murphy managing director and head of strategy (structured finance) with Waystone. "However, I would expect this number to rise post-Covid. The benefits of leasing a plane versus owning one, I think, will outweigh the negatives going forward. For example, when airlines lease a plane, they not only forego the up-front burden of acquiring the asset which allows them to utilise cash reserves and balances for other projects, but it also allows flexibility to short-term lease assets during times of increased capacity." KPMG head of aviation finance Joe O'Meara agrees: "Aircraft leasing has consistently grown its market share for decades. At the turn of the century about a quarter of all aircraft were leased – that is over 50 per cent now. The pandemic has increased the importance of the leasing channel for capital constrained airlines, with leasing companies funding closer to 60 per cent of new deliveries in the last couple of years. It remains to be seen whether this level is sustainable, but with the additional debt taken on by airlines as a result of Covid, I expect lessors will continue to fund the majority of new deliveries over the next few years."

## 'Unstoppable'

UCD associate professor of banking and finance Thomas Conlon describes leasing as "an unstoppable force". "Going back to the 1970s almost all aircraft were owned by the airlines, now it's less than 50 per cent," he notes. "The proportion of leased narrow-bodied aircraft is even higher than that. That's a particular focus for the lessors. There is less uncertainty in relation to their future value. Widebody aircraft are susceptible to demand shocks. When Covid hit, the first thing the airlines did was ground their widebody aircraft. They didn't have passengers to fill them. With four engines they are very costly to run."

That cost factor is driving a widespread move two-engine aircraft, he adds. "Airlines are running on very tight margins and 30 per cent of their cost base is fuel."

The lessors also enjoy an advantage in terms of their cost of capital. "Leasing companies can borrow at lower rates than airlines," Conlon points out. "All the top lessors have achieved investment grade credit ratings over the past number of years. Most airlines don't enjoy those ratings. That gives the lessors access to deep pools of capital at competitive rates." That can be particularly important for smaller or start-up airlines, according to Murphy. "In some cases, these airlines would have struggled to obtain financing from banks in order to buy aviation assets," he explains. "Aircraft lessors are specialist lenders



66

**Purchasing aircraft ties up significant amounts of capital for an airline. Having a mix of owned and leased assets can open opportunities for airlines to increase their fleet size and drive growth**

in this sector, and perhaps understand the underlying risk profile of the smaller lessee a little better, or indeed have a higher risk profile themselves and are therefore comfortable lending to smaller or start-up airlines."

Leasing may also be the only way for airlines to get their hands on new aircraft. "If you want to buy a Boeing today it could take five to eight years before it is delivered," explains Conlon. "The lessors have a lot of the delivery slots tied down through speculative orders. They have guaranteed access to aircraft. If you want to get a new aircraft, leasing might be the only way to get it. The lessors also tend to have the most fuel-efficient aircraft. They could be 20 per cent more fuel efficient. That means a lot in a tight margin business." There is also the not insignificant matter of risk management. "Aircraft can depreciate quite dramatically over the first few

years, leading to a negative depreciation write-off amount," says Murphy. "If the asset is held on the balance sheet of the airline this is quite penal for their profit and loss account. However, if the asset is leased then the depreciation does not have an impact on the airline's balance sheet, rather it impacts the balance sheet of the asset owner – the aircraft lessor."

## Certainty

It brings more certainty as well, according to Kieran O'Brien, lead advisory partner in aviation finance, KPMG. "The two main drivers are flexibility and risk management. Purchasing aircraft ties up significant amounts of capital for an airline. Having a mix of owned and leased assets can open opportunities for airlines to increase their fleet size and drive growth. Leasing also allows airlines to avoid taking on resid-

ual value risk. At the end of their lease term, they can hand the asset back and they don't need to worry about movements in the aircraft's value, which sometimes can be significant."

O'Mara believes leasing will continue to grow both in scale and importance. "Long-term air travel has grown at a rate of roughly 4.5 per cent per annum," he says. "Covid clearly stopped that in its tracks, but the recovery is evident, and that growth factor will return sooner than originally thought. Environmental concerns are driving a move to newer technology aircraft and appetite to upgrade fleets. The relationships between leasing groups and airlines have grown stronger over the course of Covid, with lessors being instrumental in many airlines' survival. All these factors give you confidence that leasing will continue to grow both in size and importance. Given Ireland remains the centre of the air-

**Boeing 787: 'If you want to buy a Boeing today it could take five to eight years before it is delivered,' claims UCD associate professor of banking and finance Thomas Conlon**

craft leasing world, that's a huge positive for our economy."

Conlon agrees: "It is my belief that we will continue to see an increase in leased versus owned aircraft. There is a decoupling taking place between ownership of aircraft and operating an airline. You don't have to own any aircraft to run an airline. I can't really say what the maximum is. The kind of airlines that tend to be fully leased tend to be start-ups. But if you take any of the flag carriers you will find that a substantial proportion of their fleets are leased. That includes the likes of British Airways and Lufthansa."

## Colleges offer top-flight degrees for industry

**Peter McGuire**

Several shorter courses focused on aviation finance and management are also available

With several universities and colleges offering top-flight business-focused aviation courses – and 42 per cent of the global aviation fleet leased through an industry that is largely based in Ireland – what can prospective students expect to learn, and where?

Aviation courses are as diverse as holiday destinations. Some, such as those at Dublin City University's aviation management or aviation management with pilot studies, or MTU's international business with aviation studies (on the university's Cork campus) are full-time degrees leading to a level eight undergraduate qualification.

Others, notably DCU's MSc in management (aviation leadership) and University College Dublin's MSc in aviation finance – lead to a level nine postgraduate qualification.

On top of this, there are several shorter courses focused on aviation finance and management, including a level nine aviation leasing and finance course at the University of Limerick, and level eight aviation business course at MTU or DBS.

in aviation management at the same university.

Both academics say that DCU's courses are particularly focused on aviation management, with a mix of business subjects and aviation-focused modules.

"The business school was approached by the airlines and industry representatives who were looking for pilots with an academic degree and an understanding of the management side," says Efthymiou. "On a four-year undergraduate degree, our students decide in the final year whether to focus on management or piloting."

To become a pilot, students spend three years at DCU and then move to a pilot school, such as the National Flight Centre pilot academy at Weston Airport, or at an EU training facility, to specialise.

"The undergraduate aviation management degree is two-thirds standard business courses including accountancy, economics and law, and one-third aviation courses including airline management, airport operations, flying theory, fleet planning and aviation safety," says Guiomard.

"Our graduates have [roles including] trainee managers with airlines in Ireland, in airports, air-traffic control, regulatory and policy bodies, consultancy firms that advise aviation companies, and aircraft finance and leasing. Because the degree is a business qualification, students have been prepared for managerial posts across the economy."

Despite the impact of the pandemic on aviation, Guiomard points to more CAO applications to the DCU course than ever before.

Many of those on the DCU postgraduate course have



**Gender balance and sustainability are the two main challenges facing the aviation industry**

worked as pilots or air-traffic controllers, and DCU recognises this as evidence of prior learning even if they do not have an undergraduate primary degree. Efthymiou says that many pilots take on the degree because they're in search of a new challenge and change of direction, and online and blended learning is helping them to balance the demands of work and education.

### 'More innovative'

"We are constantly making the courses more innovative," says Efthymiou. "In the postgraduate course, students look at regulation and policy, leadership and how to manage an airline and an airport. We have an advisory board comprising the Irish Aviation Authority, Aer Lingus, Ryanair and Dublin and Shannon airports, and the aim is to get advice from them

on the skills that they need their managers to have." While innovation must be the fuel of the aviation industry if it is to survive, it has two main challenges to face: gender balance and sustainability.

"Not enough females are doing the course," says Efthymiou. "Part of the issue is confidence and part of it is due to lack of targeted opportunities. We're always keen to attract more diversity on to the course."

DCU business school is hosting an online event focused on diversity and inclusion in the Irish aviation industry which will look at how to attract more diversity into the industry and what can build a more inclusive work environment (google search "diversity and inclusion aviation DCU" for more information).

Changing the industry to make it more attractive to wom-

en can be done with the right will, and is less of a challenge than tackling the sustainability problem.

DCU's course has a particular focus on sustainable and green aviation, looking at short-term solutions like carbon capture, medium-term solutions like airplane design and longer-term solutions like carbon-neutral flights.

### Cutting edge

"Managers need to have an understanding of green innovations in industry, which is a very complex topic," says Efthymiou.

Indeed, the cutting edge of environmental and business innovation is in aviation.

At UCD, Dr Xuanyu Yue is a PhD graduate in aviation finance, and her research has shown ways in which the industry may be able to balance increased demand with stricter environmental policies.

"Addressing climate change is transdisciplinary and requires different disciplines to work together," she says. "My research provides insights for airlines as to whether leasing is a better option than purchasing, and what areas individual airlines should target to control emissions."

The recipient of Science Foundation Ireland's Valuation and Risk (VAR) research scholarship, Yue says she focused on aviation because it cannot yet be substituted by alternative transport modes and contributes heavily to emissions. And her work, along with published and peer-reviewed articles by graduates of the DCU course, indicates that some of the most innovative and cutting-edge science and business research is taking off on aviation courses.

**MSc in Aviation Leadership**  
Full-time and Part-time programme

- Ireland's only programme tailored for future Aviation Leaders
- Combines specialist Aviation training with expertise in strategic management
- Option to study individual modules with hybrid delivery - complete the programme at your own pace

[business.dcu.ie/aviation-leadership](https://business.dcu.ie/aviation-leadership)