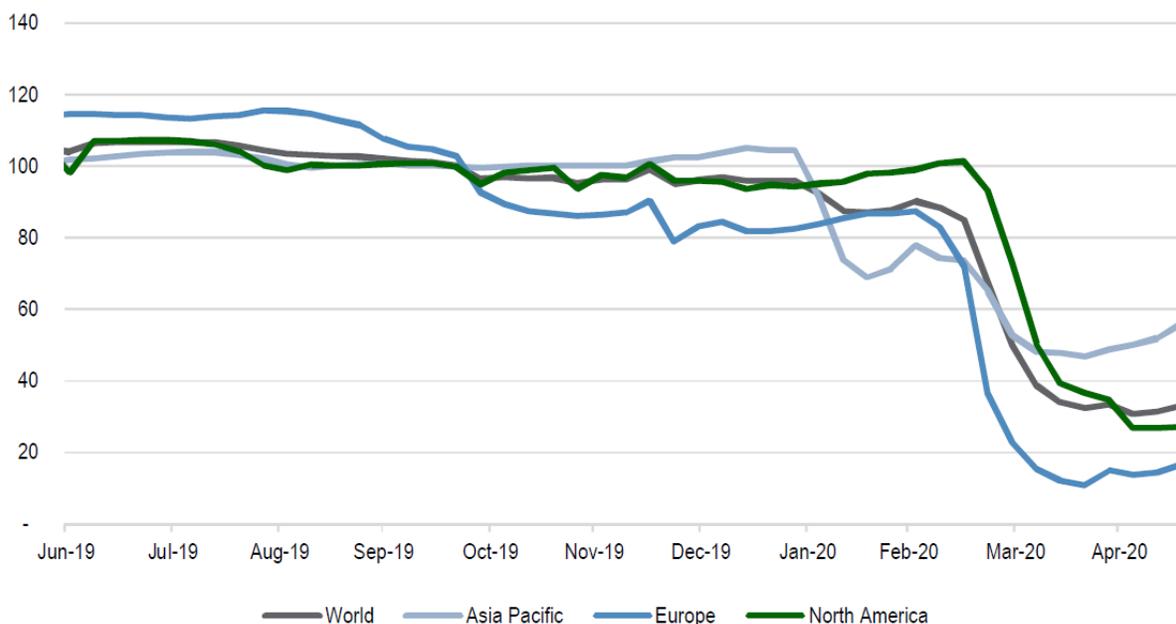


## AISI Market Analysis

- **COVID-19 Market Impact, 01 June 2020**

After months of unprecedented downward trends in travel and a near complete shutdown of commercial airline operations in April, data suggests air traffic has started to rebound even as the full impact of the global economic shutdown becomes clearer. New flight cancellations have effectively ceased and domestic markets have seen increased capacity of late, but additions to operating fleets appear to be tentative and spotty around the globe.

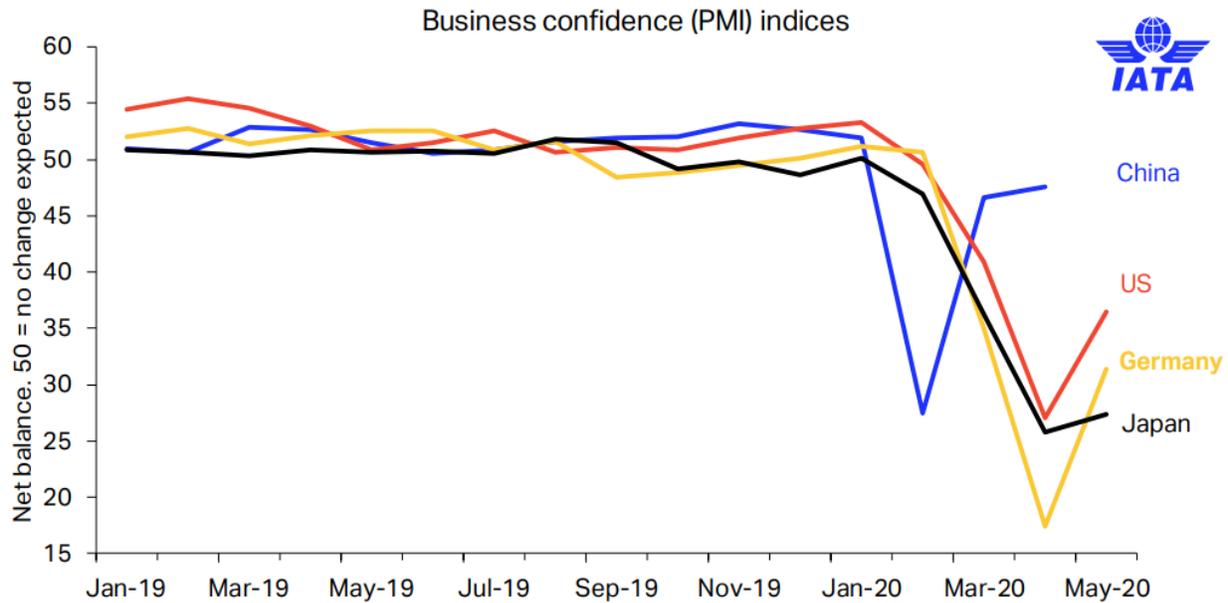
### Worldwide Weekly Scheduled International and Domestic Flights



Index = 2019 Average total flight schedule

Source: OAG Schedules Analyzer, J.P. Morgan

Most developed countries have demonstrated downward trending Covid-19 infection rates and find themselves balancing the possibility of flare-ups against the known and growing economic devastation of continued national lockdowns. We see more economic re-openings occurring even though Covid-19 is not fully under control, however, there is increasing evidence that many countries now have the medical capacity to handle all but the most catastrophic levels of Covid-19 recurrence. As governments focus on vaccine development, testing apparatus, and contact tracing, confidence in the private sector has begun to creep upwards, as illustrated in the chart below.



Source: IATA Economics using data from Markit

While China was the only country to demonstrate economic expansion or positive manufacturing output in past weeks, the easing of the downturn in other countries could mean a turning point has been reached. Whether airlines are able to weather the recovery remains to be seen.

As expected, airline bankruptcies have increased as some nations allow large carriers to fail. Thai Airways and LATAM join the growing list of bankrupt carriers, but even they continue to operate though at severely reduced levels. Virgin Australia, which entered voluntary administration in weeks prior, is already in the process of bidding and expects the takeover to be complete by June 30. Alitalia, while operating through bankruptcy since 2017, has been recently abandoned by its financial supporter in Qatar Airways. The government of Italy has announced they will renationalize the flag carrier as part of their larger Covid-19 economic rescue plan. Below is a comprehensive list of Covid-19 related bankruptcies to date.

<b>Airline</b>	<b>Date of Bankruptcy</b>	<b>Nation</b>
Alitalia	Ongoing	Italy
South African	December 2019	South Africa
Flybe	March 2020	United Kingdom
Trans States Airlines	March 2020	United States
Compass Airlines	March 2020	United States
Miami Air International	March 2020	United States
Air Mauritius	April 2020	Maruitius
RavnAir Group	April 2020	United States

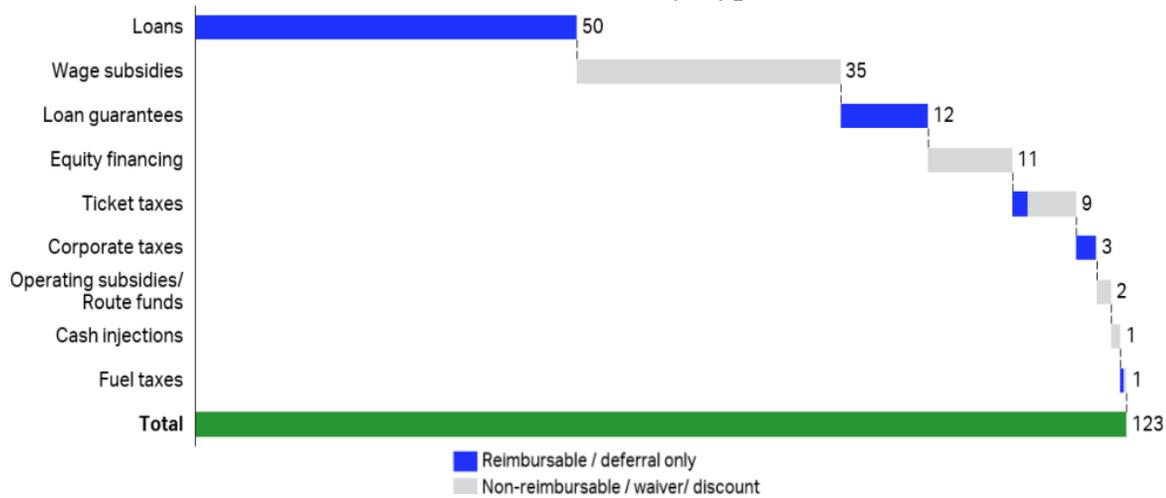
Comair	April 2020	South Africa
German Airways	April 2020	Germany
Germanwings	April 2020	Germany
Virgin Australia	April 2020	Australia
Avianca	May 2020	Columbia
Thai Airways	May 2020	Thailand
LATAM	May 2020	Chile
TAME	May 2020	Ecuador

Most governments have directly supported carriers, especially countries whose national airline is responsible for significant GDP contributions. The Netherlands and Singapore lead the world in aid provided to carriers as a percentage of the airlines' 2019 ticket revenue with 41% and 84% respectively, according to IATA. As illustrated in the chart below, a total of \$123 billion had been promised by 15 May, 2020. That number continues to grow as these figures do not include Lufthansa, the latest major airline to receive massive government subsidies, or the \$14 billion in short-term bonds issued in support of the Chinese majors.

	<b>2019 Revenue (\$ Billion)</b>	<b>Aid Promised (\$ Billion)</b>	<b>% of 2019 Revenues</b>
Global	\$838	\$123	14%
North America	\$264	\$66	25%
Europe	\$207	\$30	15%
Asia-Pacific	\$257	\$26	10%
Latin America	\$38	\$0.3	0.8%
Africa & ME	\$72	\$0.8	1.1%

*Source: IATA Press release #46, 26 May 2020*

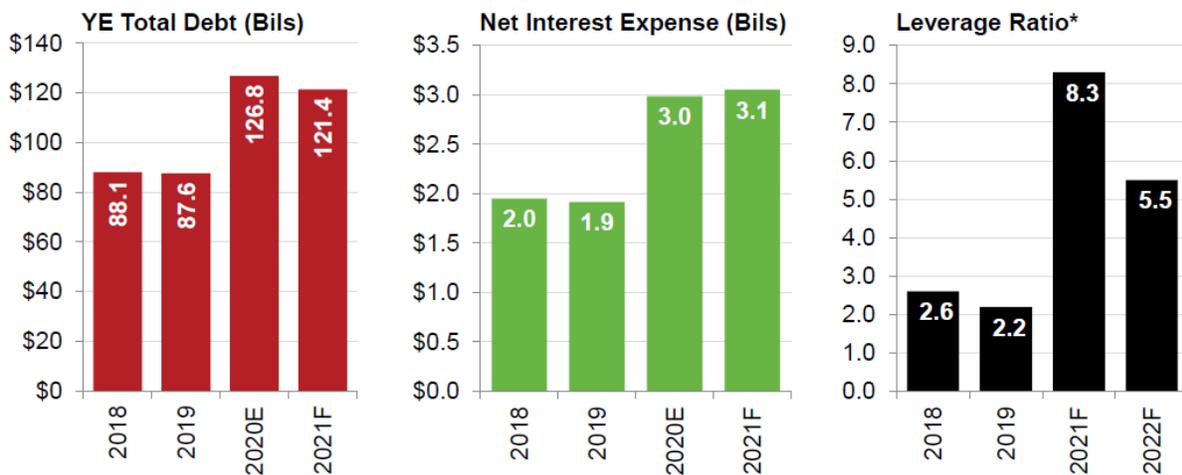
### Global Aid to Airlines by Type (USD bn)



Source: IATA Economics using public information and data from SRS Analyser, DDS, FlightRadar 24, TTBS, ACIC, Platts, Airline Analyst, annual reports. Government measure included up until 15 May 2020

Demand remains strong for airline financing through both debt and equity offerings and we expect the total aid figures to continue to grow in the short-term. But as the graph above demonstrates, of the \$123 billion in aid promised by 15 May 2020, \$67 billion will need to be repaid. Contrast this with the \$11 billion in equity financing and it's clear that the global airline industry will enter the recovery period holding significant debt. According to Airlines for America, U.S. carriers, which arguably entered the crisis in the best financial condition of all global airlines, have reversed years of progress as they will exit the current pandemic highly leveraged.

### US Carriers Debt Summary



Source: Wolfe research and filings of Alaska, Allegiant, American, Delta, Hawaiian, JetBlue, Southwest, Spirit and United

\* Net debt divided by EBITDA (earnings before interest, taxes, depreciation and amortization)



As airlines around the world develop creative solutions to reduce cash burn, some are looking to defer or cancel new deliveries of aircraft. In response, Boeing and Airbus have slashed production rates. Boeing had zero orders and 106 cancellations last month marking its worst April since 1962. Negotiations of deferrals for new deliveries entered the public sphere in recent days as Qatar Airways CEO Akbar al Baker has called on Boeing and Airbus to postpone deliveries or risk losing clients. Al Baker forecasted in the same interview that OEMs could expect a halt of new deliveries until “at least” 2022. Cancellations, deferrals and renegotiations of new aircraft deliveries are a certain, though hard to quantify, indicator of the distressed state of the current aircraft trading market

On a brighter note, Boeing received \$25 billion from a recent debt offering and does not see the need for direct US government subsidies. Boeing has also resumed production of the 737 MAX, indicating renewed hopes for MAX recertification. We could see political pressure increase on regulators to get the MAX aircraft line recertified and for Boeing to get back to producing and exporting aircraft. Still, there appears to be wide industry consensus that it will be two to three-years before traffic and aircraft demand will return to 2019 levels.

Boeing, Airbus: 2020 Orders & Deliveries Through 30 Apr.							
Deliveries	Airbus	A220	A320	A330	A350	A380	TOTAL
		8	108	5	15	0	136
	Boeing	737	747-8	767	777	787	TOTAL
		6	0	10	7	33	56
Net Orders	Airbus	A220	A320	A330	A350	A380	TOTAL
		42	257	-4	4	0	299
	Boeing	737	747-8	767	777	787	TOTAL
		-281	0	2	-1	25	-255
Gross Orders	Airbus	A220	A320	A330	A350	A380	TOTAL
		58	286	0	21	0	365
	Boeing	737	747-8	767	777	787	TOTAL
		18	0	2	0	29	49
Backlog	Airbus	A220	A320	A330	A350	A380	TOTAL
		529	6,217	322	568	9	7,645
	Boeing	737	747-8	767	777	787	TOTAL
		4,298	17	86	375	538	5,314

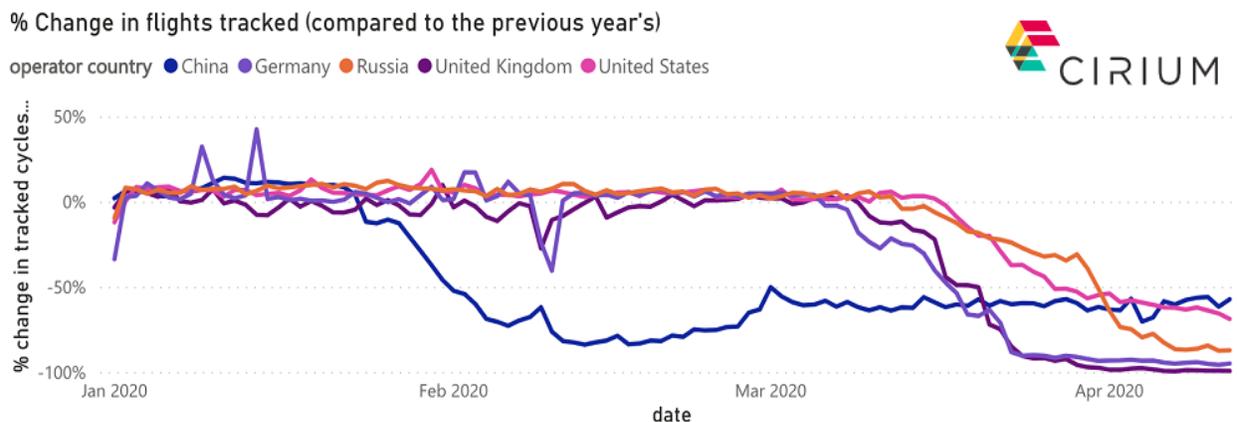
Source: Forecast International May 19, 2020

Airlines have also sought to defer lease payments for equipment in order to chop their overhead. Lessors expect to see up to 75% declines in contracted lease revenue through the end of 2020. Lessors remain optimistic that lease deferrals will eventually be re-paid over the next two to three years. At some point however, lease payment deferrals begin to pressure rates on any new or transitioned leases. Declines in lease rates eventually causes declines in aircraft values.

- **Covid-19 Impact on AISI Values**

Some signs of non-distressed aircraft trading are emerging and insights on the value certain aircraft have retained can be drawn from the figures of in-storage fleets. Utilizing the increasing amount of data points and fleet grounding/activation trends, AISI has released updated aircraft values. Our newly released aircraft base and current market values do reflect the impact of the Covid-19 pandemic.

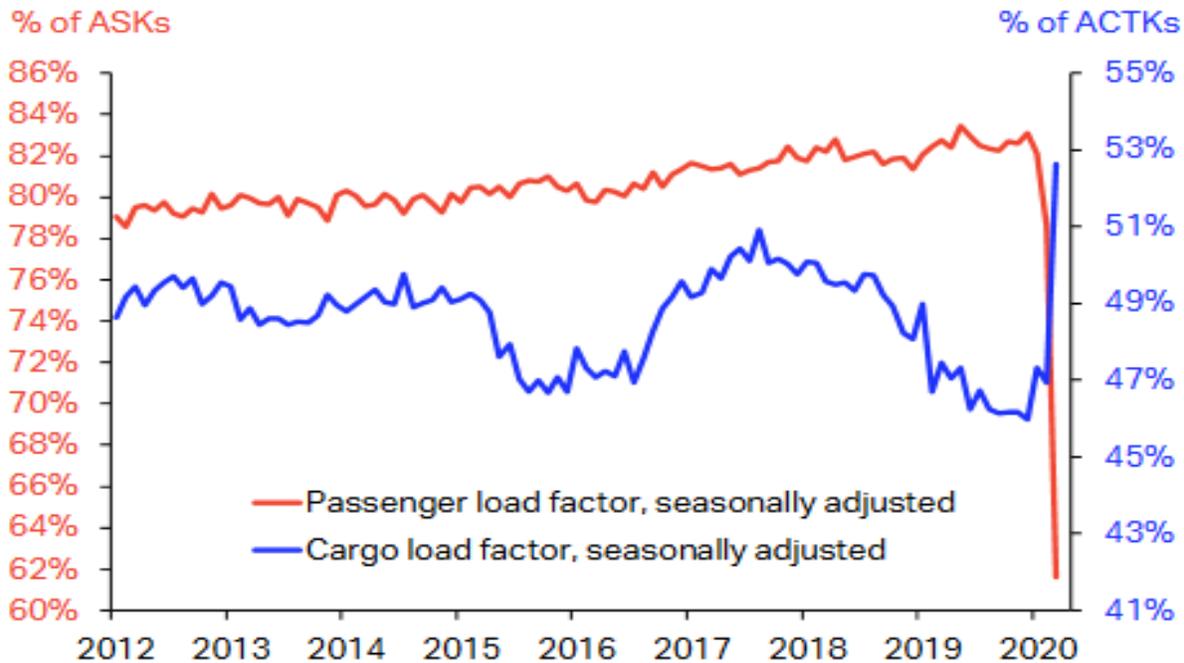
Most aircraft base value declines have continued to be 8-10% annually for narrowbodies but declines have increased to 10-14% annually for most widebody aircraft. It is important to note that aircraft current market values show unprecedented declines due to near zero demand for any additional passenger lift in fleets that are already averaging less than 25% available capacity usage as shown in the following chart:



However, it is the spread between base and current market values that indicates AISI’s analysis of the magnitude of the Covid-19 pandemic impact on any particular aircraft’s values.

The freight market for both wide and narrowbody aircraft remains surprisingly strong and freighter values have remained steady. Levels of purpose-built widebody freighters in storage are nearing record lows as almost all of the 747-400F/ERF stored fleet (8% of the operating fleet) is back in operation. All available narrowbody 737 and A321 freighter conversion slots are also fully booked. But the impact of this good news on the airline industry is relatively small as the air cargo market is only 8% of the size of the total passenger aircraft market.

We note that some operators have removed passenger seats from both wide and narrowbody aircraft to facilitate the use of those aircraft as freighters. Removing passenger aircraft seats is a near term and incremental path to income using aircraft that are presently parked. But as the demand for passenger aircraft increases, the cargo belly space that will return to the market will eventually make this practice unprofitable.



Source: IATA Monthly Statistics

Fuel prices and interest rates remain low reflecting the anemic state of the world economy. Absent complete economy shutdowns due to the resurgence of Covid-19 this fall, it is possible that world passenger traffic could recover to 75% of pre-Covid-19 levels by the end of 2020. However, it is more likely that 75% of pre-Covid-19 traffic levels will not return until mid-2021. There also remains the ever-present danger of other events such as wars or trade disruptions which could further add to the length of any airline industry recovery.

Looking ahead, aircraft current market values should roughly follow overall passenger traffic rebounds. There will be supply pressure from both Airbus and Boeing as they attempt to deliver aircraft into already soft markets. Supply-side pressure will most likely doom value recoveries for aircraft such as the B717, A319, and even early-build A320 and B737 NG aircraft.

Widebody value recoveries on newer model aircraft will lag narrowbody rebounds as international traffic will probably be the last market sector to get back on track. A330-200 and -300 values will be pressured by B787, A330-900 and A350 production. B777-300ER values will be pressured by both B777-9X and B787 production. We see the B787-9 and the A350-900 being the best widebody value recovery performers and the B777-200 and the A380 performing the worst.

Unfortunately some aircraft types will be permanently retired; B777-200, B767/757 (passenger) along with A340s and a large number of fairly young A380s. Even with very low oil prices, all of these widebody aircraft face severe value and performance headwinds.

AISI believes that the worst is behind us but the recovery will be slower than we had hoped for. The good news is that the world remains awash in available investment capital which does bode well for an industry recovery. We will update our coronavirus guidance as conditions warrant.



Sincerely,  
**AIRCRAFT INFORMATION SERVICES, INC.**

A handwritten signature in black ink that reads "Nick Miller". The letters are cursive and fluid.

Nick Miller  
Appraiser

A handwritten signature in black ink that reads "Shaun P. Halsor". The signature is stylized and somewhat abstract.

Shaun P. Halsor  
Appraiser

A handwritten signature in black ink that reads "Mark D. Halsor". The signature is written in a clear, blocky cursive style.

Mark D. Halsor  
Certified Appraiser, International Society of Transport Aircraft Trading

A handwritten signature in black ink that reads "Dave Miller". The signature is written in a cursive style.

Dave Miller  
Certified Appraiser, International Society of Transport Aircraft Trading