

World Aero Markets: Looking Up, From The Bottom of a Pit

Presentation To The National Aeronautic Association

Richard Aboulafia
Vice President, Analysis
Teal Group Corporation
www.tealgroup.com
www.richardaboulafia.com

February 2021

Aviation Segments By Damage

Most to Least
**Annotated,
Ten Months In**

Twin aisle jetliners	International traffic hit hardest and longest. Already an overcapacity situation. Secular shift towards single aisles already underway. It's just that bad.
Single aisle jetliners	Fuel prices a big problem. China comeback uncertain. Some relief due to deferred Airbus ramp, and MAX stop. Same.
Business Jets	Large cabin strongly correlated with oil prices. Small/medium strongly correlated with corporate profits, equities indices. Might recover quickly; still a 2020/21 downturn
Civil Rotorcraft	Oil and gas segment (large) hit again, before recovery even began. About right...wait and see.
Military Programs	Emphasis on "shovel-ready." Advance development programs at greater risk. Pure-play contractors in best shape; suppliers with most defense in best shape. All good. In fact, better.

Aircraft Markets, In Good And Bad Years

(last year was not good)

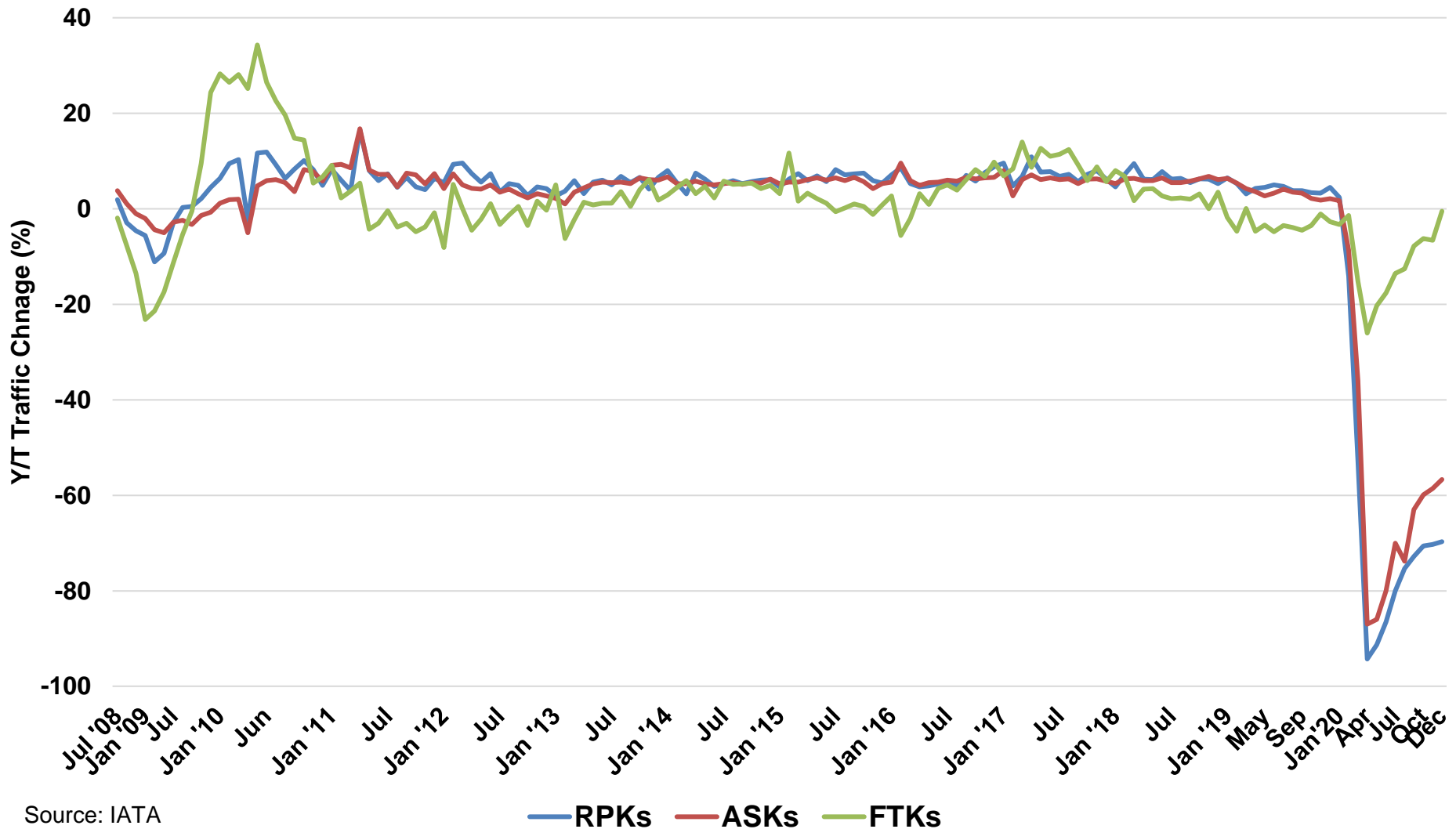
<u>World New Deliveries</u>	<u>CAGR</u>	<u>CAGR</u>	<u>CAGR</u>	<u>Change</u>
<u>In 2020 (2021 \$)</u>	<u>'03-'08</u>	<u>'08-'14</u>	<u>'14-'19</u>	<u>'19-'20</u>
Jetliners-SA (\$27 b)	9.7%	6.9%	-2.0%	-55.2%
Jetliners-TA (\$27.8 b)	5.0%	13.5%	2.1%	-49.1%
Regionals (\$3.4 b)	3.9%	-3.1%	-6.3%	-36.0%
Business Aircraft (\$18.2 b)	16.7%	-2.2%	-1.2%	-18.3%
Civil Rotorcraft (\$3.1 b)	18.5%	-2.5%	-7.2%	-13.0%
Military Rotorcraft (\$10.7 b)	10.6%	9.7%	-7.0%	-15.1%
Military Transports (\$4.1 b)	3.2%	-0.9%	0.0%	-30.0%
Fighters (\$18.3 b)	1.6%	0.8%	6.1%	-22.6%
<u>All Civil</u> (\$79.9 b)	<u>9.7%</u>	<u>5.6%</u>	<u>-0.5%</u>	<u>-40.0%</u>
<u>All Military</u> (\$36.9 b)	<u>3.9%</u>	<u>4.1%</u>	<u>0.0%</u>	<u>-18.4%</u>
<u>Total</u> (\$116.7 b)	<u>8.0%</u>	<u>5.2%</u>	<u>-0.4%</u>	<u>-34.5%</u>

Traffic: Nothing We've Ever Seen Before

-65.9% RPKs in 2020 (-56.5% ASKs; -10.6 FTKs)

2019 Totals: RPKs 4.2%, ASKs 3.4%, FTKs -3.3%

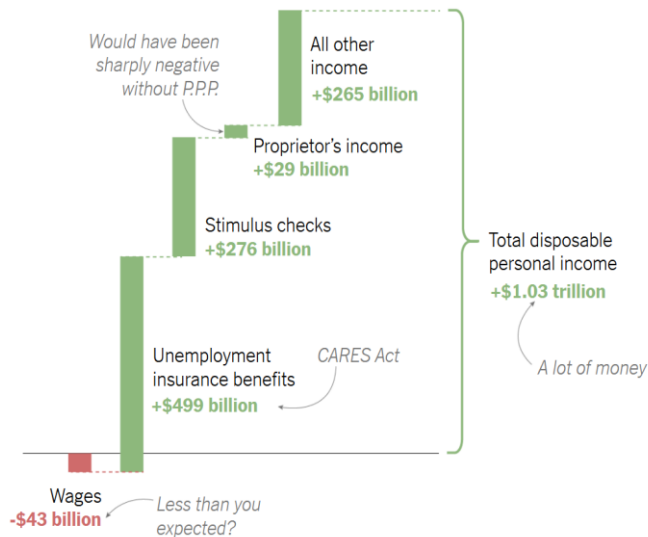
2018 Totals: RPKs 6.5%, FTKs 5.4%; 2017: RPKs 7.6%, FTKs 9%



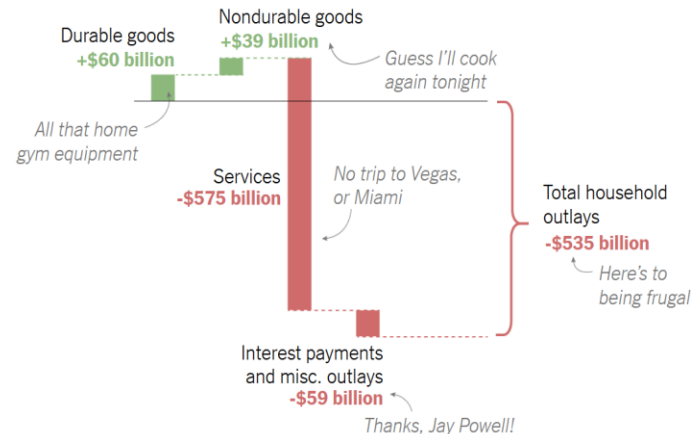
Traffic Peak Recovery By Late 2022. Why?

- Better-than-expected vaccine efficacy.
- Better-than-expected economic outlook.
- The China domestic comeback.
- Business travel resurgence.
- Vacation travel resurgence, fueled by record savings rates.

Personal income increased

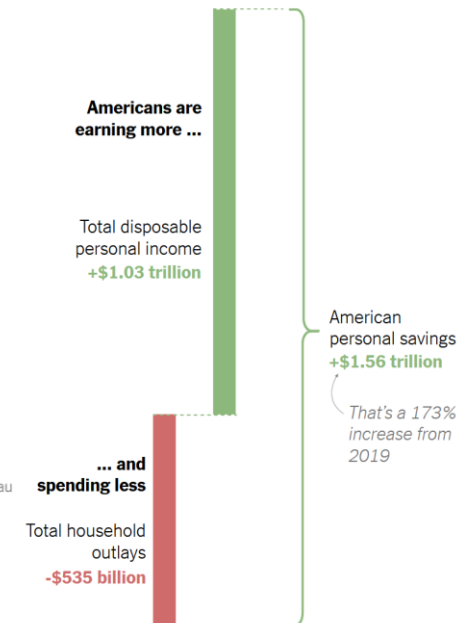


Spending decreased



Note: Data from March to November 2020 compared with the same time period in 2019. Source: Bureau of Economic Analysis

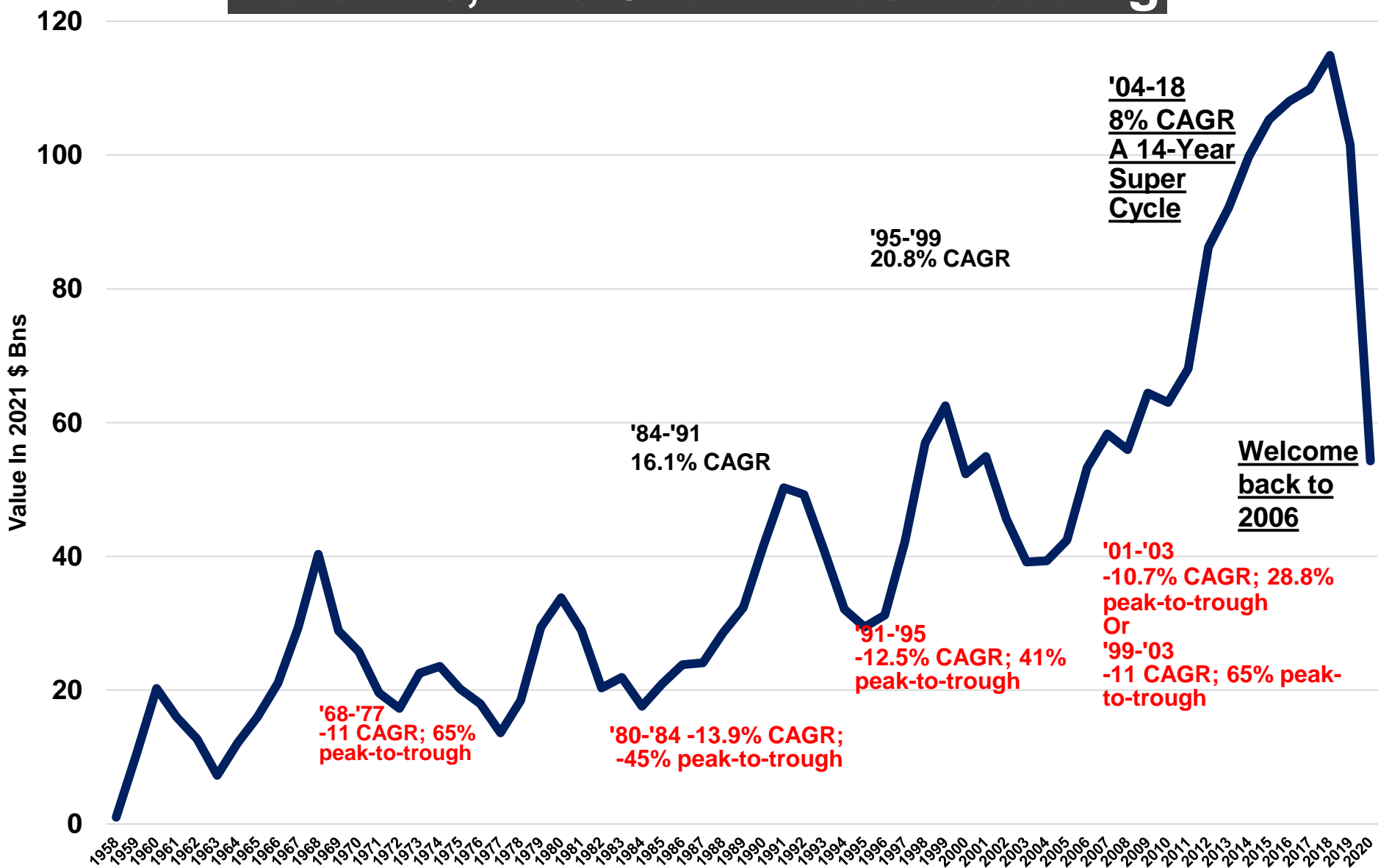
Americans are saving a lot of money



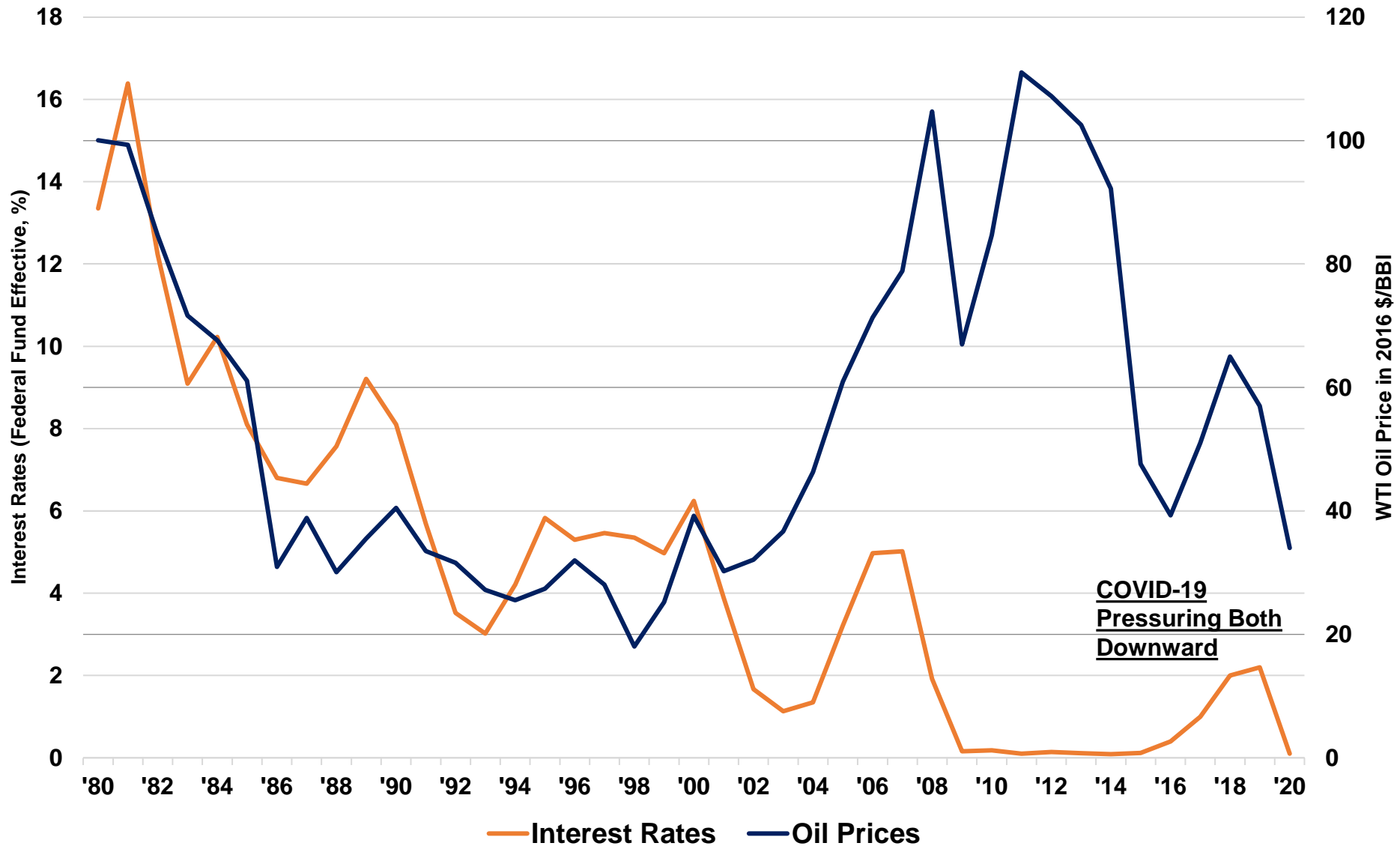
Note: Data from March to November 2020 compared with the same time period in 2019. Source: Bureau of Economic Analysis

<https://www.nytimes.com/2021/01/01/upshot/why-markets-boomed-2020.html>

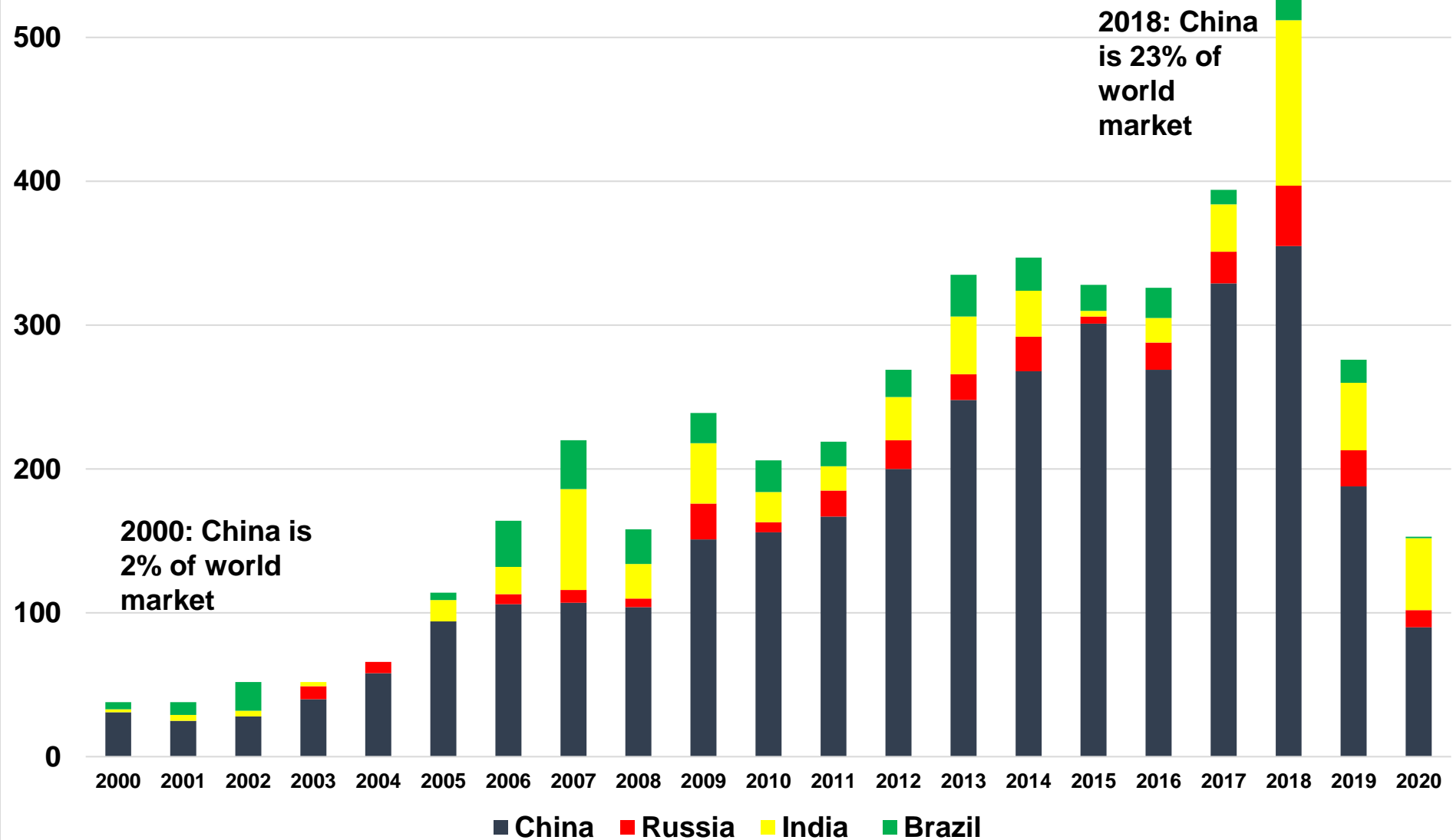
Here It Is, The Chart I Was Dreading



Interest Rates And Oil Prices: Less Than 4%, And \$50-85/bbl, Ideally; But The Ratio Matters Most

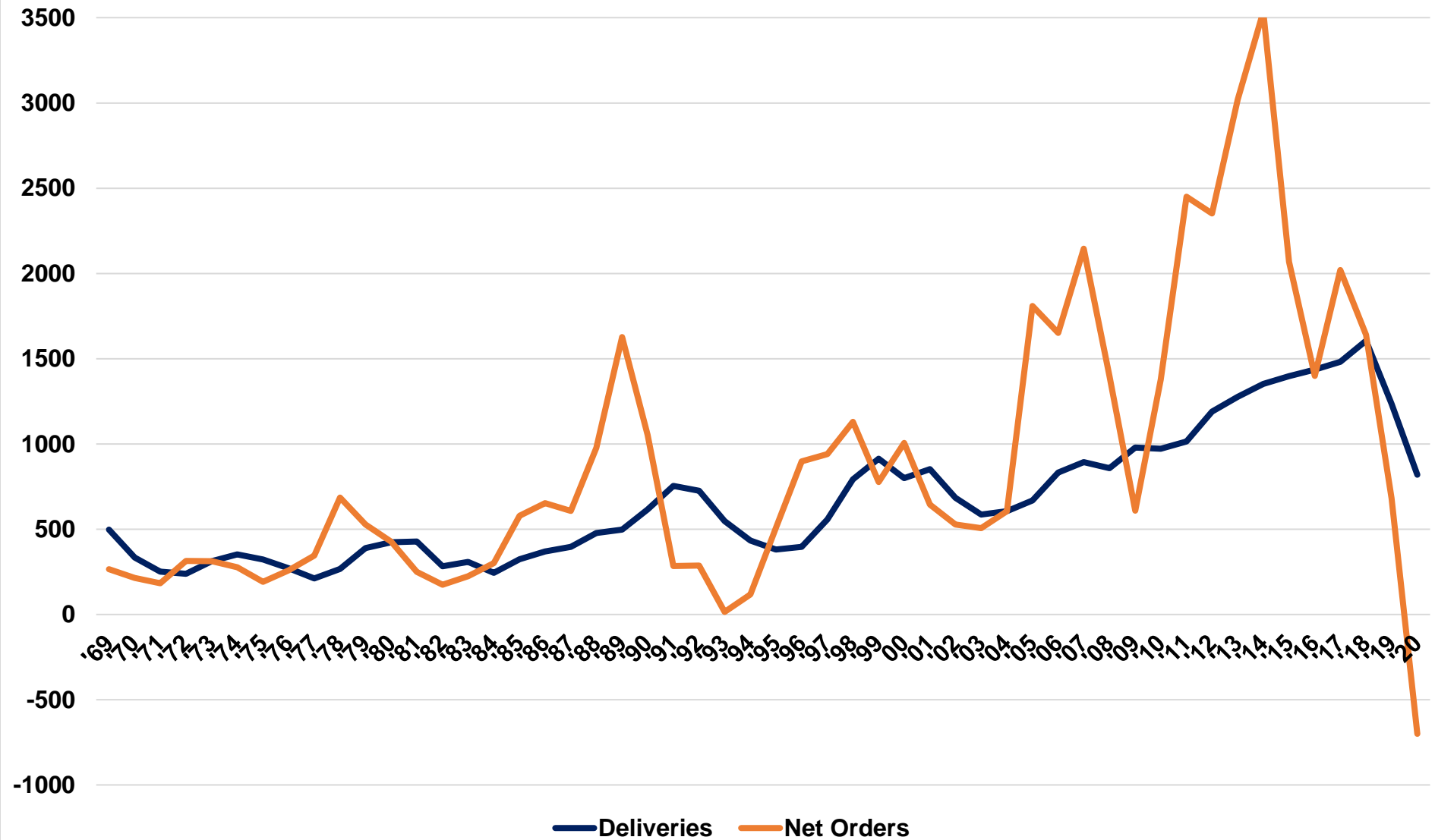


BRIC Deliveries: All About China

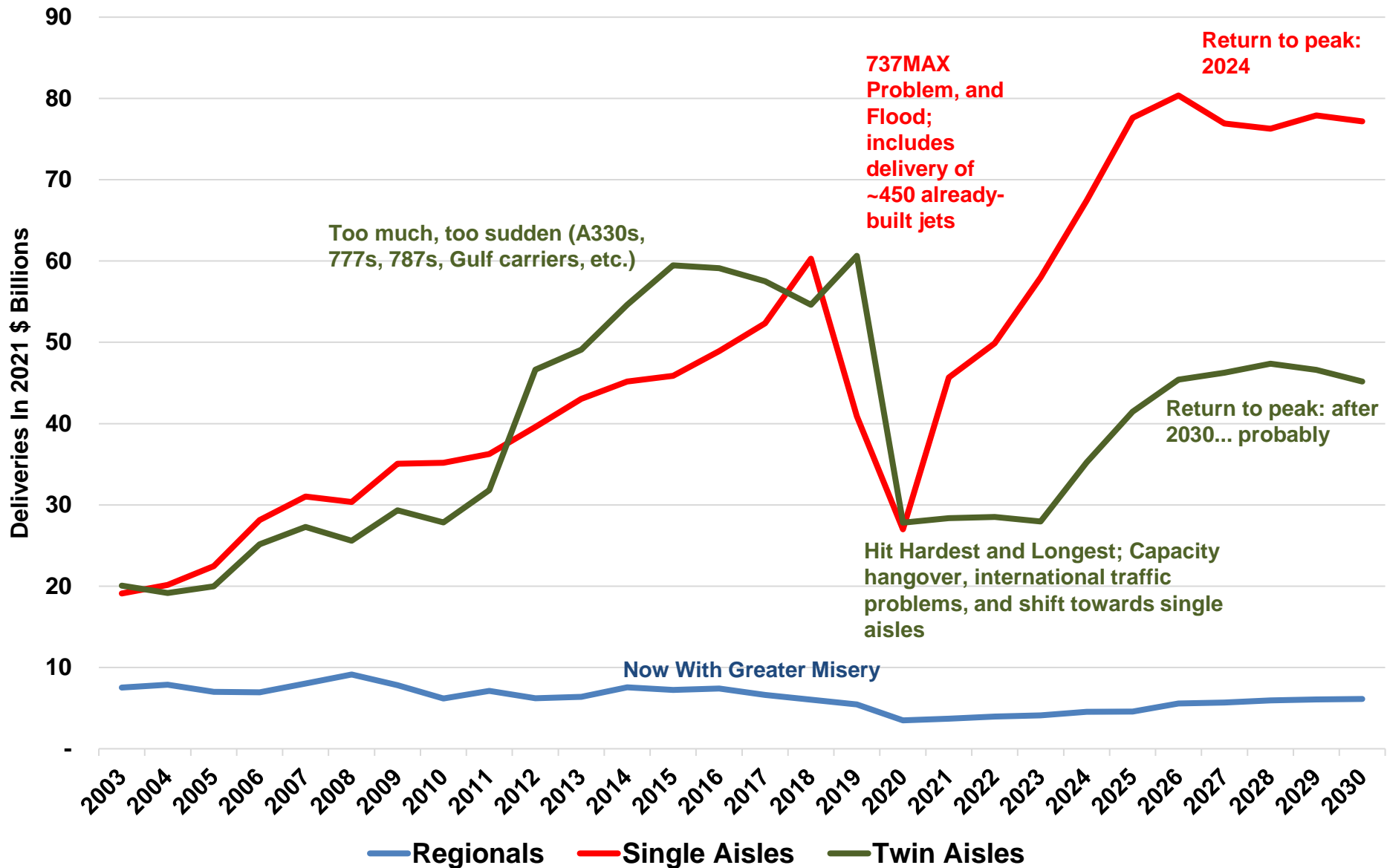


Large Jetliner Orders And Deliveries

Book-To-Bill No Longer A Thing

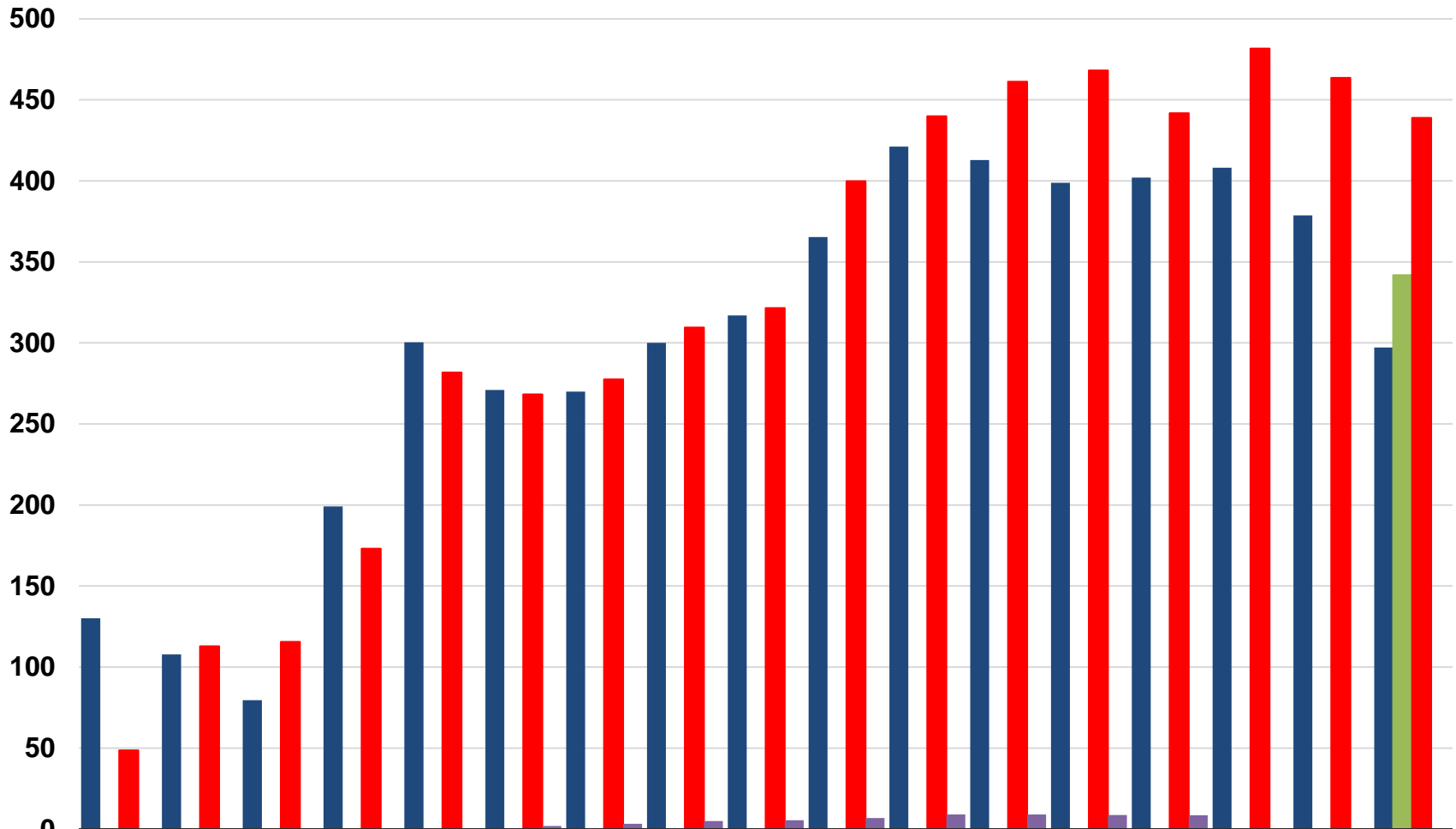


The Air Transport Market By Segment



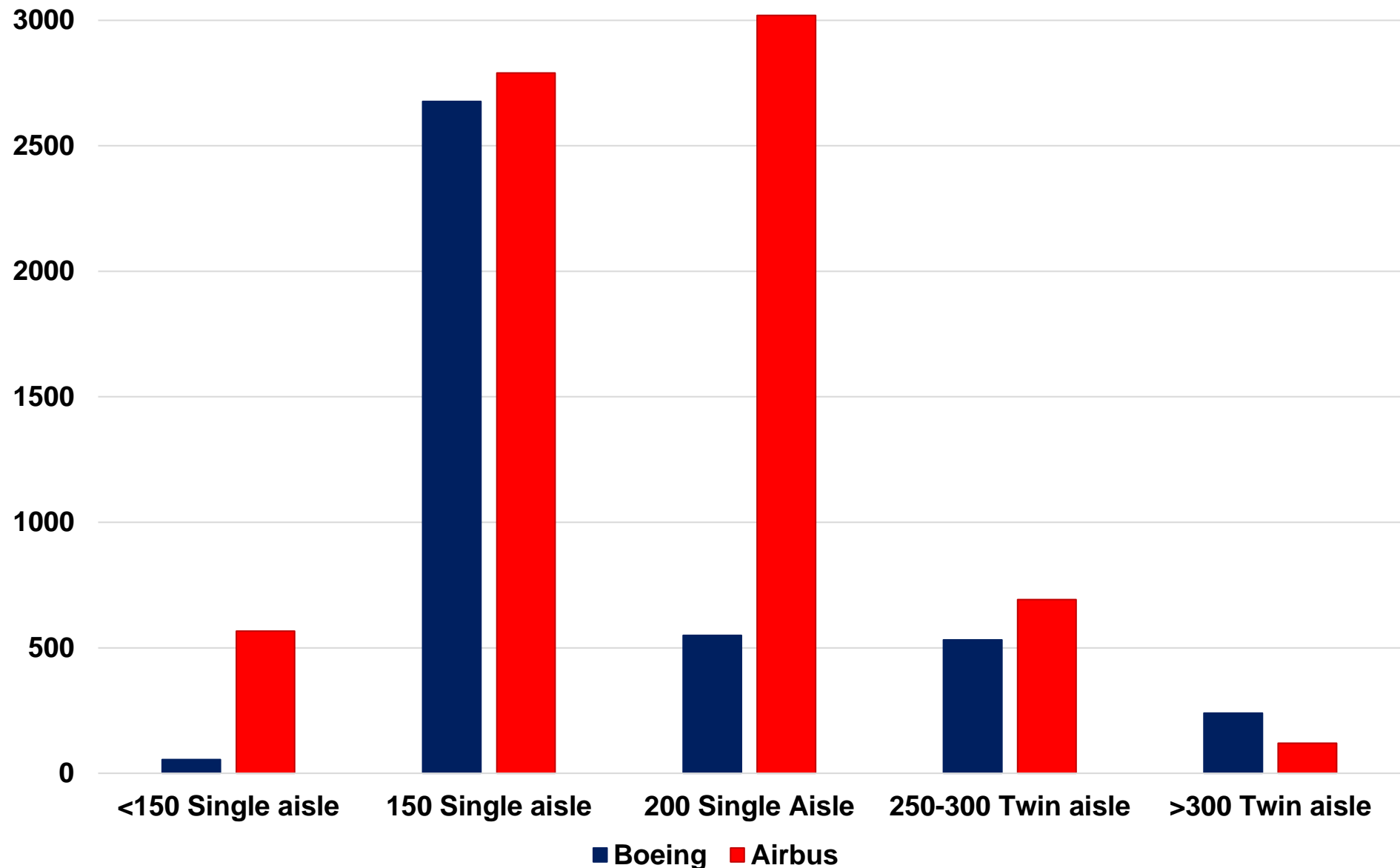
Firm Order Backlog Values: Boeing Taking A Hit

2021 \$Billions



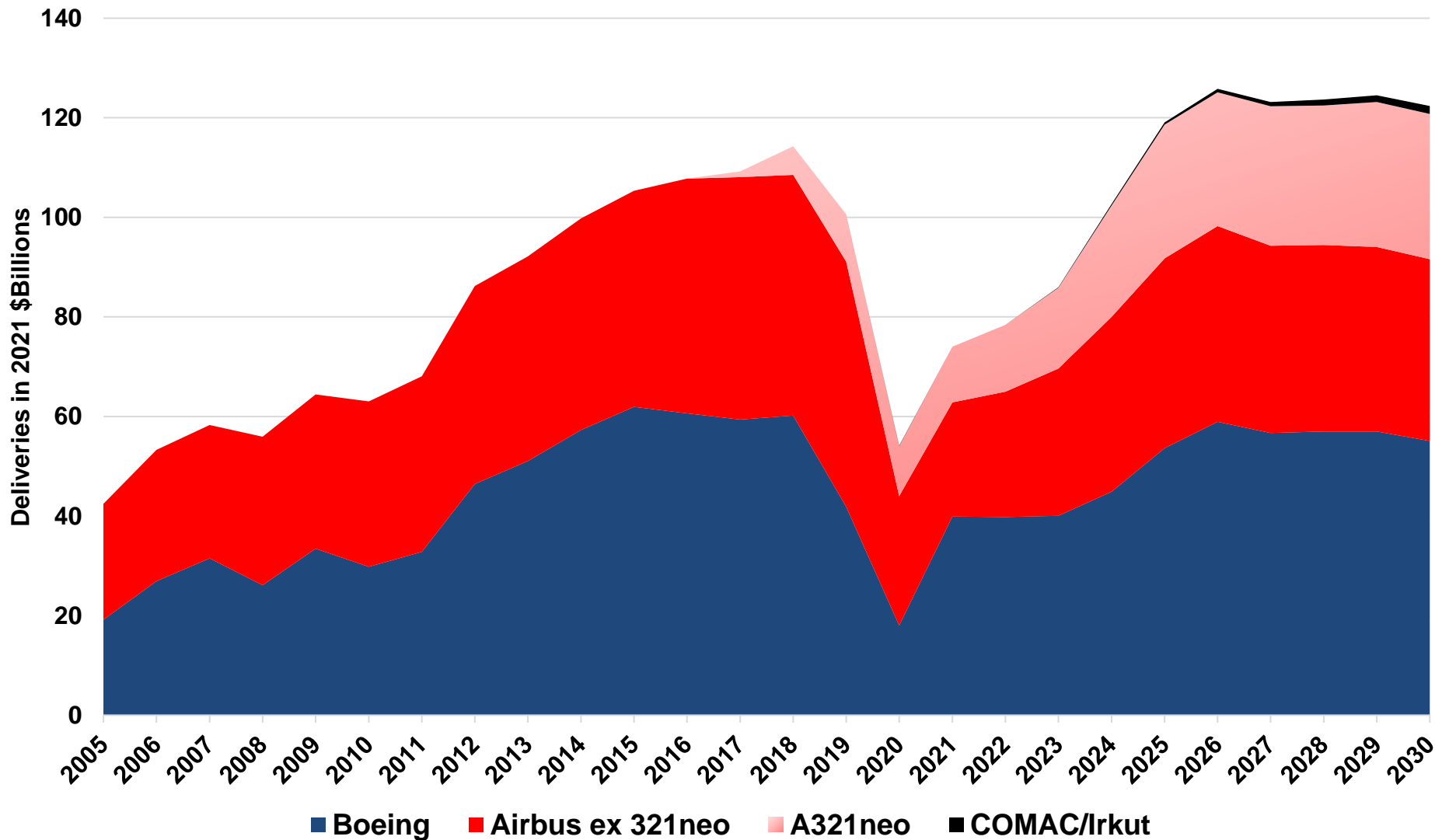
	1h 1997	1h 2001	End 2004	End 2006	End 2008	End 2009	End 2010	End 2011	End 2012	End 2013	End 2014	End 2015	End 2016	End 2017	End 2018	End 2019	End 2020
Boeing	130.0	107.8	79.5	199.1	300.4	271.1	270.0	300.1	317.0	365.3	421.2	412.9	398.9	402.1	408.0	378.8	297.1
Without ASC 606																	341.8
Airbus	48.6	112.9	115.5	173.0	281.8	268.2	277.6	309.5	321.6	399.9	439.9	461.2	468.1	441.8	481.6	463.6	438.9
Bombardier	—	—	—	—	—	1.9	3.3	4.9	5.5	6.7	9.0	9.0	8.7	8.5	—	—	—

Airbus, Boeing Jetliner Backlogs (January, w/ ASC 606)

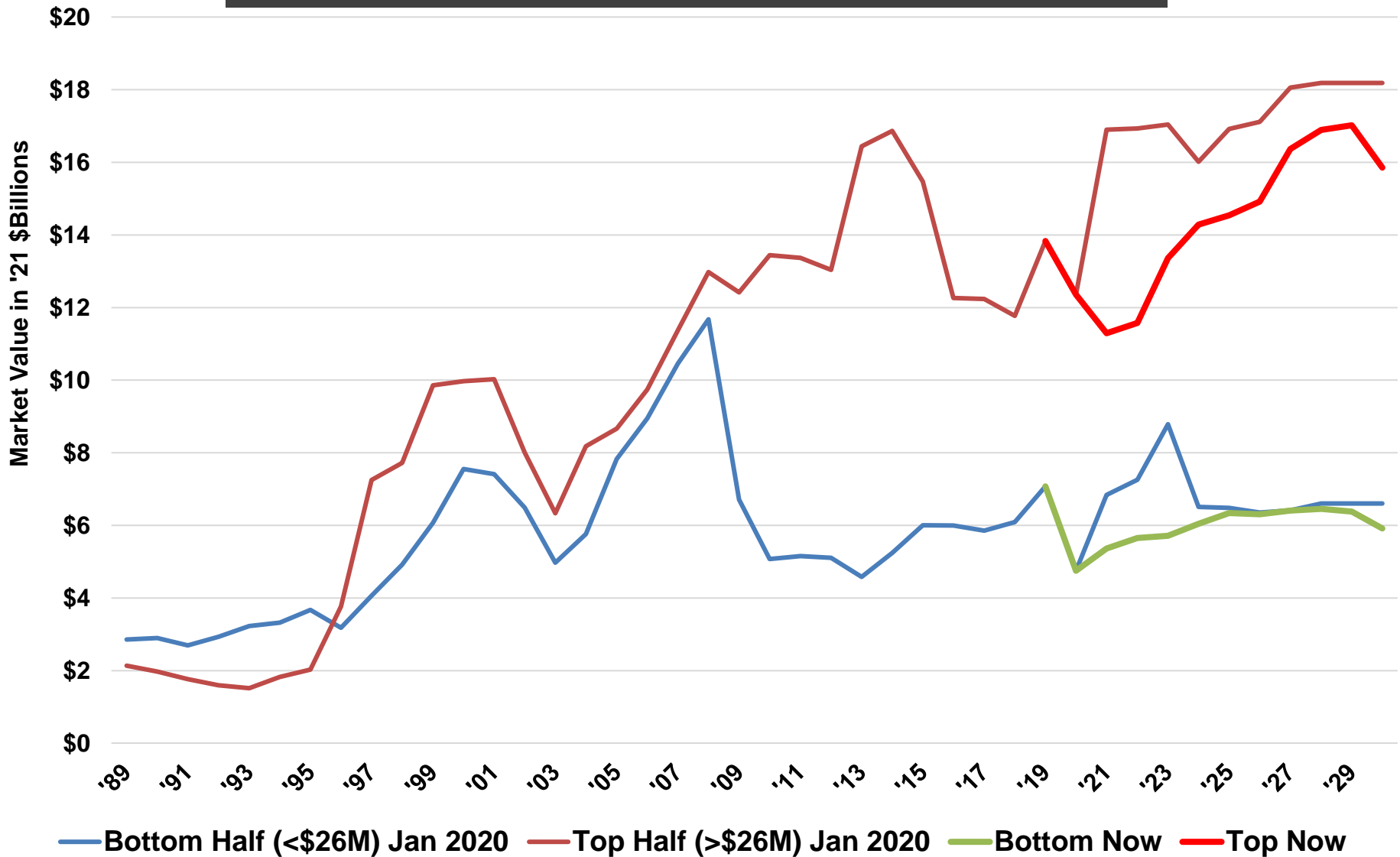


Jetliner Market Shares By Deliveries

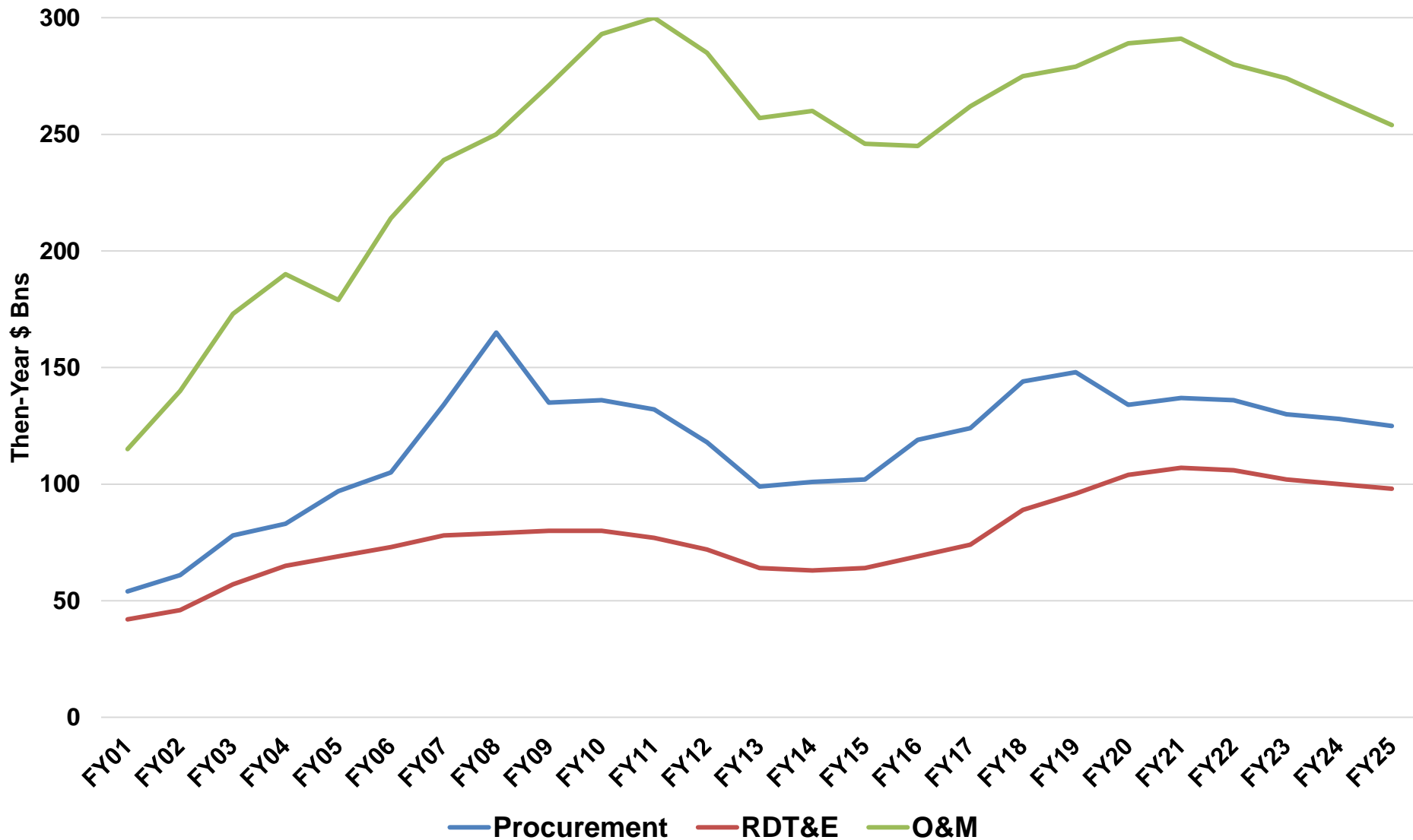
Airbus Seizes The Middle Market and First Place; Covid-19 Accelerates shift to Middle Market



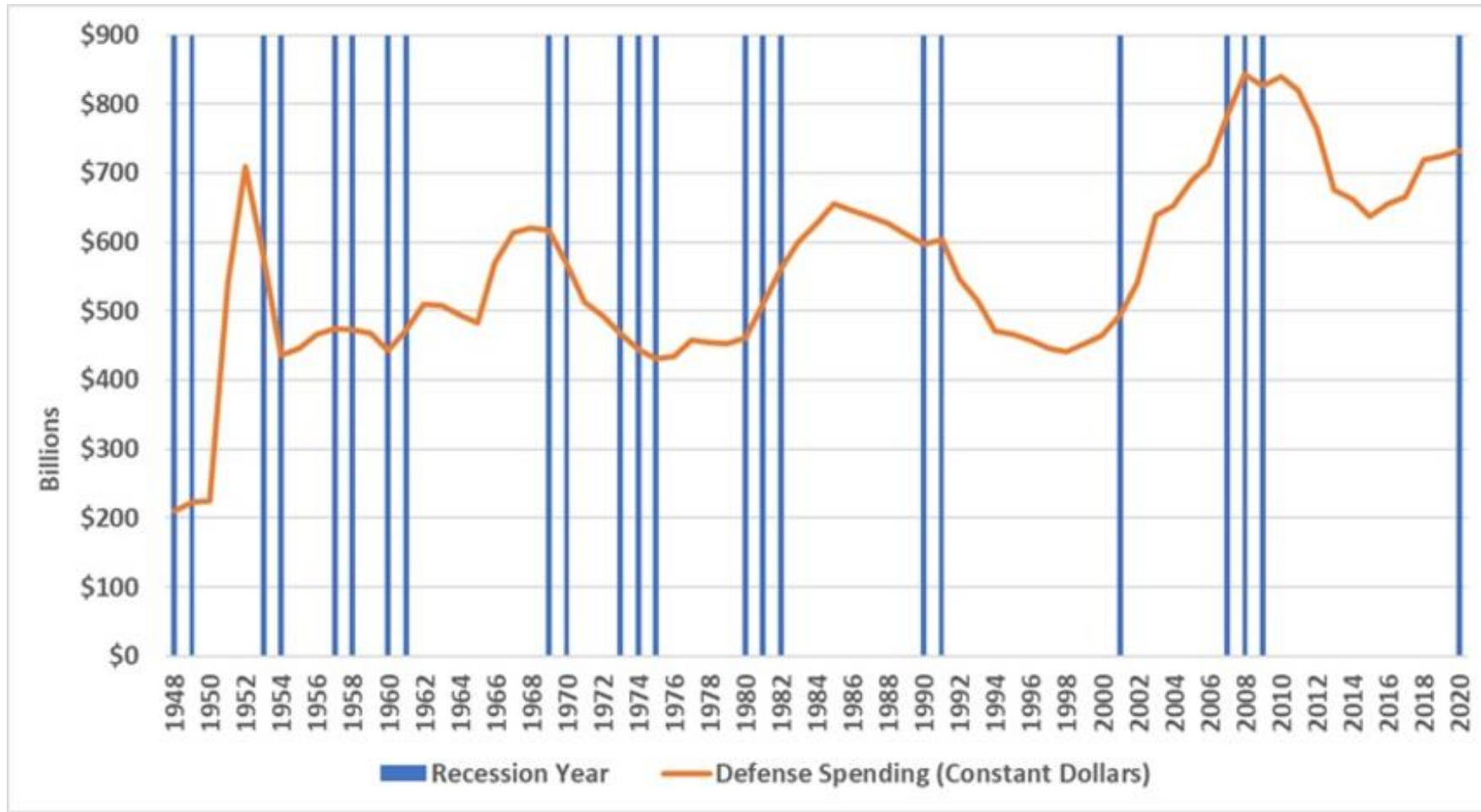
Bottom Half Bizjet Segment vs. Top Half Pre- and Post-Covid Forecasts



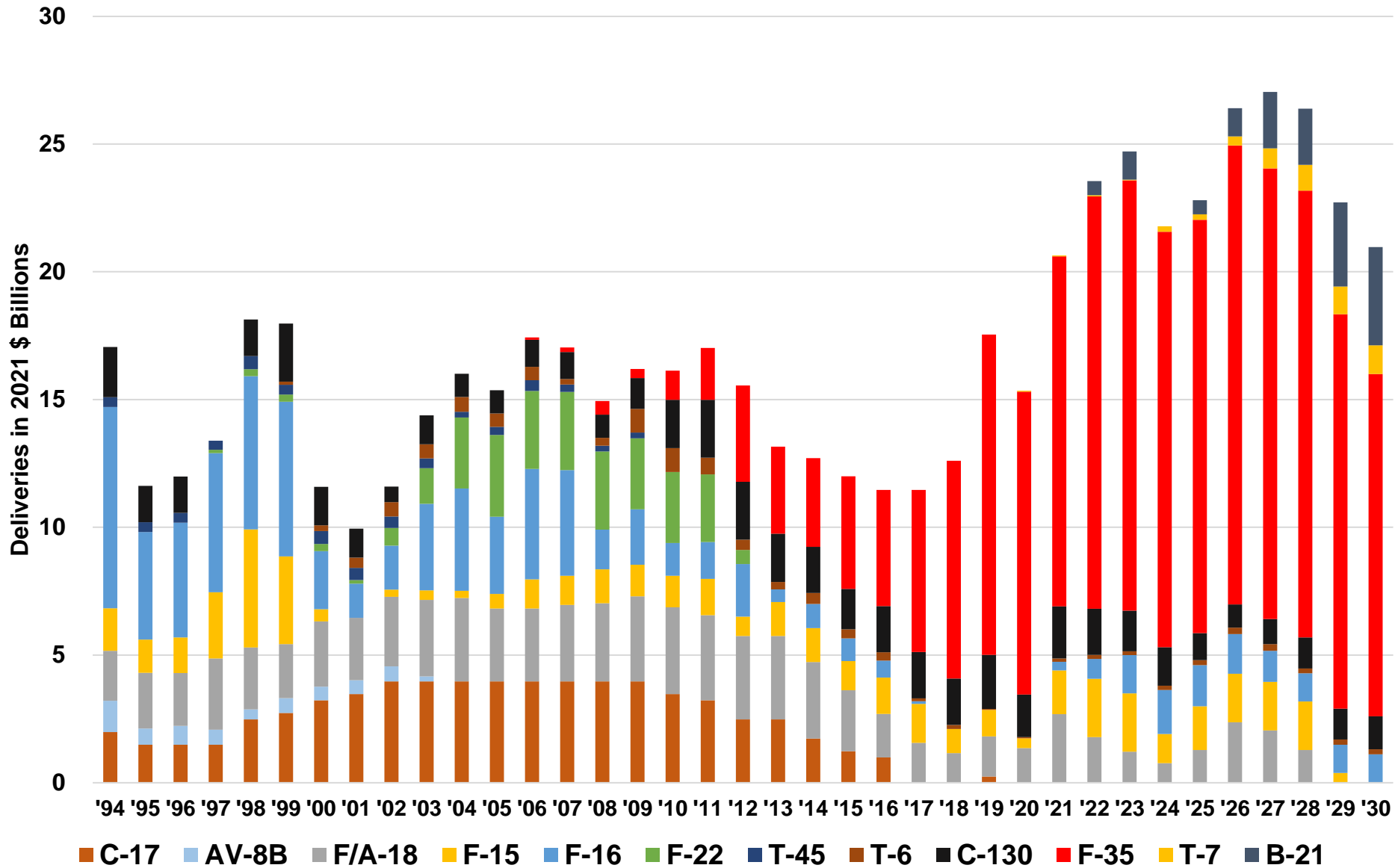
DoD Investment: Procurement 3X Than In The Last Jetliner Downturn



No Clear Relationship Between US Defense Spending, Economy

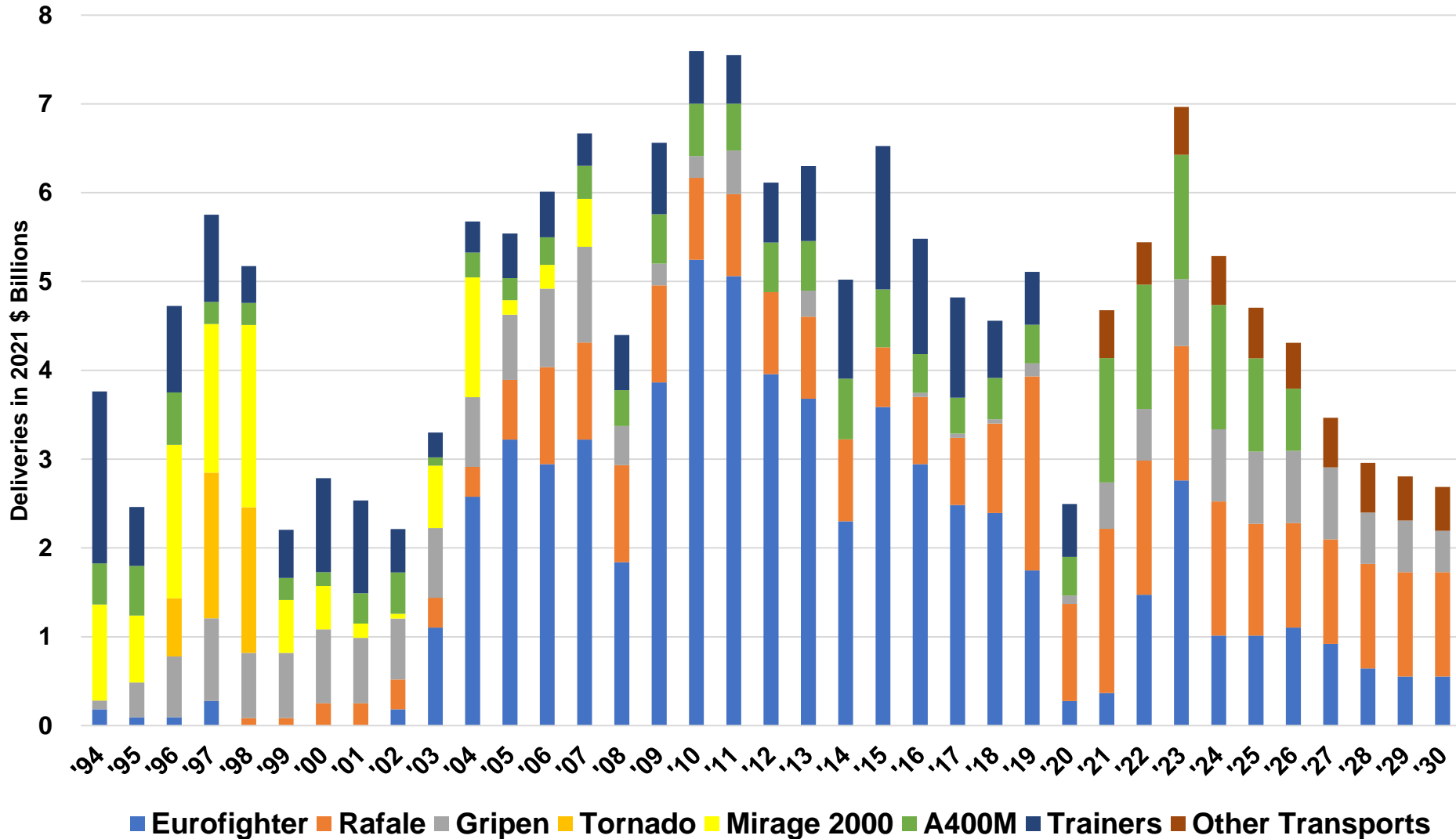


US Military Fixed Wing Aircraft Deliveries

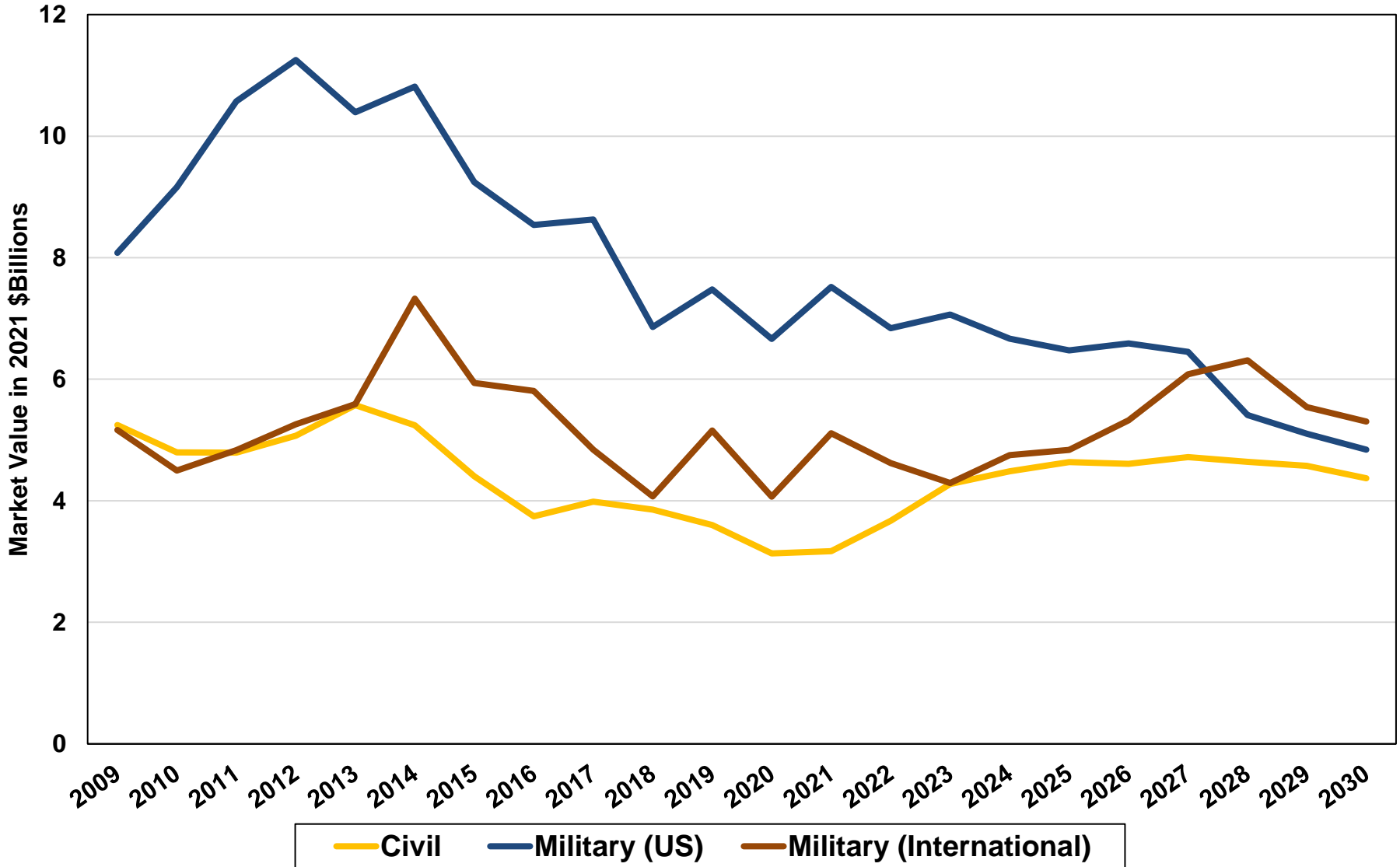


European Military Aircraft Deliveries

Coping Without F-35...To A Point;
Germany, France, UK Fighter Decisions Loom



US Military Rotorcraft Market Falling; International Military and Civil Stable

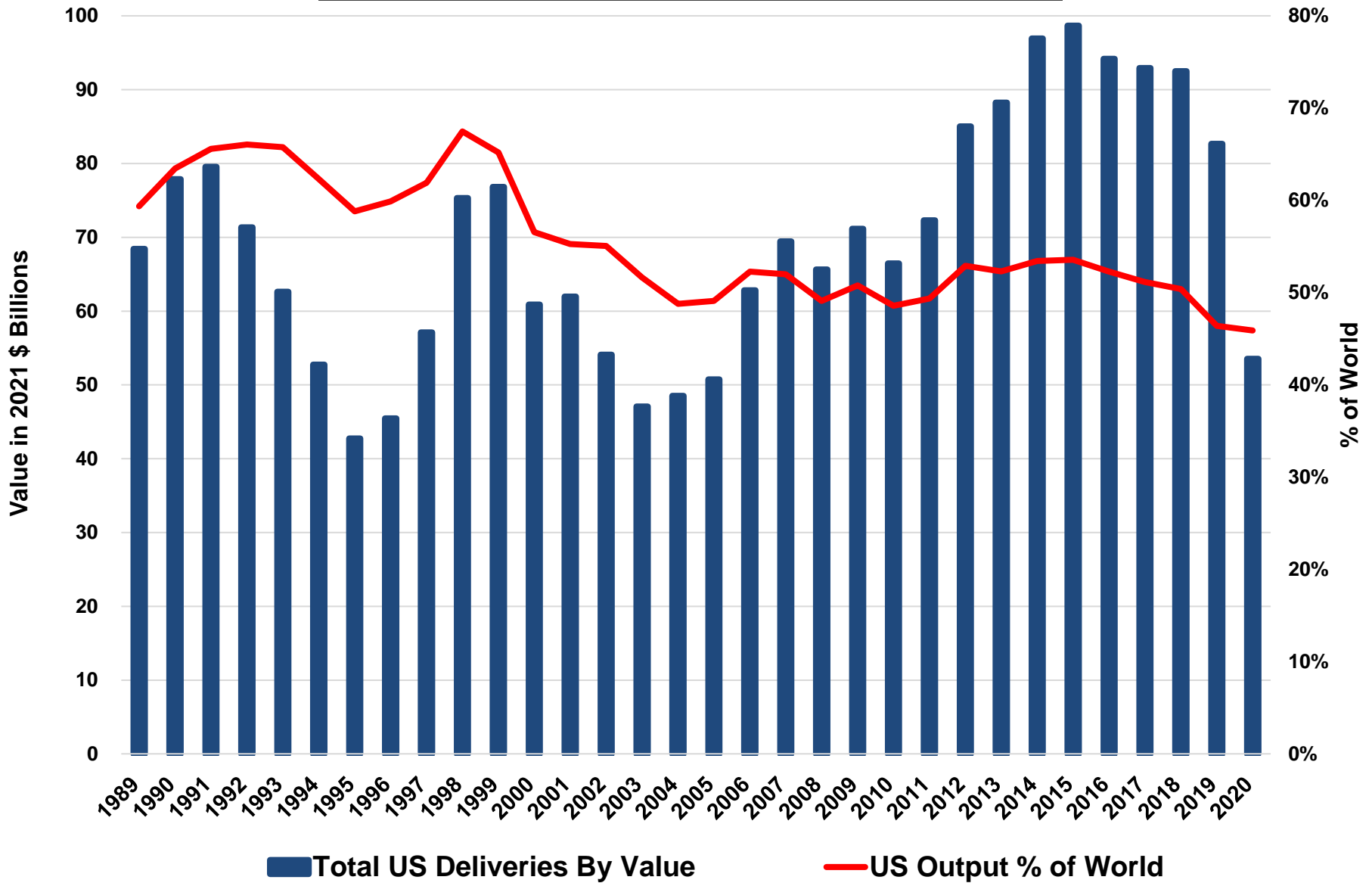


Global Aircraft Market Outlook In One Page

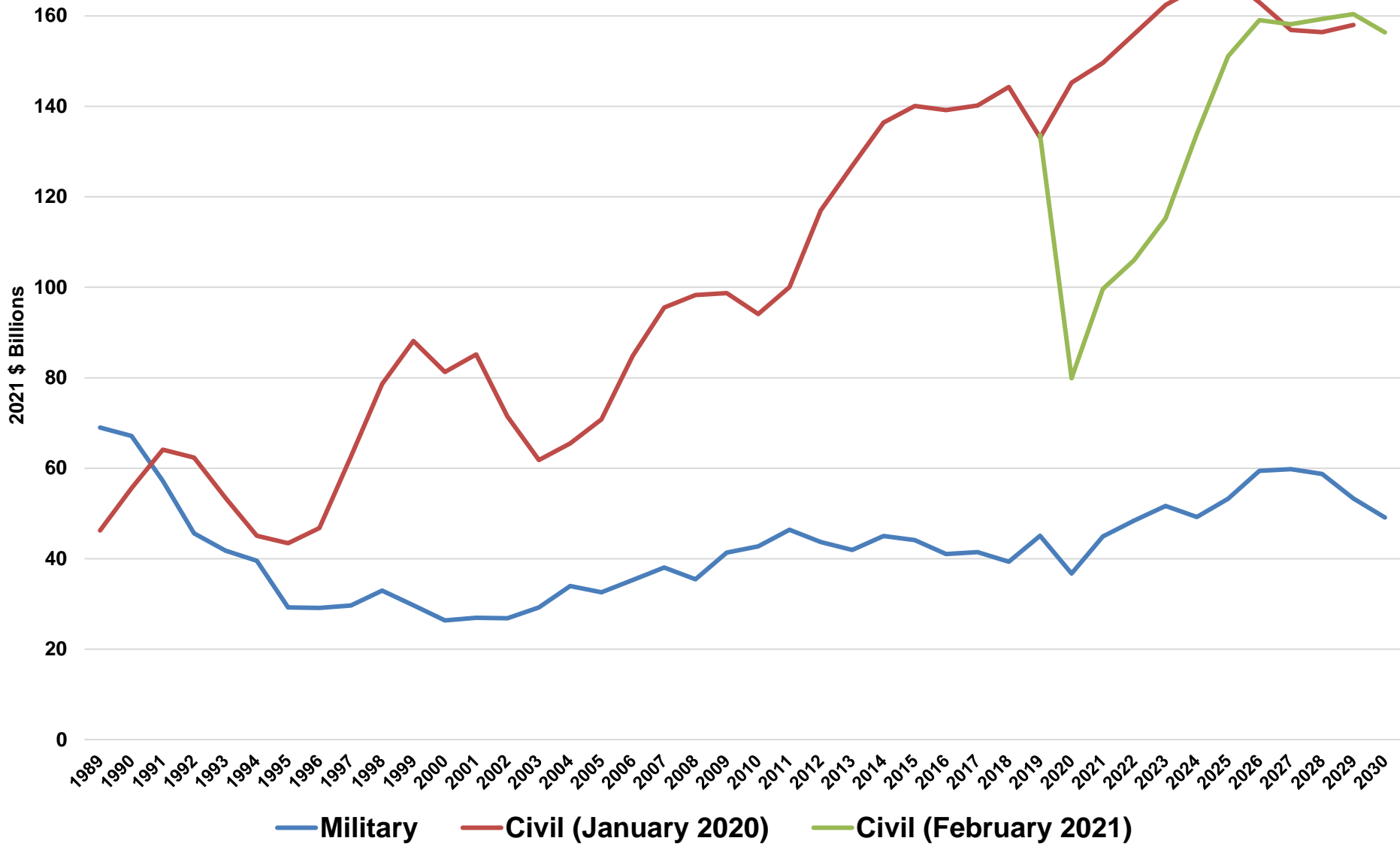
(Deliveries, *not* Production)

<u>Segment</u>	<u>2021</u>	<u>'21-'22</u>	<u>Risk</u>	<u>Elevator Comment</u>
Jetliners-SA	69.2%	9.3%		Includes some already-built MAXs. Watch China, fuel, traffic.
Jetliners-TA	2.0%	0.5%		Overcapacity, slow international recovery, secular shift to SAs
Regionals	5.7%	7.5%		No Boeing supply chain effect on E-2; Scope clause de-risked, but little growth.
Business Aircraft	1.4%	6.1%		Another hit after many false starts over a disappointing decade.
Civil Rotorcraft	1.9%	15.0%		Large civil hit again. Too many new models aimed at a weak segment (oil/gas).
Military Rotorcraft	17.4%	-9.3%		Programs end/slow; no risk of accelerated downturn; FVL beyond forecast, exc FARA.
Military Transports	14.9%	-6.2%		A seriously underperforming market.
Fighters	31.9%	17.3%		I like this market. F-35 (after COVID disruption), plus strong Gen 4.5
<u>All Civil</u>	<u>24.7%</u>	<u>6.4%</u>		SAJetliner snapback due to MAX, weakness in other segments; more overcapacity risk.
<u>All Military</u>	<u>22.2%</u>	<u>7.8%</u>		Global insecurity, Tension, Malice. Special mission (ISR, B-21) also boosts topline.
<u>Total Industry</u>	<u>23.9%</u>	<u>6.8%</u>		<u>Back to peak in late 2024</u>

US Aircraft Industry Output



World Aircraft Deliveries By Value, 1989-2030



Thank you to our webinar sponsors!



*Aerojet Rocketdyne, GE Aviation, Gulfstream, Lockheed Martin, NATCA,
Northrop Grumman, Rolls-Royce North America, and Raytheon Technologies*