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ALLIANZ RESEARCH

THE GLOBAL AEROSPACE INDUSTRY FACES A STEEP COST OF CONTAGION

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EULER HERMES

Allianz

EXECUTIVE SUMMARY

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- **Rising Covid-19 infections will hold back the recovery of passenger demand in H2 2020.** After a summer season cut short in Europe and North America by rising Covid-19 infections, along with continued low willingness to fly, global air traffic as measured by Revenue Passenger Kilometers (RPKs) contracted by -75% year-on-year in August, following an -80% drop in July. As sanitary restrictions tighten again, we now expect full-year 2020 air traffic to be down 60% - vs. a 40% decline in our previous forecast - compared to 2019 and to recover to its pre-crisis level only in 2024.
- **This has dealt a blow to new plane deliveries, especially for wide-bodied jets.** The challenges facing airlines have been passed onto the upstream global aircraft industry by the deferral of new plane deliveries, along with a slump in new orders, if not outright cancellations, depending on the type of aircraft. Breaking down the data, we find that the Covid-19 crisis has hit demand for wide-body (twin-aisle) aircraft more than narrow-body (single-aisle) ones since long-haul international travel has suffered the most. Taken together, we expect Airbus and Boeing to see a drop in new plane deliveries by -57% and -26% in 2020 and 2021, respectively, compared to 2019. In this context, aircraft manufacturers have had no choice but to slow down their production-rates to around 40 aircrafts a month, well below their target of 60 a month a year ago.
- **Lowered production rates put aerospace players' profitability at risk. We expect plane makers as a whole to post a USD4bn operating loss in 2020** and the average aircraft manufacturers' operating margin rate to plunge into the red at -2.5% after an all-time high of 9% only two years ago. This gloomy outlook stems from Airbus and Boeing's (most) profitable wide-bodies facing the highest production rate cuts. However, aircraft part and engine suppliers should get away with an operating margin rate divided by three to around 3% in 2020 and 2021, compared with their global average of 11% over the latest decade.
- **In the long-run, European aircraft manufacturers and suppliers are heading for a harder time.** Unlike U.S. players, which can count on large and unchanged defense budgets, European players will not only have to wait for the production rates of new planes to bounce back but also cope with losses of capacities, given the vast R&D spending required to meet ambitious expectations for the development of a zero-emissions hydrogen-powered plane by 2035.

-60%

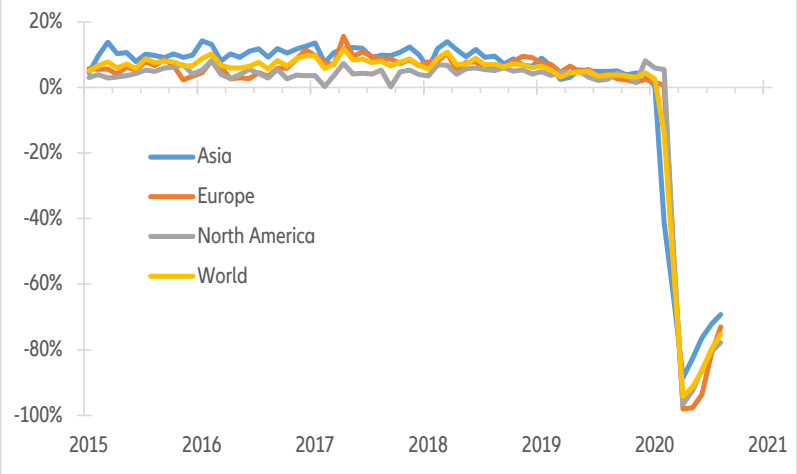
Forecasted decline in global air traffic in 2020.

RISING COVID-19 INFECTIONS HOLD BACK THE RECOVERY OF PASSENGER DEMAND IN H2 2020

After a summer season cut short in Europe and North America by rising Covid -19 infections, along with continued low willingness to fly, global air traffic as measured by Revenue Passenger Kilometers (RPKs) contracted by -75% year-on-year in August, following an -80% drop in July (Figure 1). Looking ahead, with the lack of convenient testing and compulsory quarantines on arrival, global air passenger demand will take longer to recover than previously expected. For the full year 2020, we now expect air traffic to be down -60% (vs. a -40% decline in our previous forecast) compared to 2019. It will still be 35% below the 2019 level in 2021, and is not likely to recover to its pre-crisis level before 2024.

Even as domestic markets in the EU and Asia are seeing a slight rebound, we do not see overall demand soaring again unless business travel strongly resumes by the end of the year. Amid low demand, airlines have significantly curtailed flights, leaving them strapped for cash. This is now hitting the aerospace industry, which is seeing deferrals in the delivery of new planes, in addition to a fall in new orders, if not order cancellations, depending on the type of aircraft manufactured. In this context, aircraft makers are unlikely to be able to deliver more than half the output planned before the Covid-19 outbreak.

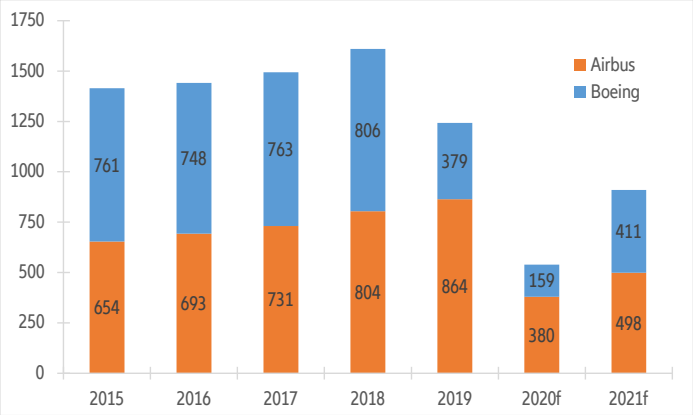
Figure 1: Air (passengers) demand, RPK change (m/m)



Sources: IATA, Allianz Research, Euler Hermes

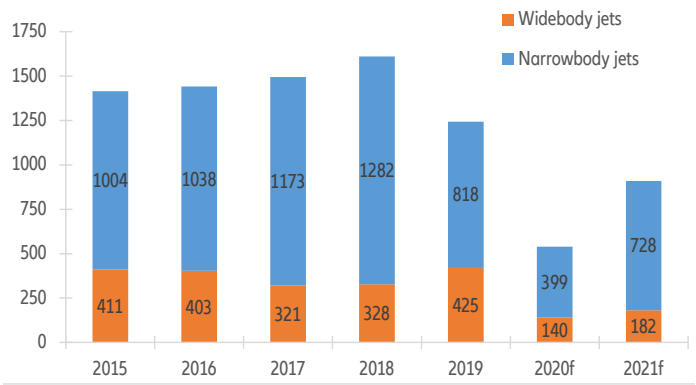
A BLOW TO NEW PLANE DELIVERIES, ESPECIALLY WIDE-BODIED JETS

Figure 2: Yearly deliveries of commercial planes (in number)



Sources: Companies, Bloomberg, Allianz Research, Euler Hermes estimations

Figure 3: Yearly deliveries of commercial planes by type (in number)



Sources: Companies, Bloomberg, Allianz Research, Euler Hermes estimations

Airlines and plane makers have been in heated negotiations over who should bear the biggest part of the deferral costs. Though the financial aspects of these negotiations have not been disclosed, we believe deferral costs will eventually fall on aircraft manufacturers, which want to avoid cutting off customers, given the potential growth of the Asian region. In this region, new planes are expected to constitute around 40% of the global fleet by 2040.

According to our forecasts (Figure 2), Airbus and Boeing are expected to deliver a total of 539 and 910 new planes in 2020 and 2021, respectively, compared with 1,610 in 2018 and 1,243 in 2019. The lower number in 2019 is the consequence of the flying ban imposed on Boeing's 737 Max jets since March 2019. While 2021 should see a slight recovery, the number of new plane deliveries is still likely to remain far below its pre-pandemic level of 1,600 units a year as long as the global economy remains off track.

Breaking down the data, we find that the Covid-19 crisis has hit demand for wide-body (twin-aisle) aircraft more than narrow-body (single-aisle) ones, given the fact international travel has suffered the most. Moreover, longer-range narrow-bodies such as the Airbus A320neo and Boeing 737 Max – once it is allowed to fly again – are likely to keep taking market share at the expenses of wide-bodies such as the A350 or the B777. Deliveries of wide-body jets are expected to slump by -67% in 2020 and -57% in 2021, compared to declines of -51% and -11% for narrow-body jets.

Figure 4: Plane deliveries (units) by type for Airbus and Boeing taken together

Units	2019	2020e	2022f	2024f
Narrow-bodies*	818	399	763	1,330
Wide-bodies**	425	140	146	200
Total	**1,243**	**539**	**910**	**1,530**

*Narrow-body jets: A320, A220 (ex-Bombardier), B737 NG and B737 Max
**Wide-body jets: A330, A350, A380, B747, B767, B777 and B787
Sources: Companies, UBS, Allianz Research, Euler Hermes estimations

Following the delivery deferral negotiations, aircraft manufacturers' build rates have been revised down, especially given the already significant size of parked fleets amid the sharp drop in flying (the cost of parking a plane is estimated at EUR1,000 a day). As deliveries are likely to exceed production in the medium run, especially for the Boeing 737 Max, we consider that monthly build rates on a downtrend might be bearable only if there are no renewed lockdowns ahead. Nevertheless, this will anyway affect the financial results of both aircraft manufacturers and suppliers, depending of their exposure to the jeopardized long-haul fliers. According to our calculations, we expect the narrow-body market share to jump from 70% to 84% between 2020 and 2022 (Figure 4).

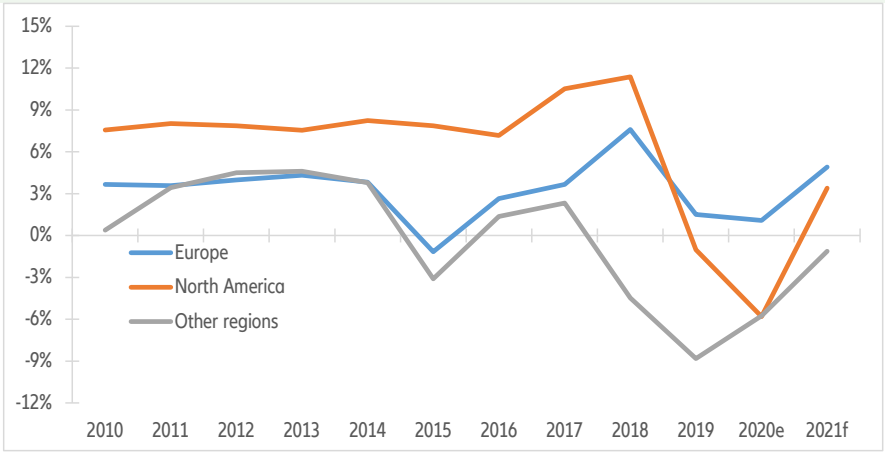
LOWERED PRODUCTION RATES PUT AEROSPACE PLAYERS' PROFITABILITY AT RISK

Long lead times between orders being placed and planes being delivered make the aerospace sector less cyclical than many others, with high development costs acting as a substantial barrier to new entrants. So the very much deteriorated business conditions of airlines all over the world have led aircraft manufacturers to significantly slow down output as of this year. As monthly production rates of large commercial aircrafts are the core growth driver for the entire aerospace and defense sector, we expect these cuts for 2020 and beyond to pressure cash flow and profitability for most players, notably the Airbus-Boeing duopoly, even with several years of backlog for their most popular planes (Boeing's 737 and Airbus's A320).

Costs for aerospace manufacturers rise as production rates fall. According to our estimations (Figure 5), we thus expect strongly depressed earnings for all the main aircraft manufacturers in 2020 across regions but especially for those located in the North America region (including Boeing and Textron). The European region includes Airbus, Bombardier – following its takeover by Airbus - and Dassault, while the other regions include the Russian UAC, the Brazilian Embraer and the Chinese state-owned Comac.

In a nutshell, plane makers across the Americas and Asia are expected to post a negative operating margin rate of -5.8% in 2020 while those across Europe are expected to post an operating margin rate of +1.1%, four times lower than the average of 4% over the latest decade. The tumble in the margin rate for European plane makers would have been stronger over 2020 vs. 2018 if we had not included the struggling Canadian Bombardier among the European players since the beginning of the decade because of its takeover by Airbus two years ago.

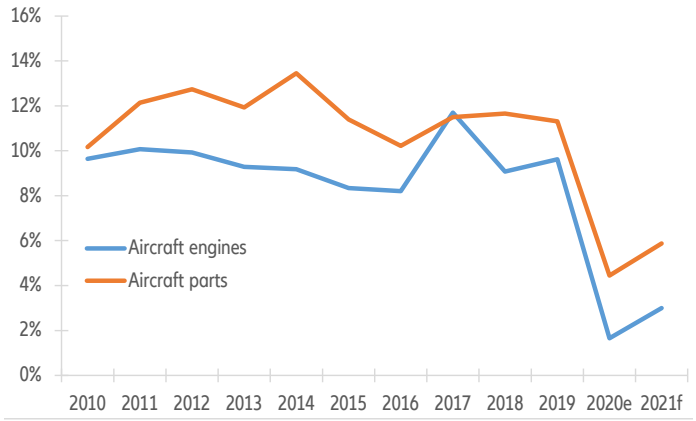
Figure 5: Operating margin rate* of main aircraft manufacturers (yearly average), by region



(*) Operating margin rate = Operating Income / Revenue

Sources: Companies, Bloomberg, Euler Hermes, consensus estimates

Figure 6: Operating margin rate* of main aircraft suppliers (yearly average)



(*) Operating margin rate = Operating Income / Revenue

Sources: Companies, Bloomberg, Euler Hermes, consensus estimates

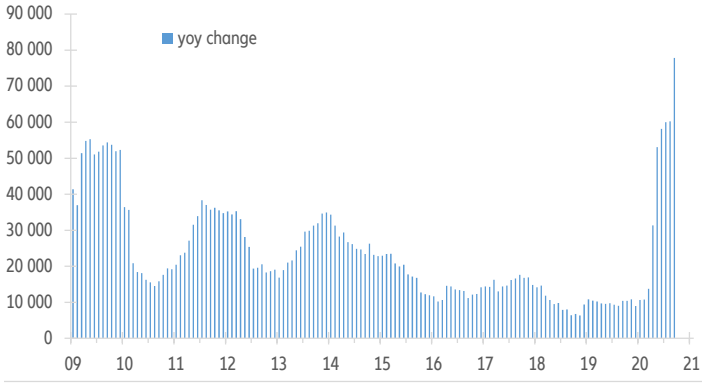
As production rates are expected to remain much lower than 60 a month among the main plane makers next year, there have been some cascading effects through suppliers in terms of higher overhead costs. Commercial aerospace suppliers need to cope with further downsizing of operations while aircraft lessors and aviation bankers see lower profit as a surplus of aircraft reduces new deliveries and financing. All in all, engine and aircraft parts-manufacturers have to contend with slumping demand for new aircraft components as ailing airlines delay all but necessary maintenance. Consequently, our estimations for aerospace suppliers' average operating margin rate is expected to be divided by three to around 3% in 2020 and 2021 (Figure 6), compared with its global average of 11% over the latest decade.

From that point of view, it is important to distinguish engine makers (GE, Safran, MTU, Rolls-Royce and IHI) from aircraft part-suppliers (UTC, AAR, Spirit, Thales, Avic, Transdigm, Triumph, Meggitt and CAE). Engine makers' operating margin rate is expected to be especially hit by the Covid-19 fallout, at less than 2% expected in 2020 as a result of a large number of older aircraft being parked and airlines using planes that need less engine maintenance. This poor trend also stems from the UK engine maker Rolls-Royce, which posted a GBP5bn net loss in the first half of the current year due to the repair costs of its Trent 1000 engines for Boeing 787s and its positioning on the most battered wide-body plane segment.

As a result, permanent cuts in the well-paying jobs found across this high-tech industry are unavoidable. In the U.S. alone, at the end of August, job cuts in the aerospace sector rose by +649% year-over-year to an all-time high of 77,000.

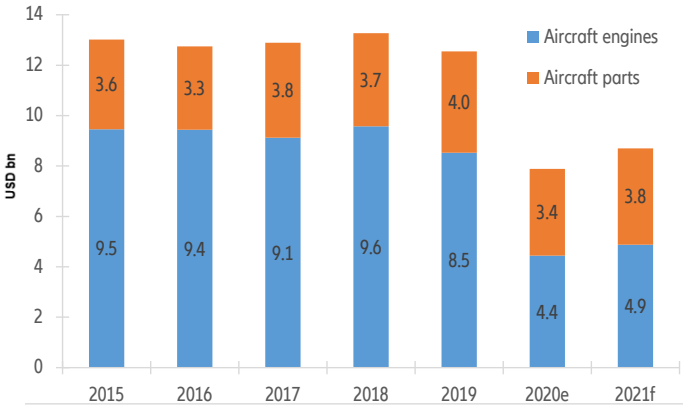
The need for investing in additional R&D to build new hydrogen-powered planes also remains very strong. We find it hardly possible for aerospace suppliers to invest less than USD10bn a year over the next two years (Figure 8) to be able to meet governments' expectations for a greener aircraft by 2035.

Figure 7: Job cuts in the U.S. aerospace sector (monthly numbers)



Sources: Challenger, Gray & Christmas, Allianz Research, Euler Hermes

Figure 8: Capex of main aircraft suppliers worldwide



Sources: Bloomberg, companies' estimations

CREATING A HYDROGEN-POWERED PLANE BY 2035: TOO AMBITIOUS A CHALLENGE

The U.S. aerospace sector can at least count on unchanged demand from defense, which accounts for around one third of Boeing's revenue. As military projects remain critical to national defense, the U.S. has focused on strengthening its defense industrial base, with yearly defense budgets amounting to a total of USD720bn. We do not expect the outcome of the November elections to change the size of future defense budgets, at least until 2023, nor to bring on any big disruptions in the U.S. aerospace supply chain as a result. As for Russia's Uac and China's Comac, being state-owned means they can bear a long regime of structural losses as long as they are bailed out.

However, Airbus and its subcontractors appear to be more exposed to challenges, given their quasi-exclusive positioning in the commercial aerospace sector. Nevertheless, last month Airbus announced its goal to build a brand new zero-emission aircraft fueled by hydrogen, to be ready to fly by 2035. Airbus's goal is to test three prototypes: one turbojet engine (for 120 to 200 passengers), one turboprop (up to 100 passengers) and one flying wing (up to 200 passengers), and to proceed with one of these projects, which is expected to cost around EUR20bn. To develop its new plane, Airbus needs to extend its usual ecosystem to include hydrogen production facilities and an associated distribution network. In order to do so, Airbus will have to work with experienced subcontractors in the sector such as Safran but also with companies seeking to develop their own hydrogen channel.

To get things started, France announced a EUR15bn support plan for the domestic aeronautic industry as a whole. While most of this plan was designed to keep the industry afloat, EUR1.5bn was allotted for investments in aerospace R&D over the next three years to encourage the sector's energy transition. An additional EUR7bn has been earmarked to specifically develop the hydrogen sector across types of transportation (jet, truck, and car). However, the use of hydrogen as a new (jet) fuel presents numerous challenges: it must be stored in liquid form at -253° C, which requires the implementation of a heavy cryogenic system. In addition, it takes four times more hydrogen in volume than kerosene to obtain a similar performance in propulsion. These characteristics will require Airbus to reframe all its future planes to integrate an efficient onboard hydrogen storage system.

Moreover, hydrogen is mostly produced through fossil fuel energy sources, so to achieve its zero emission travel plan, Airbus, alongside the whole supply chain of aerospace players, would need to find a way to produce hydrogen via renewable energy sources. All in all, the forecasted capital expenditures of main aerospace suppliers worldwide amount to USD8bn a year. Especially in the wake of the Covid-19 crisis, this seems to be very far from enough to make a hydrogen-powered plane possible by 2035.

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