

Boeing and Airbus Delivery & Build Rate Outlook

Bloomberg Intelligence

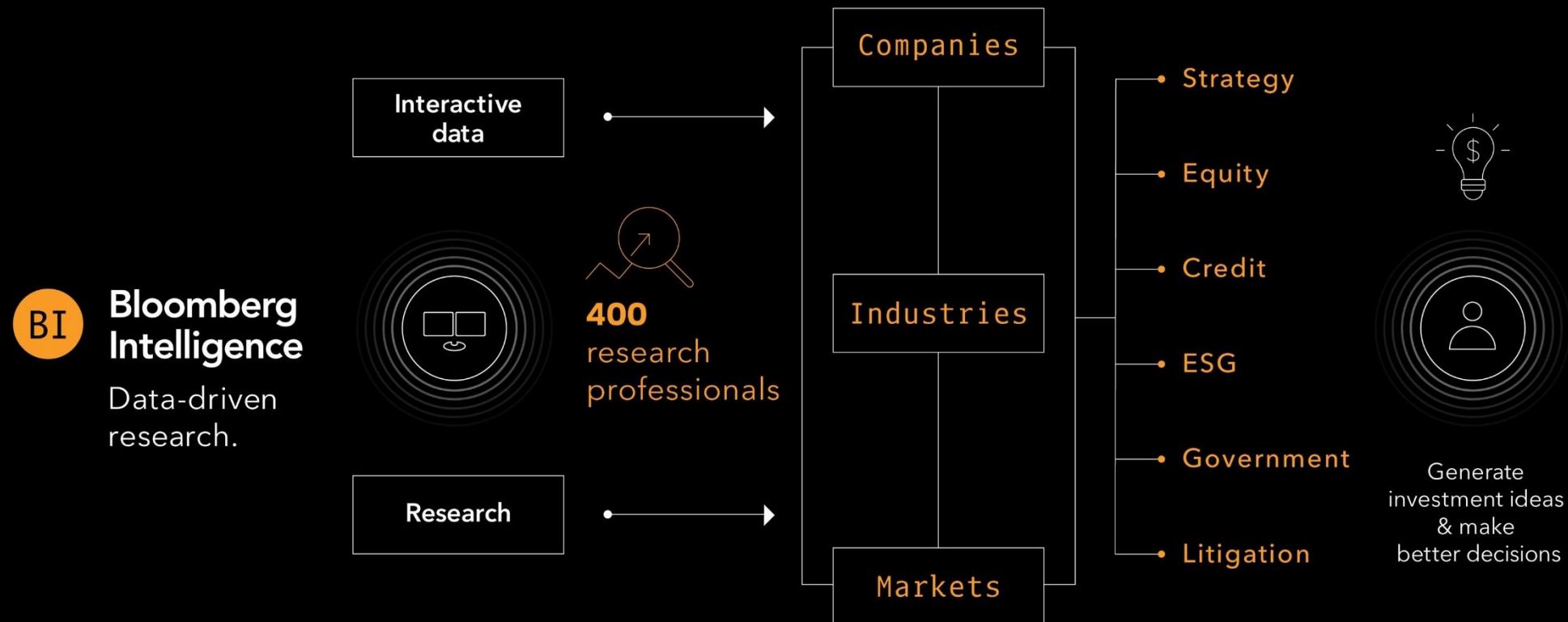
500+
data contributors

135+
industries

2,000+
companies

15yrs
avg. analyst experience

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George Ferguson

Senior Aerospace,
Defense & Airline
Analyst

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Boeing Moving to 31 737s, Airbus at 45

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Bloomberg Intelligence : Boeing, Airbus Planned Production Rates

Airbus							Boeing						
Announced	Effective	A220	A320	A330	A350	A380	Announced	Effective	737	767	777	787	747
Oct 2014	4Q 2015		-	9	-	-	Jan 2016	Mid 2016	-	-	-	12	-
2010	Jan 2016		A320 neo enters service										
Feb 2015	Q1 2016		-	6	-	-	Jan 2016	Sep 2016	-	-	-	-	0.5
Feb 2014	Spring 2016		46	-	-	-	Jan 2016	Jan 2017	-	-	7	-	-
Feb 2015	Q2 2017		50	-	-	-	Oct 2013	3Q 2017	47	-	-	-	-
Feb 2016	H2 2017		-	7	Cancelled		Dec 2016	Aug 2017	-	-	5	-	-
July 2016	2018						Sep 2015	Late 2017	-	2.5	-	-	-
	Late 2018		A330 neo enters service				May 2016	Jan-18	-	-	3.5 (2)	-	-
Feb 2015	Jan 2019		-	4	10	-	Oct 2014	2018	52	-	-	-	-
July 2017	Jan 2019					0.66	Jan 2016	2019	57	-	-	-	-
Oct 2015	Mid 2019		60	-	-	-	Oct-17	2019	-	-	-	14	-
Jan 2020	Immediately		-	3.33	9-10	-	Apr-18	2020	-	3	-	-	-
							Oct-19	2020	-	-	3 (2)	12	-
							Apr-20	2020	-	3	2.5 (2)	10	0.5
Apr 2020	2020		40 (1)	2 (1)	6 (1)	-	Apr-20	2021	31(1)	3	1.5 (2)	10	0.5
May 2015	2021		63				Oct-19	2021	777X Enters Service				
							Aug-20	2021	31(1)	3	1 (2)	6	0.5
January 2021	2021	5 (2)	45 (1,3)	2 (1)	5	-	Jan-21	2021	31(1)	3	1 (2)	5 (3)	0.5
Latest Rate		5	45	2	5	0.66	Latest Rate		0-31 (1)	3	1	2 (3)	0.5
May 2021	2022	5			6 (4)		Jan-21	late 2023	777X Enters Service				
May 2021	2023		64 (3)										
May 2021	2024		70 (3)										
May 2021	2025	14 (?)	75 (?)										

(1) Temporary cut by a third in March 2020, due to Coronavirus

(2) From April 2021; (3) 43 in 3Q21, 45 in 4Q21, 64 by 2Q23, 70 by 1Q24

(4) By autumn 2022

Notes: A320 and 737 include each manufacturer's family of narrowbody aircraft

Source: Boeing, Airbus, Compiled by Bloomberg Intelligence

(1) Temporary cut from 52 to 42 on April 5th, 2019 then to 0 December 16, 2019. Exit rate of 31 early 2022

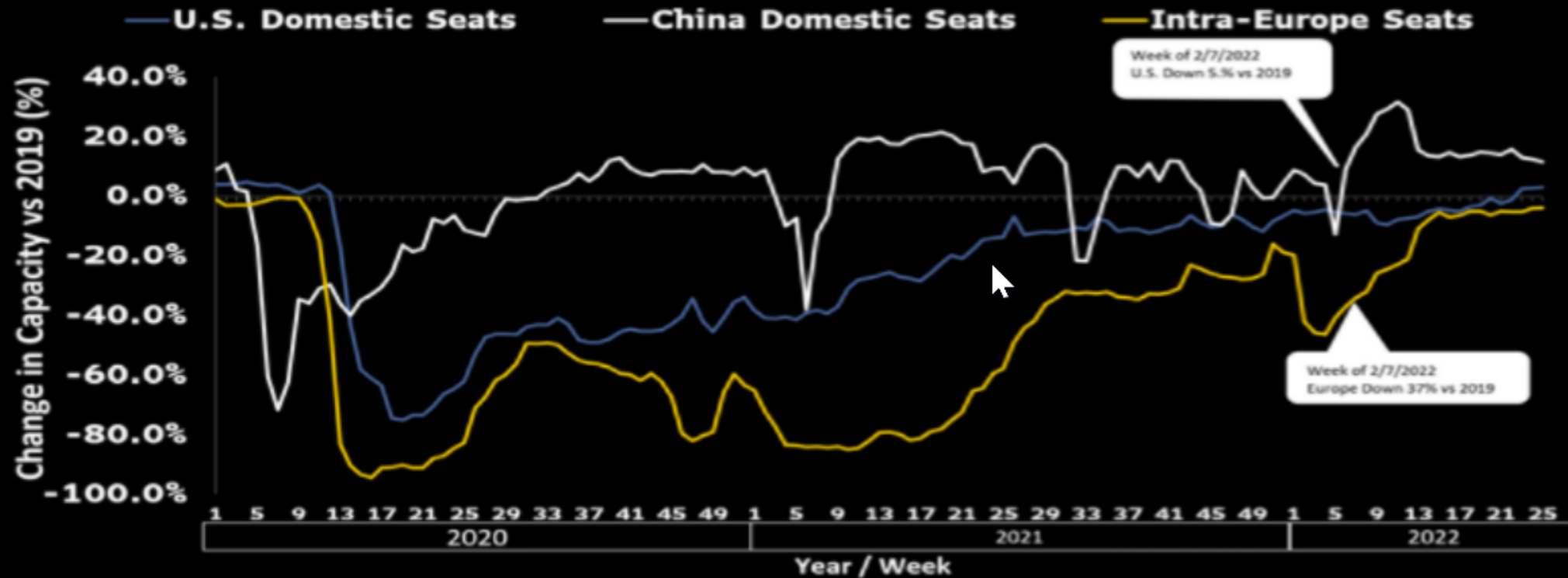
(2) Effective rate in transition to the 777X (2 per month when combining 777/777X)

(3) From March 2021, reduced to two since July 2021 until FAA approval

2021 Deliveries

Operator	737 Max	Percent	A320 Family	Percent
Total	245		482	
China	0	0%	119	25%
IndiGo		0%	+ 42	9%
Southwest Airlines	28	11%	0	0%
Air China		0%	24	5%
American Airlines	8	3%	16	3%
China Eastern Airlines		0%	24	5%
United Airlines	24	10%	0	0%
Delta Air Lines		0%	22	5%
Malta Air	22	9%	0	0%
Aeromexico	21	9%	0	0%
Wizz Air		0%	21	4%
Turkish Airlines	12	5%	6	1%
Spirit Airlines		0%	16	3%
Sichuan Airlines		0%	14	3%
Volaris		0%	14	3%
Frontier Airlines		0%	13	3%
Vistara		0%	12	2%
Alaska Airlines	11	4%	0	0%
flydubai	11	4%	0	0%
GOL	11	4%	0	0%
Juneyao Air		0%	11	2%
Ryanair	11	4%	0	0%
Shenzhen Airlines		0%	11	2%
Spring Airlines		0%	11	2%
China Southern Airlines		0%	10	2%
Others	86	35%	215	45%
Cirium Data as of 1/21/2022				

China Leads Major Domestic Markets



Note: Weeks 1 start on Monday January 7th, 2019 and Monday January 3th, 2022.
Scheduled capacity measured in seats. Diio data as of February 8, 2022

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2022 Deliveries

Airlines	737 Max		A320 Family	
Total	546		530	
Chinese Airlines	74	14%	57	11%
Southwest Airlines	70	13%	0	0%
Ryanair	58	11%	0	0%
Unconfirmed Airline		0%	48	9%
United Airlines	47	9%	0	0%
Alaska Airlines	32	6%	0	0%
IndiGo		0%	31	6%
Spirit Airlines		0%	31	6%
Wizz Air		0%	31	6%
American Airlines	1	0%	26	5%
Pegasus		0%	27	5%
SpiceJet	22	4%	0	0%
Delta Air Lines		0%	21	4%
GOL	21	4%	0	0%
Frontier Airlines		0%	20	4%
Air China	12	2%	7	1%
flydubai	19	3%	0	0%
Lufthansa		0%	19	4%
China Southern Airlines	13	2%	5	1%
Spring Airlines		0%	18	3%
VietJet Air	10	2%	8	2%
S7 Airlines	13	2%	4	1%
Aegean Airlines		0%	14	3%
SAS		0%	14	3%
Xiamen Airlines	14	3%	0	0%
Smartwings	13	2%	0	0%
Lion Air	12	2%	0	0%
Flynas		0%	10	2%
Shanghai Airlines	10	2%	0	0%
Shenzhen Airlines	10	2%	0	0%
Air Canada	9	2%	0	0%
China Eastern Airlines	5	1%	4	1%
Loong Air		0%	9	2%
Sichuan Airlines		0%	9	2%
Turkish Airlines	1	0%	8	2%
Ural Airlines	6	1%	3	1%
VivaAerobus		0%	9	2%
Volaris		0%	9	2%
WestJet	9	2%	0	0%
All Others	139	25%	145	27%
Cirium Data as of 1/21/2022				

Core of Build Rates

Boeing Core			Airbus Core		
	2022	Per Month		2022	Per Month
China	74	6	China	120	10
Southwest	77 to 114	6.5 to 9.5			
Ryanair	60	+ 5	WizzAir	31	3
United	50	4	Spirit	31	3
Alaska	32	3	Indigo	31	3
SpiceJet	22	2	American	26	2
Gol	21	2	Pegasus	27	2
flyDubai	19	2	Delta	21	2
Total		30.5 to 33.5	Frontier	20	2
					27
Unlikely			Unlikely		
S7	13	1	S7	4	
Ural	6	1			
Lion Air	12	1			
Source: Cirium, Bloomberg Intelligence, Company Reports					

China Not Supportive of Rising Rates

Bloomberg Intelligence : China Aircraft Requirements Model									
Year	Historical			Estimate					Five Year Total
	2019	2020	2021	2022	2023	2024	2025	2026	
GDP Growth (1)	6.0%	2.1%	8.1%	5.2%	4.5%	5.0%	5.0%	5.0%	538,497
Multiplier	1.8	(10.9)	1.4	2.0	2.0	2.0	2.0	2.0	
Domestic and Regional Capacity Growth	7.9%	-23.0%	11.3%	10.4%	9.0%	10.0%	10.0%	10.0%	
ASK Growth				93,080	88,927	107,701	118,471	130,318	
Total Capacity (ASKs) (2)	1,043,701	804,075	895,000	988,080	1,077,007	1,184,708	1,303,179	1,433,497	
Aircraft Needed to Fly total ASMs				3,063	3,319	3,629	3,969	4,340	
Total Narrowbodies (3)	3,054	3,160	3,117	3,170	3,479	3,479	3,629	3,968	
Stored Narrowbodies				309	-				
Aircraft Need/(Surplus)				(416)	(161)	150	339	371	
Average Seats per Narrowbody	167	167	167	167	168	169	170	171	283
Hours Operated per Day				8.5	8.5	8.5	8.5	8.5	
Cycles				4.4	4.4	4.4	4.4	4.4	
Cruise Speed (kilometers)				840	840	840	840	840	
Kilometers Flown per Day				5,292	5,292	5,292	5,292	5,292	
Million Asks Generated per Year per Aircraft	341.75	254.5	287.14	322.6	324.5	326.4	328.4	330.3	
Values in Brown Shaded Boxes Can be Changed									
Notes: (1) Growth rates forecasts from ECFC <GO> (2) Total capacity 2021 calculated using November 21 decline at major carriers to estimate CAAC November and December ASMs. Data from CAACS (3) Data from Cirium (FlightGlobal)									
Sources: Cirium (Flightglobal), Civil Aviation Administration of China Stats (CAACS), Bloomberg Intelligence									

Even at 10% Growth Surplus

Bloomberg Intelligence : China Aircraft Requirements Model									
Year	Historical			Estimate					Five Year Total
	2019	2020	2021	2022	2023	2024	2025	2026	
GDP Growth (1)	6.0%	2.1%	8.1%	10.0%	6.0%	6.0%	6.0%	6.0%	794,960
Multiplier	1.8	(10.9)	1.4	2.0	2.0	2.0	2.0	2.0	
Domestic and Regional Capacity Growth	7.9%	-23.0%	11.3%	20.0%	12.0%	12.0%	12.0%	12.0%	
ASK Growth				179,000	128,880	144,346	161,667	181,067	
Total Capacity (ASKs) (2)	1,043,701	804,075	895,000	1,074,000	1,202,880	1,347,226	1,508,893	1,689,960	
Aircraft Needed to Fly total ASMs				3,329	3,707	4,127	4,595	5,116	
Total Narrowbodies (3)	3,054	3,160	3,117	3,170	3,479	3,706	4,127	4,595	
Stored Narrowbodies				309	-				
Aircraft Need/(Surplus)				(150)	227	421	468	521	
Average Seats per Narrowbody	167	167	167	167	168	169	170	171	1,487
Hours Operated per Day				8.5	8.5	8.5	8.5	8.5	
Cycles				4.4	4.4	4.4	4.4	4.4	
Cruise Speed (kilometers)				840	840	840	840	840	
Kilometers Flown per Day				5,292	5,292	5,292	5,292	5,292	
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Russia Deliveries 2022/2023

Operator	777	737 Max	A220	A320	A321	A350	Total
Aeroflot Russian Airlines						3	3
Air Bridge Cargo	2						2
Azimuth			4				4
NordStar		3					3
Nordwind Airlines					1		1
S7 Airlines		13		2	4		19
Smartavia				2			2
Ural Airlines		6			2		8
Utair		3					3
2022 Deliveries	2	25	4	4	7	3	45
Aeroflot Russian Airlines						4	4
Air Bridge Cargo	2						2
Azimuth			2				2
S7 Airlines		1					1
Ural Airlines		8					8
Utair		6					6
VEB-Leasing		3					3
2023 Deliveries	2	18	2			4	26
Total	4	43	6	4	7	7	71
Cirium Data as of 2/22/2022							

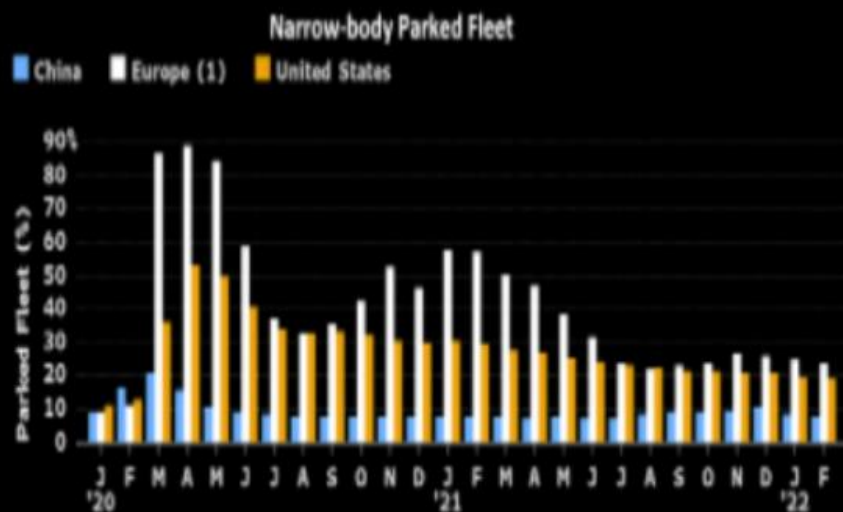
Russian Operator/Owner Orders

Operator	777	737 Max	A220	A320	A321	A350	Total
Aeroflot Russian Airlines						14	14
Air Bridge Cargo	6						6
Azimuth			6				6
Ilyushin Finance Company			14				14
NordStar		3					3
Nordwind Airlines					1		1
S7 Airlines		14		1	3		18
Smartavia				2			2
Ural Airlines		14					14
Utair		31					31
VEB-Leasing		17		20			37
Total	6	79	20	23	4	14	146
Cirium Data as of 2/22/2022							

Western Owned Aircraft May Leave Russia

	747	757	767	777	737 (CFMI)	737 NG	A319	A320	A321	A330	A350	Total
Total	14	19	10	37	13	114	29	91	72	19	1	419
AerCap	2	3	1	9		6	2	22	10	4		59
Air Lease Corporation				1		2		3	6			12
Aircastle						1	3	3				7
Aviation Capital Group								3	3			6
FLY Leasing						5						5
Goshawk									5			5
Structures	12	16	9	27	13	100	24	60	48	15	1	325
Cirium Data as of 3/2/22												

Parked Fleet Remains High



Cirium data as of February 9, 2022

(1) Europe is defined as countries part of ECAA and similar.

Only commercial passenger narrow-body and regional aircraft are considered. Data are as of the last day of the month available.

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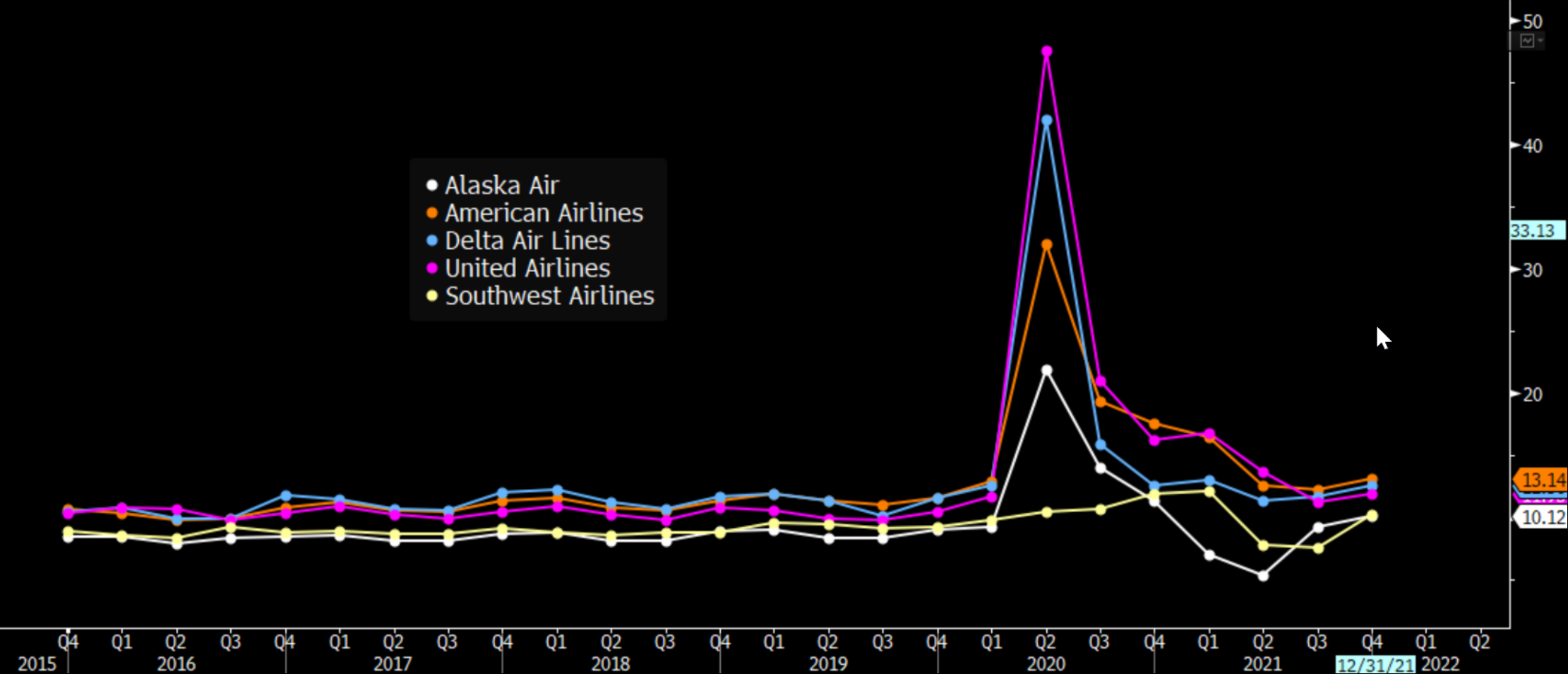
Cirium data as of February 9, 2022

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Only commercial passenger wide-body aircraft are considered. Data are as of the last available day of the month.

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Costs per Available Seat Mile – Ex Fuel Rising

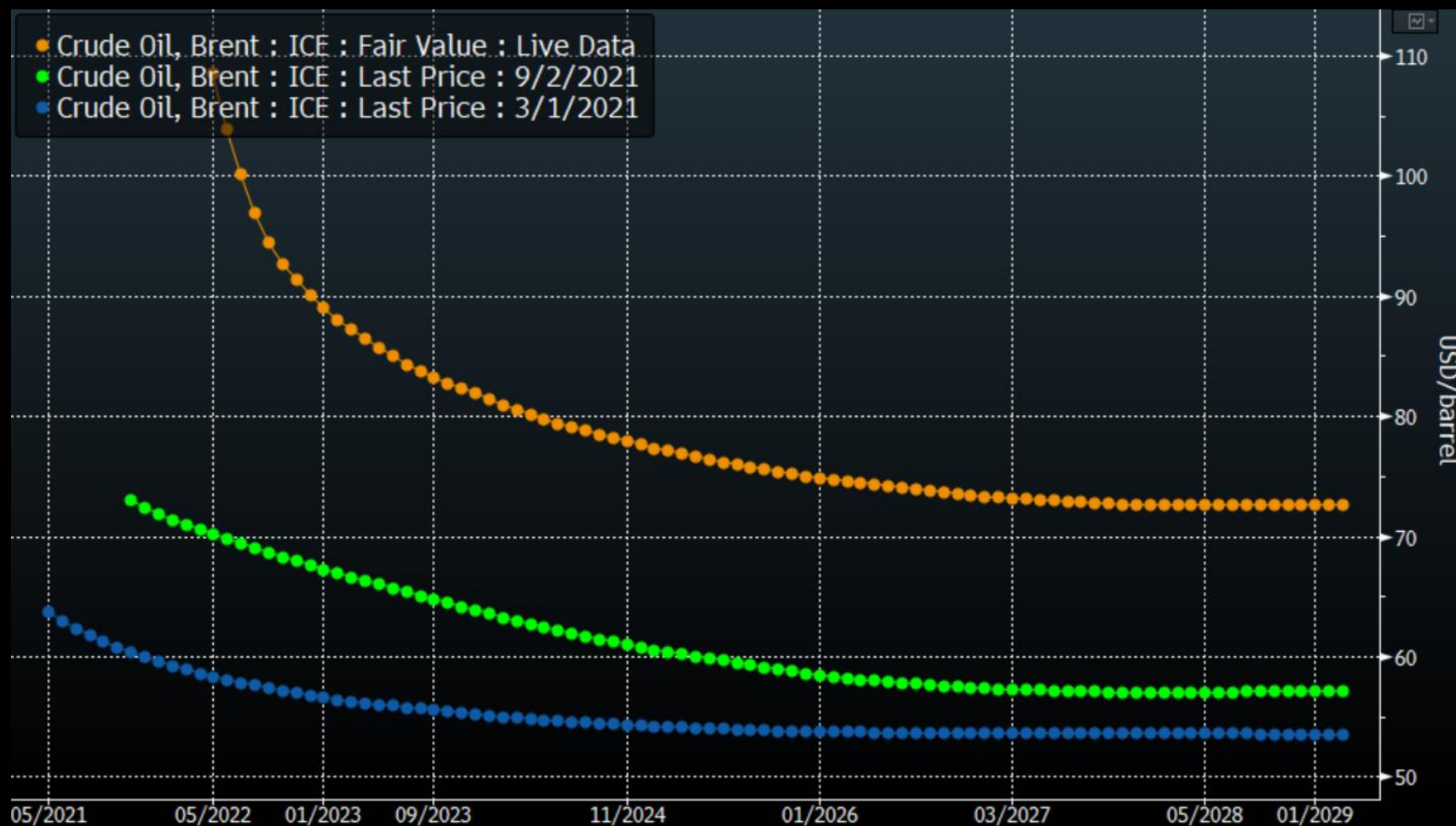


Source: Company reports, Bloomberg Intelligence

New York Jet Well Above 2019 Prices



Higher Oil Prices Persist, Russia Adds



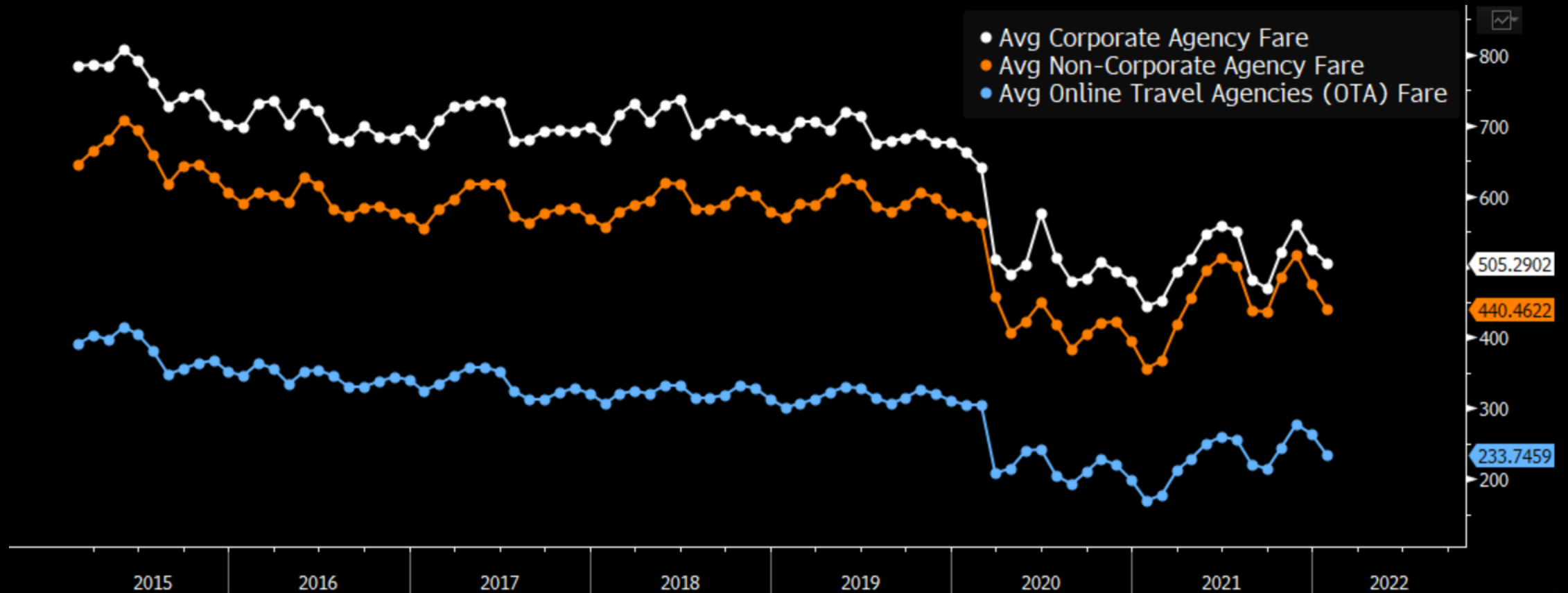
Source: Bloomberg Intelligence

Transactions Recovering After Omicron



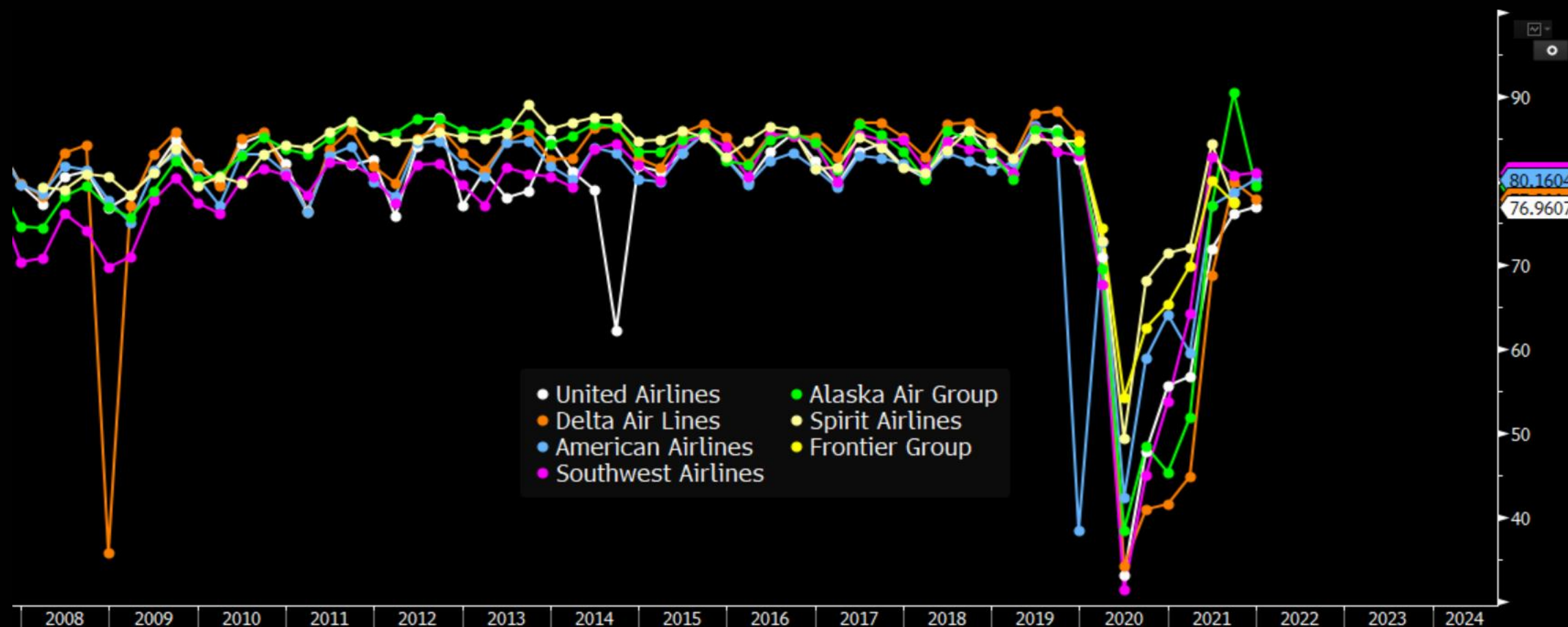
Source: Airline Reporting Corporation

Average Fares Are Lower



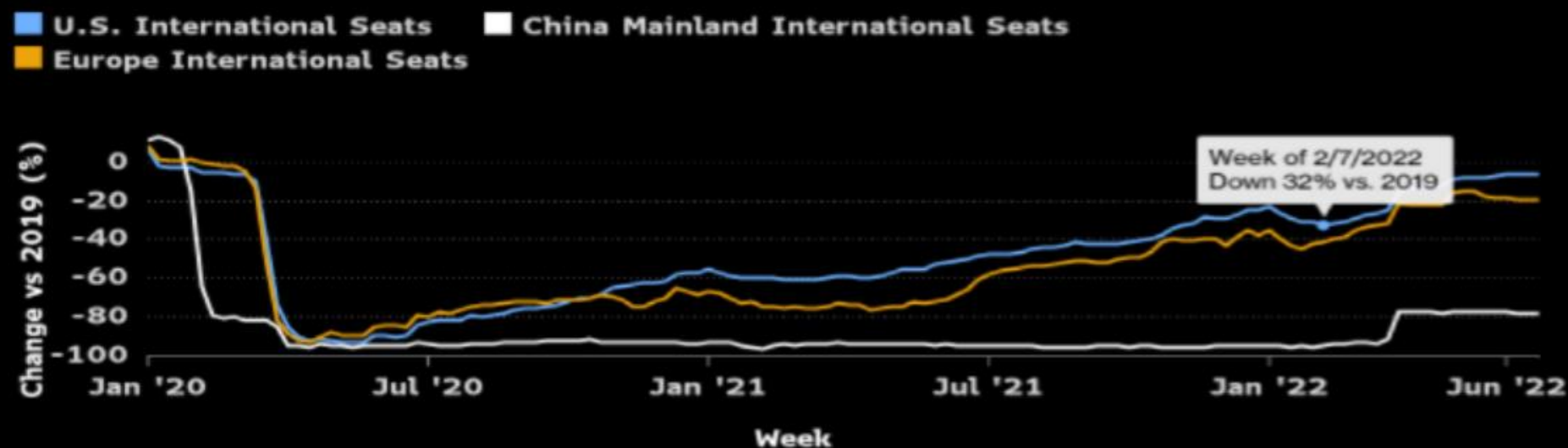
Source: Airline Reporting Corporation

Load Factors Help




Source: Company reports, Bloomberg Intelligence

International Hamstrung



Data as of February 9, 2022.

Scheduled capacity is measured in seats. Week 1 start on Monday January 6th, 2020 and Monday January 3, 2022 respectively. Europe includes countries part of ECAA and similar. Only flights from/to each markets are considered.

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787/A350 Order Book

Operator/Aircraft	787	A350
Total	488	455
Emirates Airline	30	50
Lufthansa	25	28
Unannounced commercial	38	12
United Airlines	3	45
Etihad Airways	32	15
Qatar Airways	23	23
American Airlines	43	
Korean Air	30	
Air France		25
Turkish Airlines	10	15
Air Lease Corporation	8	14
ANA	21	
AerCap	20	
British Airways	10	10
Asiana Airlines		17
Japan Airlines		17
Singapore Airlines	8	9
StarLux		17
Iran Air		16
Air China	1	14
Aeroflot Russian Airlines		14
China Southern Airlines	3	8
EVA Air	11	
Iberia		11
All Other	172	95

Cirium data asof 1/24/2022

Boeing 777, Airbus A330 Order Book

Operator/Aircraft	777	A330
Total	395	312
Emirates Airline	117	
AirAsia X		76
Unannounced commercial customer	31	44
Qatar Airways	60	
Iran Air		36
Singapore Airlines	31	
Delta Air Lines		26
Etihad Airways	25	
Cathay Pacific	21	
ANA	20	
Lufthansa	20	
British Airways	18	
Garuda Indonesia		15
Avolon		14
Cebu Pacific Air		14
Virgin Atlantic Airways		14
AerCap		12
ITA		10
All Others	52	51
Cirium Data as of 1/24/2022		

Q&A

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