

# COVID-19 And Civil Aviation Markets

## A Bit Like Falling Off A Cliff, Only Without the Nice View

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# **Last Week's Developments**

## ***Through April 3; still Trending Downward***

- **Grim traffic news, with US airports down 95%**
  - **Signs of life in China.**
  - **Cargo holding up, as belly capacity vanishes.**
- **Limited production guidance from Airbus; none from Boeing.**
  - **Boeing insulated by MAX ramp requirement, and RTS process**
- **No clarity at all on government aid terms or acceptance, for airlines or manufacturers.**
  - **Airlines seem to be on a more aggressive path to seeking aid.**
  - **Airlines and Boeing uninterested in government equity stake; headcount retention an issue too.**
- **Boeing voluntary layoff/early retirement plan.**
  - **Maximizes headcount for political leverage while cutting costs; good for short-term very bad for long-term due to experienced worker loss.**
- **GE cuts half of engine manufacturing workers, a very bad sign.**
- **75 ac MAX cancellation from Avolon clearly market-related, not MAX-related.**
  - **Four A330neo cancellations too; risk of A330 collapse.**

# Aircraft Markets, In Good And Bad Years

<u>World New Deliveries</u>	<u>CAGR</u>	<u>CAGR</u>	<u>CAGR</u>	<u>Change</u>
<u>In 2019 (2020 \$)</u>	<u>'03-'08</u>	<u>'08-'14</u>	<u>'14-18</u>	<u>'18-'19</u>
Jetliners-SA (\$46.2 b)	9.7%	6.9%	5.0%	<b>-23.9%</b>
Jetliners-TA (\$55.3 b)	5.0%	13.5%	1.7%	2.0%
Regionals (\$5.8 b)	3.9%	<b>-3.1%</b>	<b>-5.2%</b>	<b>-4.8%</b>
Business Aircraft (\$22.4 b)	16.7%	<b>-2.2%</b>	<b>-5.0%</b>	16.5%
Civil Rotorcraft (\$3.9 b)	18.5%	<b>-2.5%</b>	<b>-7.4%</b>	<b>-0.1%</b>
Military Rotorcraft(\$13.3 b)	10.6%	9.6%	<b>-11.8%</b>	21.7%
Military Transports (\$4.9 b)	3.2%	<b>-0.7%</b>	0.6%	<b>-19.1%</b>
Fighters (\$24 b)	1.6%	0.8%	2.5%	25.5%
<u>All Civil</u> (\$133.8 b)	<u>9.7%</u>	<u>5.6%</u>	<u>1.4%</u>	<b><u>-7.3%</u></b>
<u>All Military</u> (\$45.5 b)	<u>3.9%</u>	<u>4.0%</u>	<b><u>-3.2%</u></b>	<u>15.3%</u>
<u>Total</u> (\$179.3 b)	<u>8.0%</u>	<u>5.2%</u>	<u>0.3%</u>	<b><u>-2.4%</u></b>

# COVID-19 And Aero Markets

## *Issues And Impact*

- **Apparently, these things come in pairs:**
  - The fuel price shock is as important as traffic.
  - Or trios. Recession too.
  - Also, traffic de-link from economics already in play.
  - Oh, and China.
- Traffic probably U. Really a disease question.
- **What's different this time:**
  - Airlines in better shape.
  - Government more aggressive about response.
  - No more interest rate stimulus; third party finance stimulus also unrepeatable.
  - Growth accelerated after 2008 due to a weird variety of factors, none of which are in play today.
- **Aftermarket catastrophe.**
  - 40% down ASMs, de-stocking, deferred maintenance/upgrades
- **The enormous state aid question, and strings attached.**
- **Assuming state aid, a “synthetic market” pulls demand forward.**

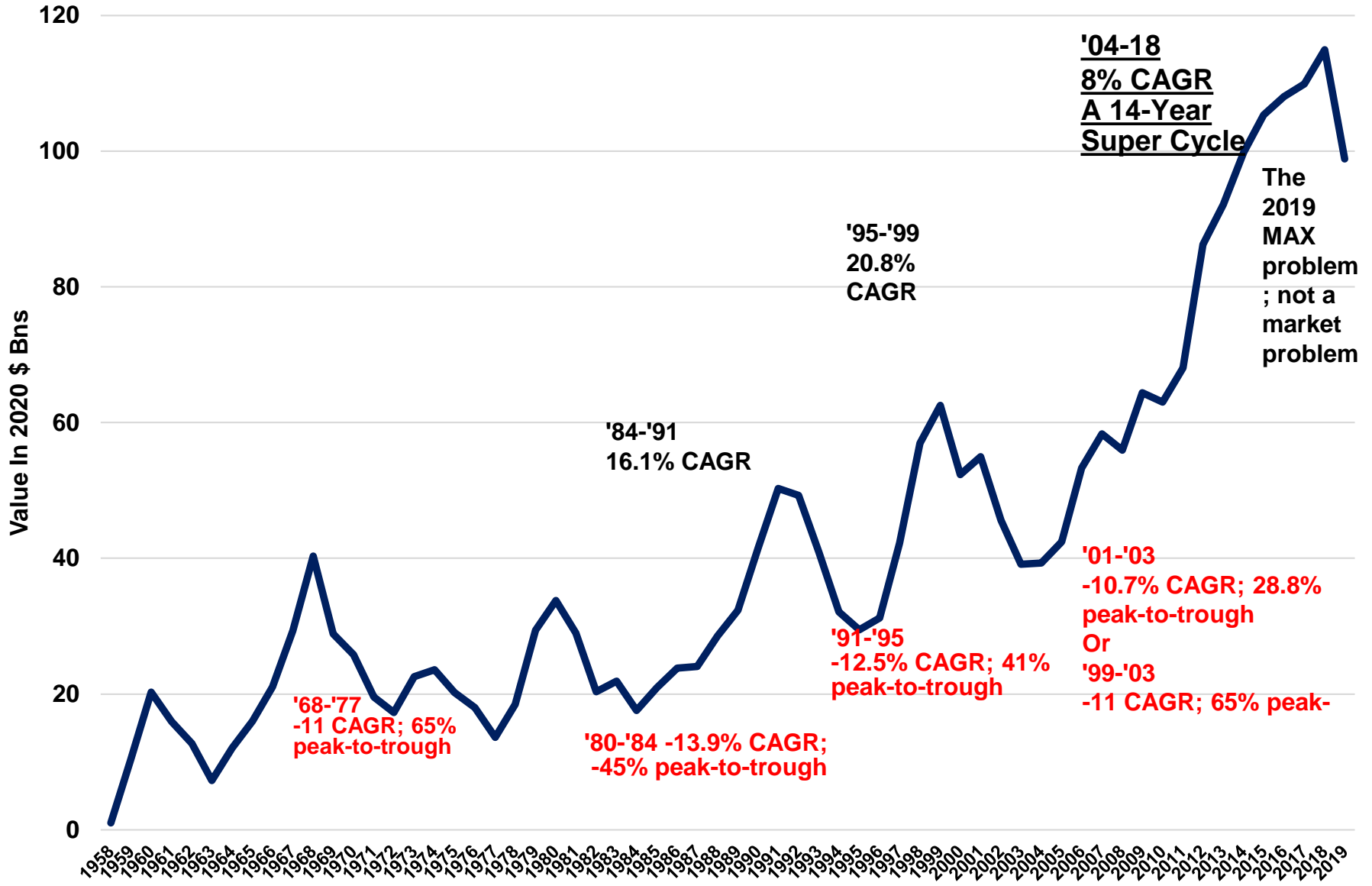


# Aviation Segments By Damage

*Most to Least*

<b>Twin aisle jetliners</b>	<b>International traffic hit hardest and longest. Already an overcapacity situation. Secular shift towards single aisles already underway.</b>
<b>Single aisle jetliners</b>	<b>Fuel prices a big problem. China comeback uncertain. Some relief due to deferred Airbus ramp, and MAX stop.</b>
<b>Business Jets</b>	<b>Large cabin strongly correlated with oil prices. Small/medium strongly correlated with corporate profits, equities indices.</b>
<b>Civil Rotorcraft</b>	<b>Oil and gas segment (large) hit again, before recovery even began.</b>
<b>Military Programs</b>	<b>Emphasis on “shovel-ready.” Advance development programs at greater risk.</b>

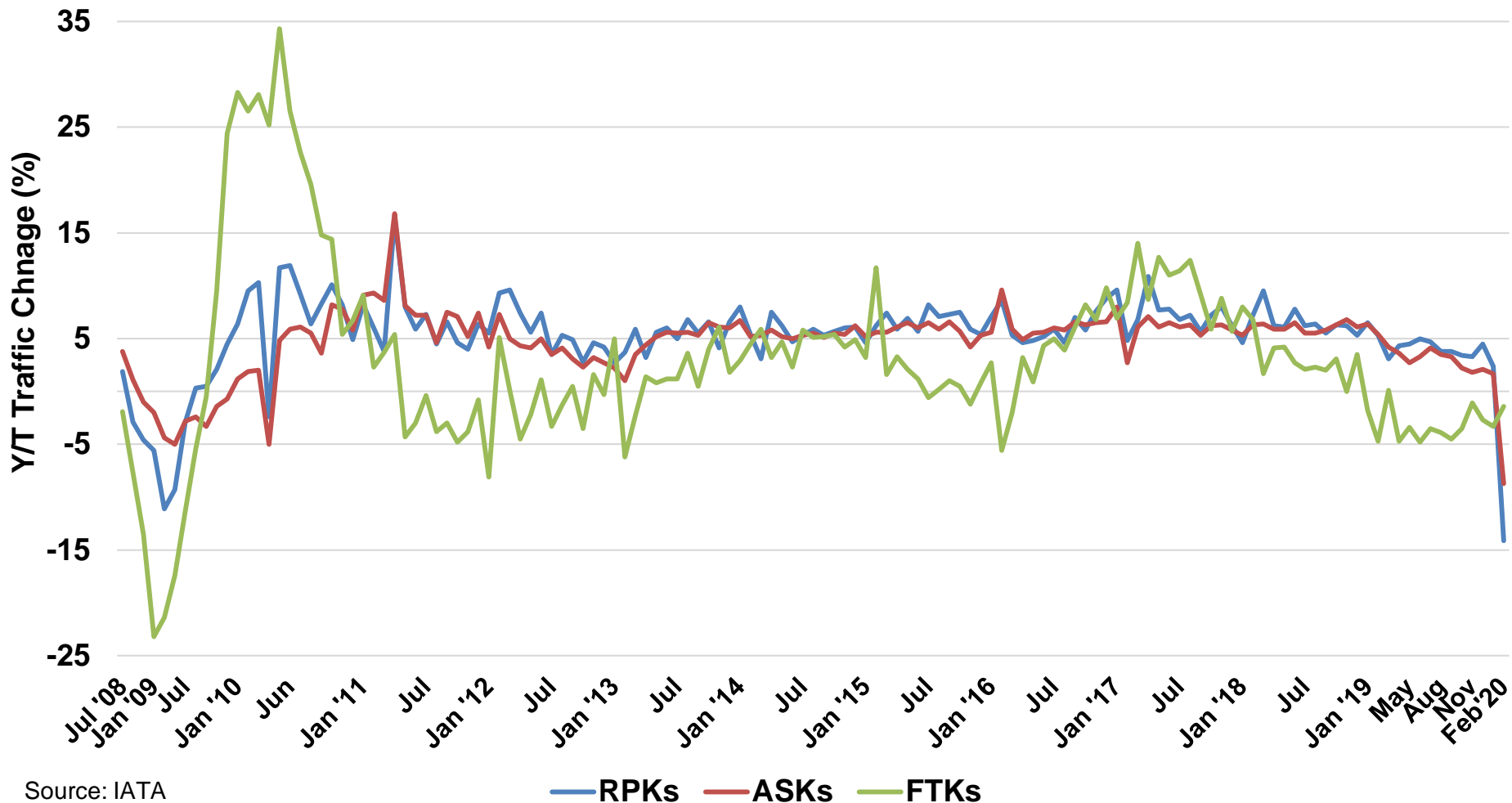
# Cyclicality, Our Long-Forgotten Nemesis



# Traffic: Way Above Trend...Until March 2019

## 40% Decline in 2020?

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%



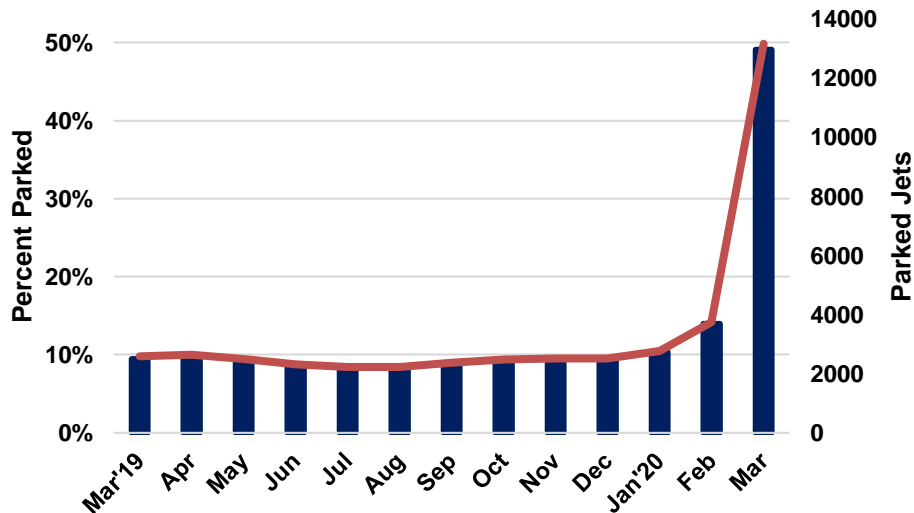
Source: IATA

— RPKs — ASKs — FTKs

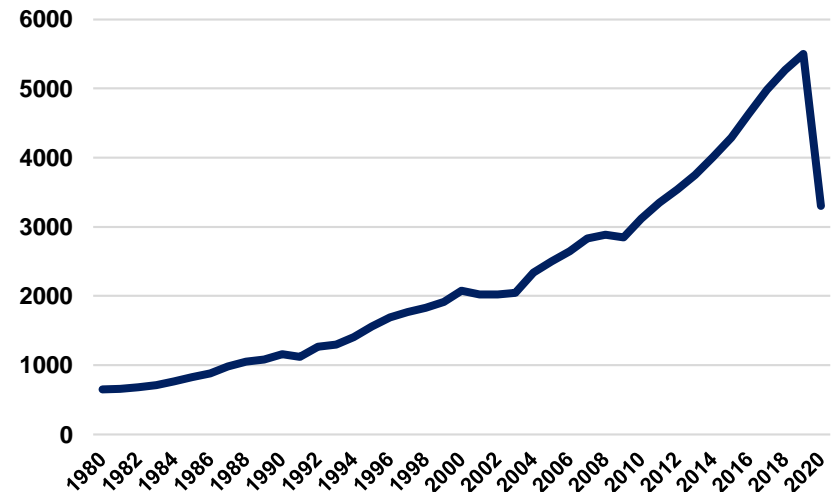
# Unprecedented Numbers

- **Traffic decline, parked fleet like no previous shock.**
  - Per Paul Krugman, they reflect a world economy in a “medically-induced coma.”
- **Traffic probably U. Really a disease question.**
  - Limited recovery until vaccine, or effective post-infection drug, or herd immunity.
- **Many early retirements coming.**
  - Primarily twin aisles; A380 bloodbath.
- **Aftermarket catastrophe.**
  - 40% down ASMs, de-stocking, deferred maintenance/upgrades, plentiful USM with early retirements.

World Jet Fleet: Now 50% Unemployed



World Air Traffic (RPM Bns)



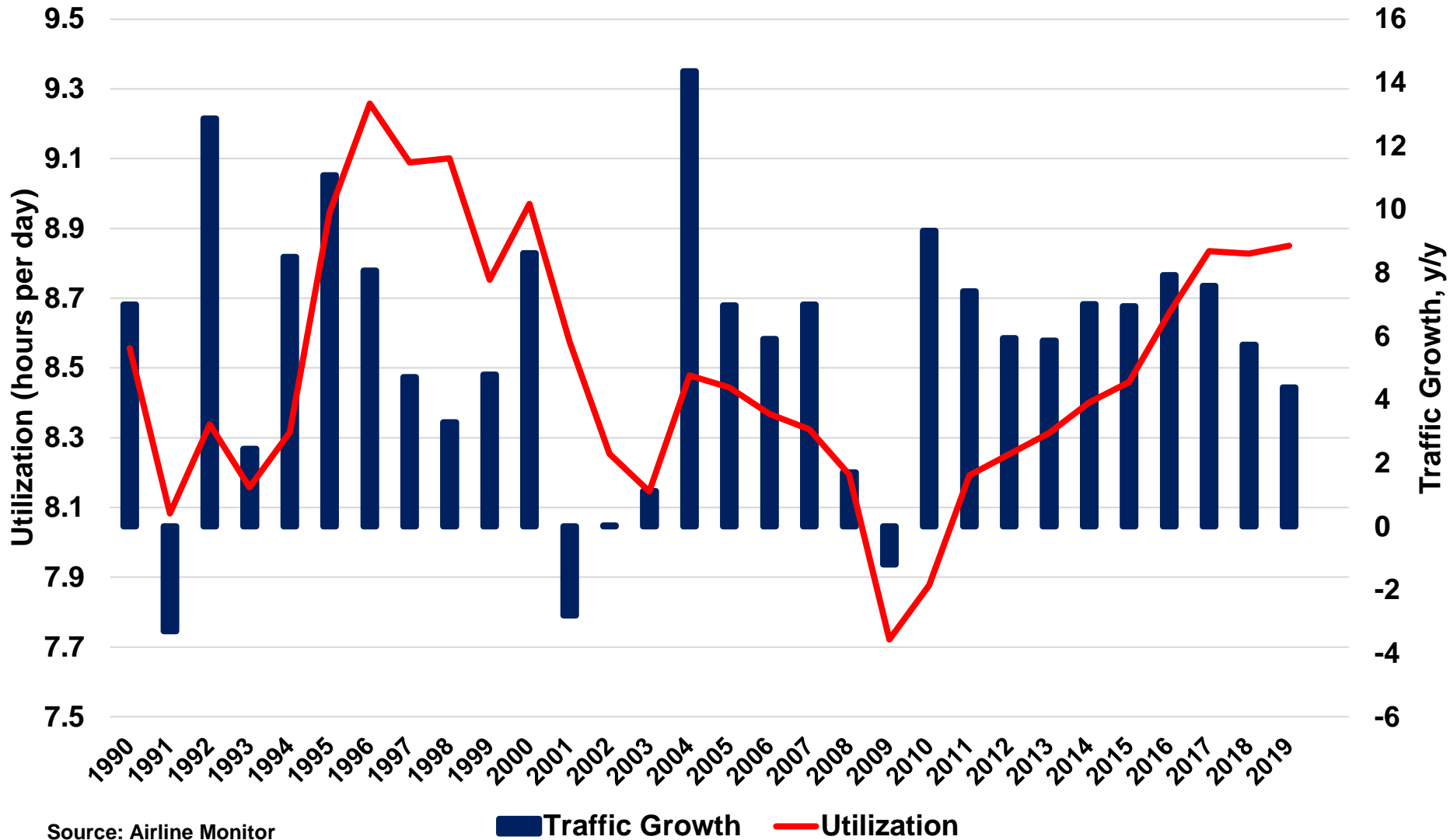
Source:  
Ascend/Jeffries

■ Parked — Percentage Of Total Fleet



# Lower Utilization Reflects Overcapacity, and Can Help Manage It

## But A 40% Traffic Drop Is Another Story

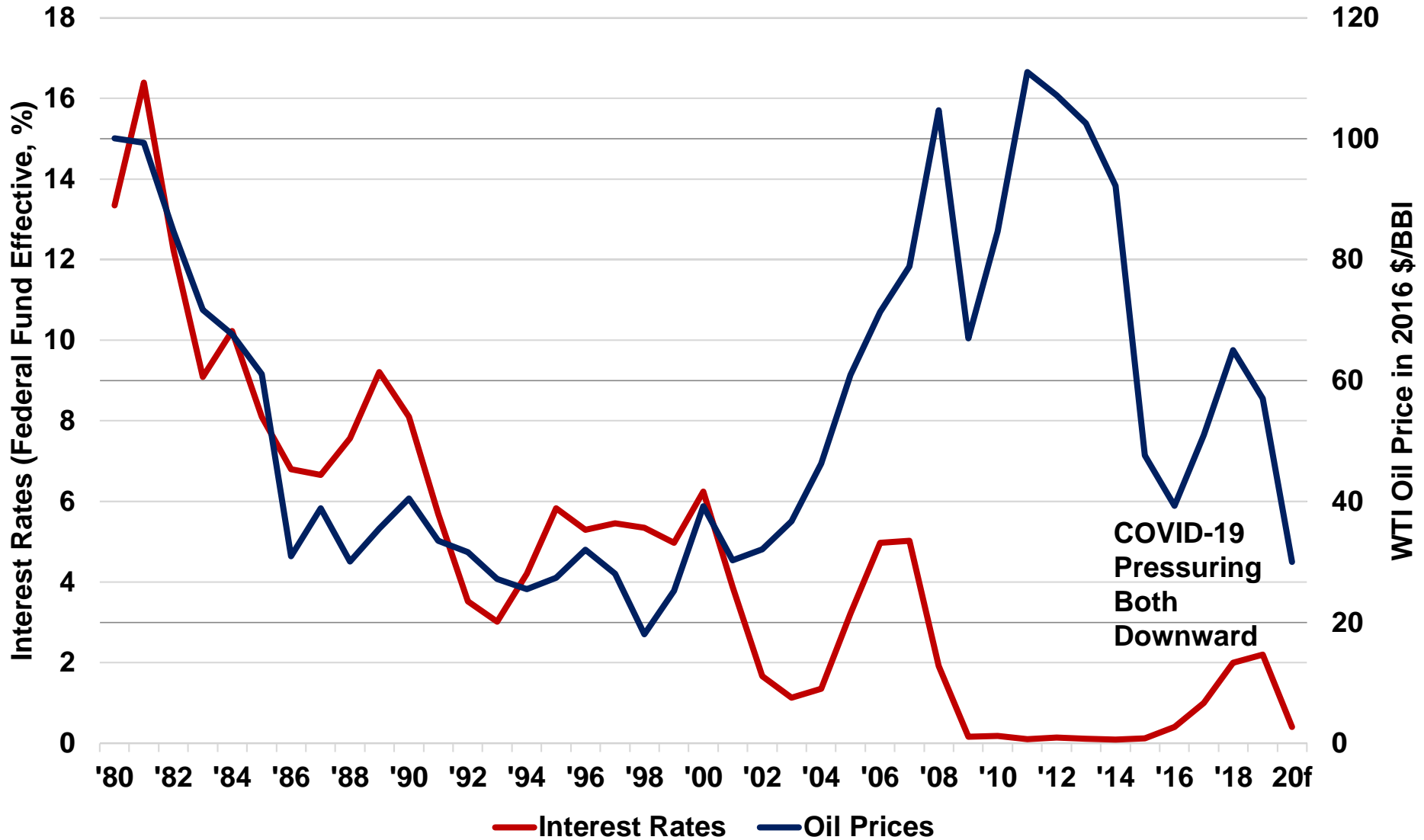


Source: Airline Monitor

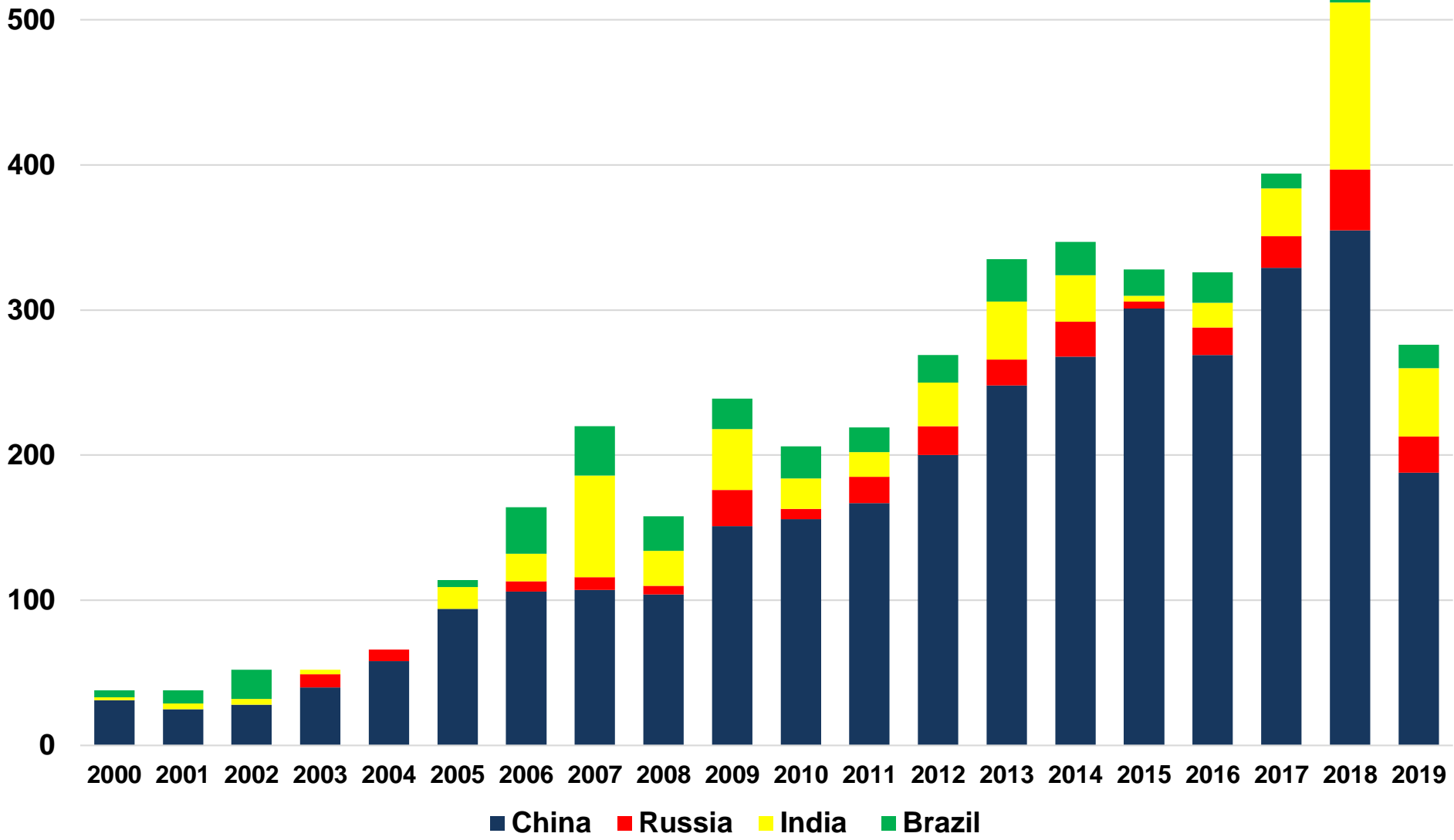
■ Traffic Growth — Utilization



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

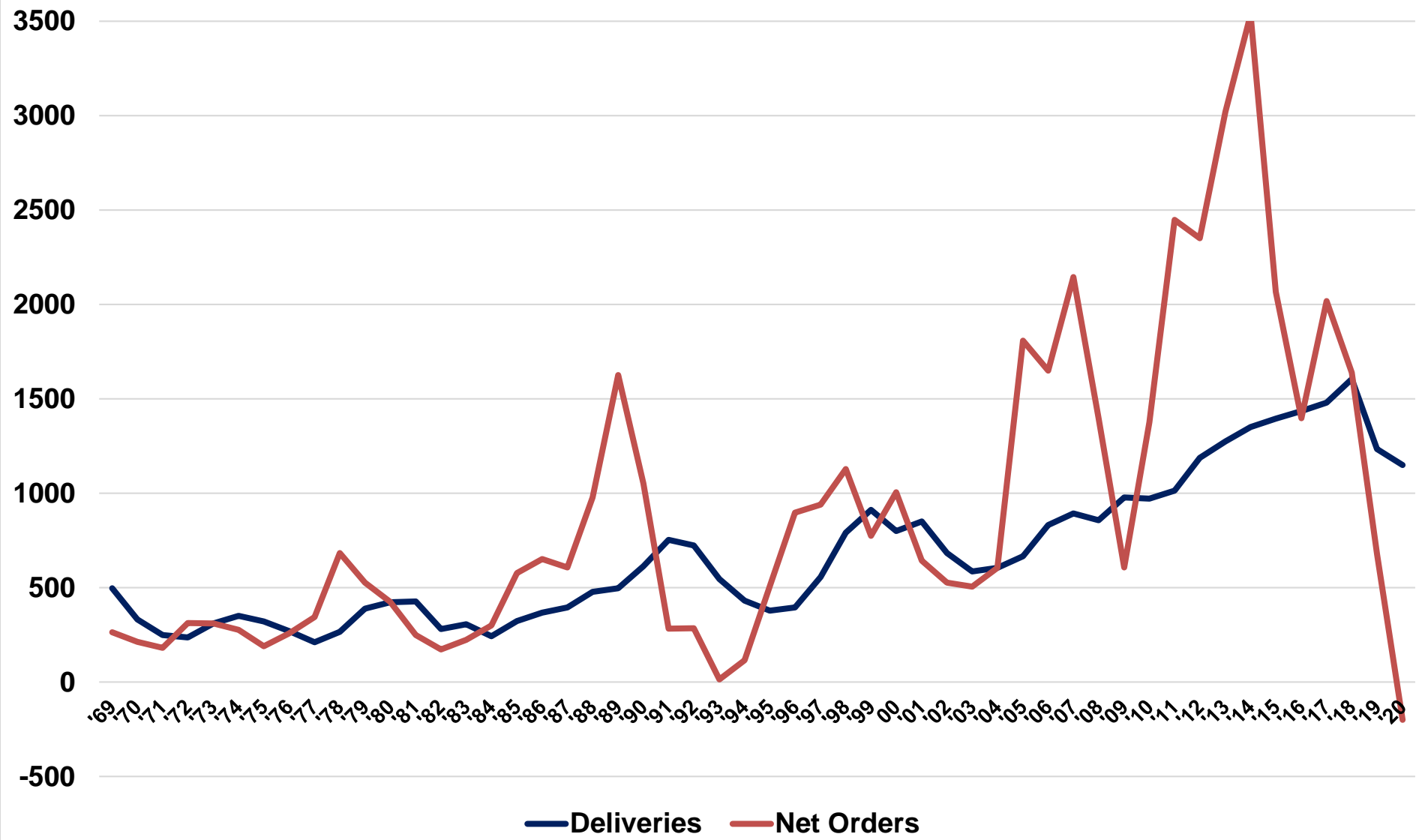


# BRIC Deliveries: Peaked; Watch China



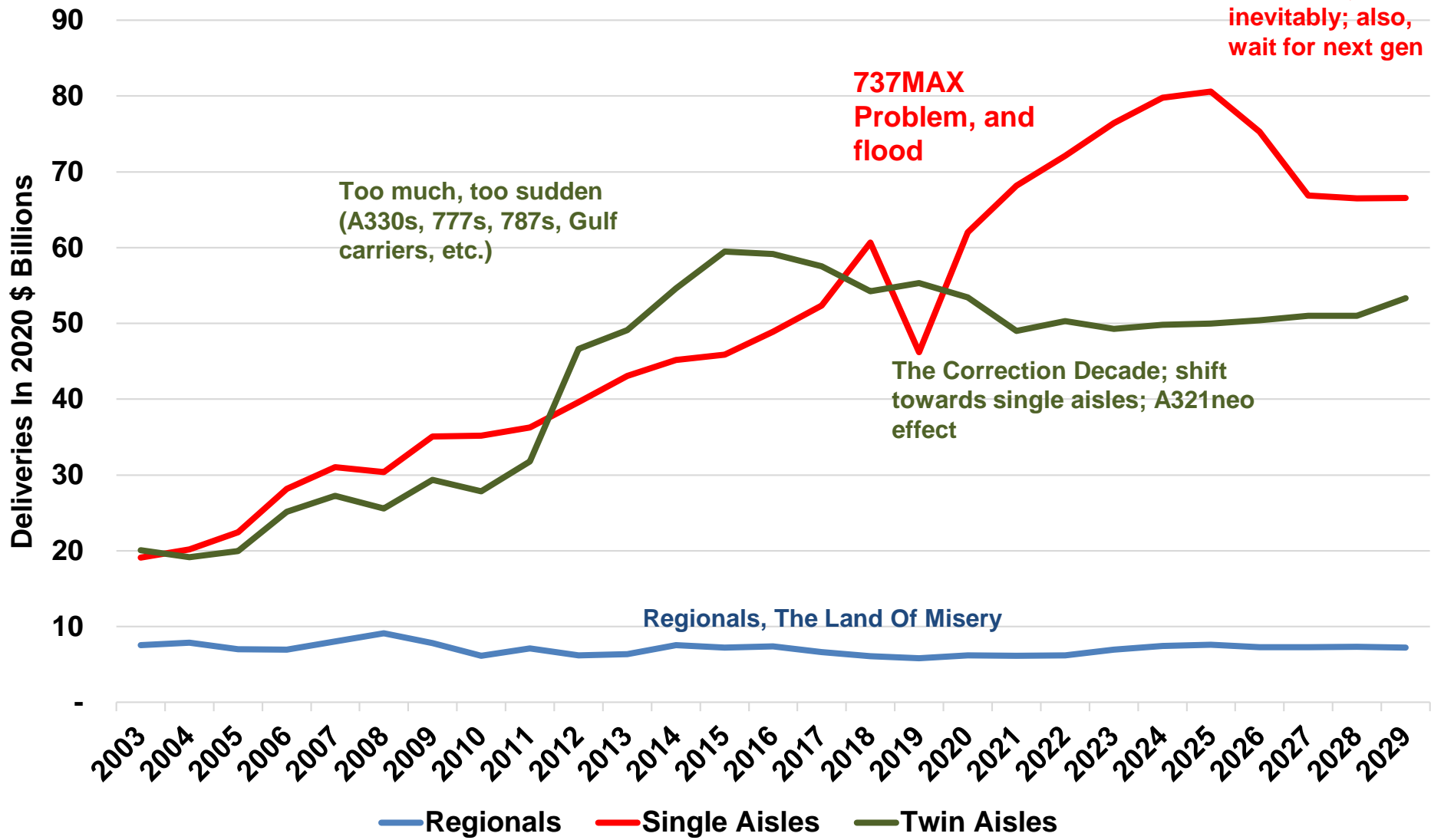
# Large Jetliner Orders And Deliveries

Book-To-Bill No Longer A Thing; Maybe 1-1 in 2023?

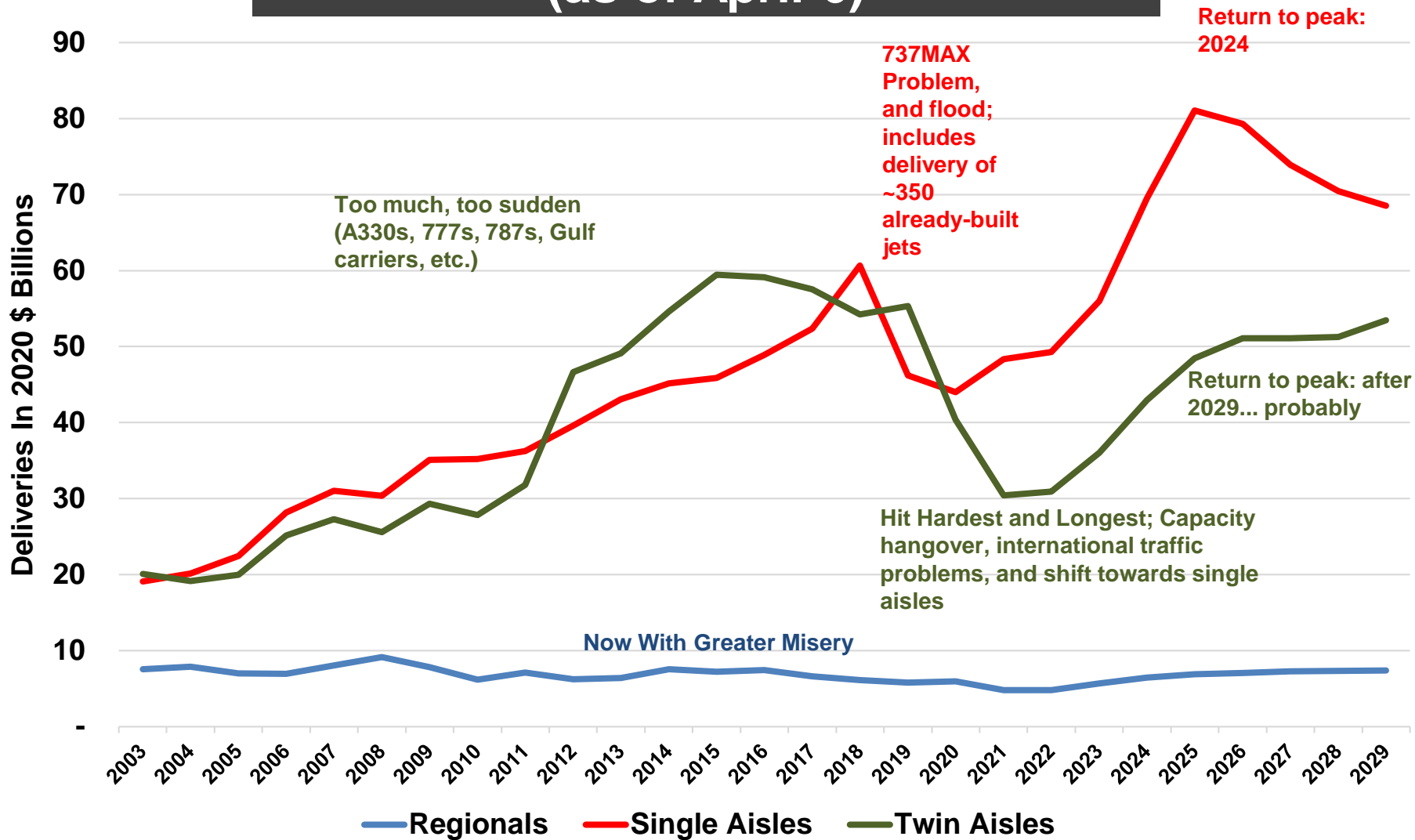


# The Air Transport Market By Segment (As of January)

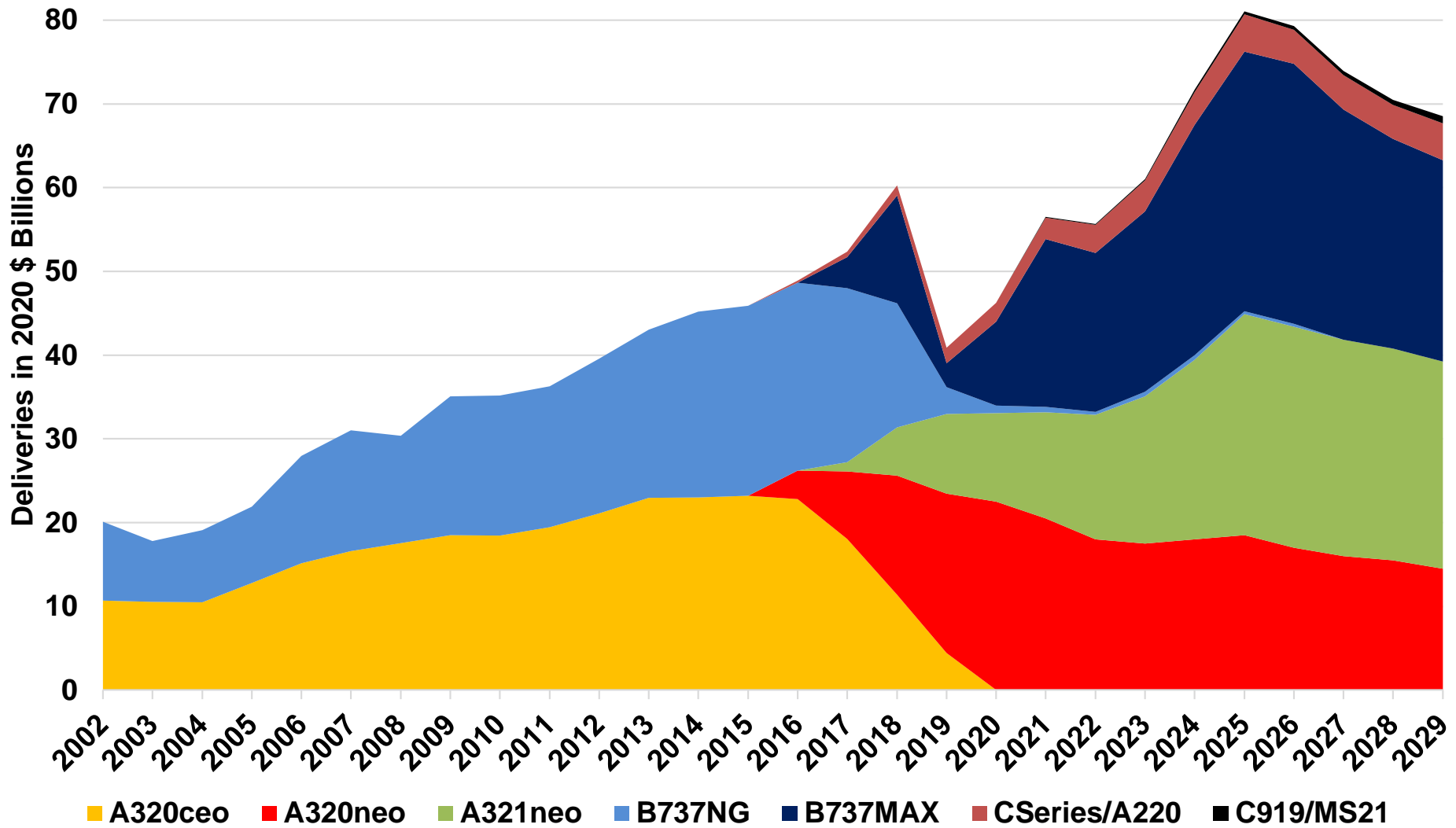
Some kind of correction, inevitably; also, wait for next gen



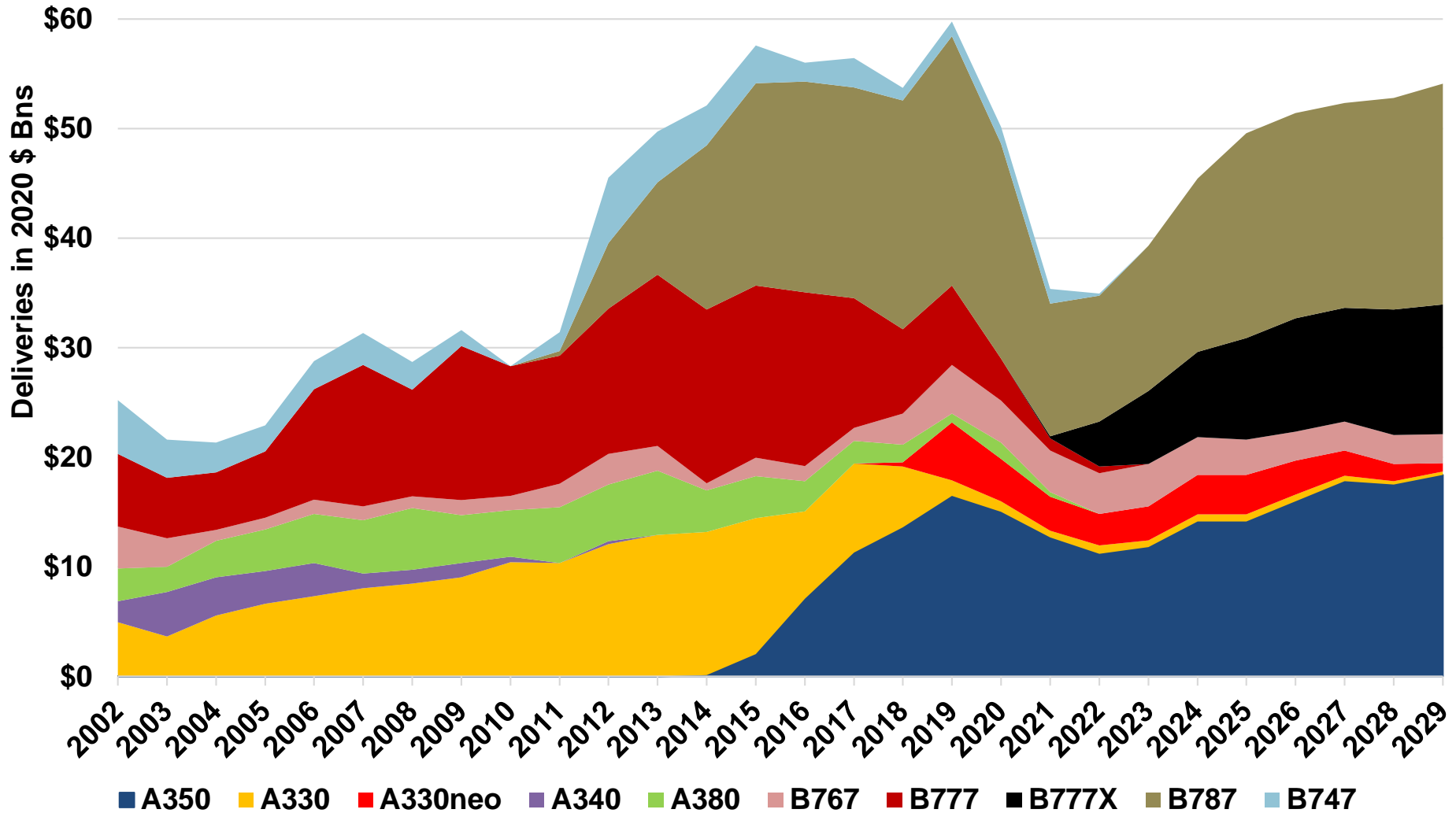
# The Air Transport Market By Segment (as of April 6)



# Single Aisle Deliveries: Not As Bad, Since Recent History Was Bad Too



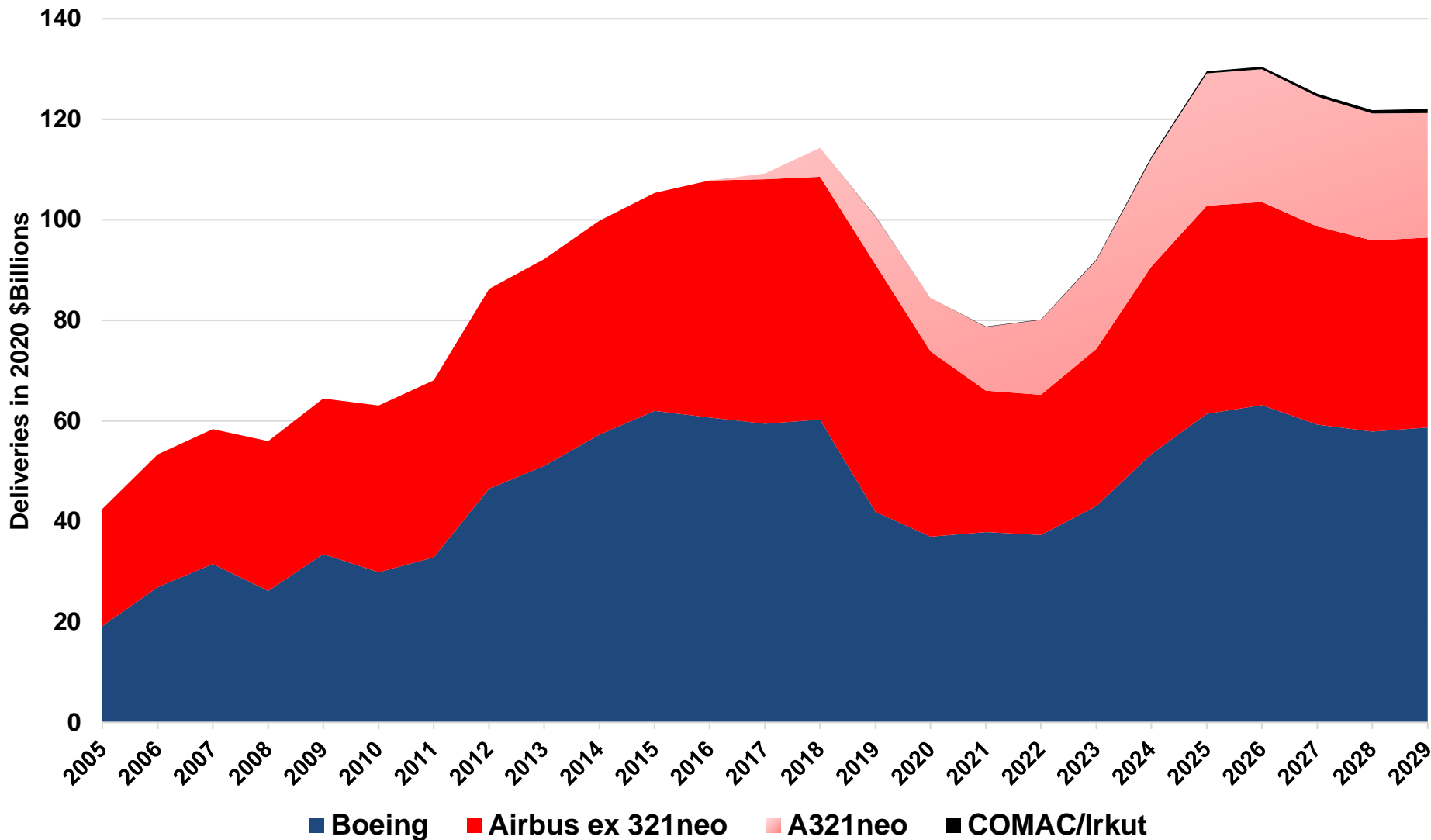
# Twin Aisles: Formerly Hot; Now Seriously Depressed



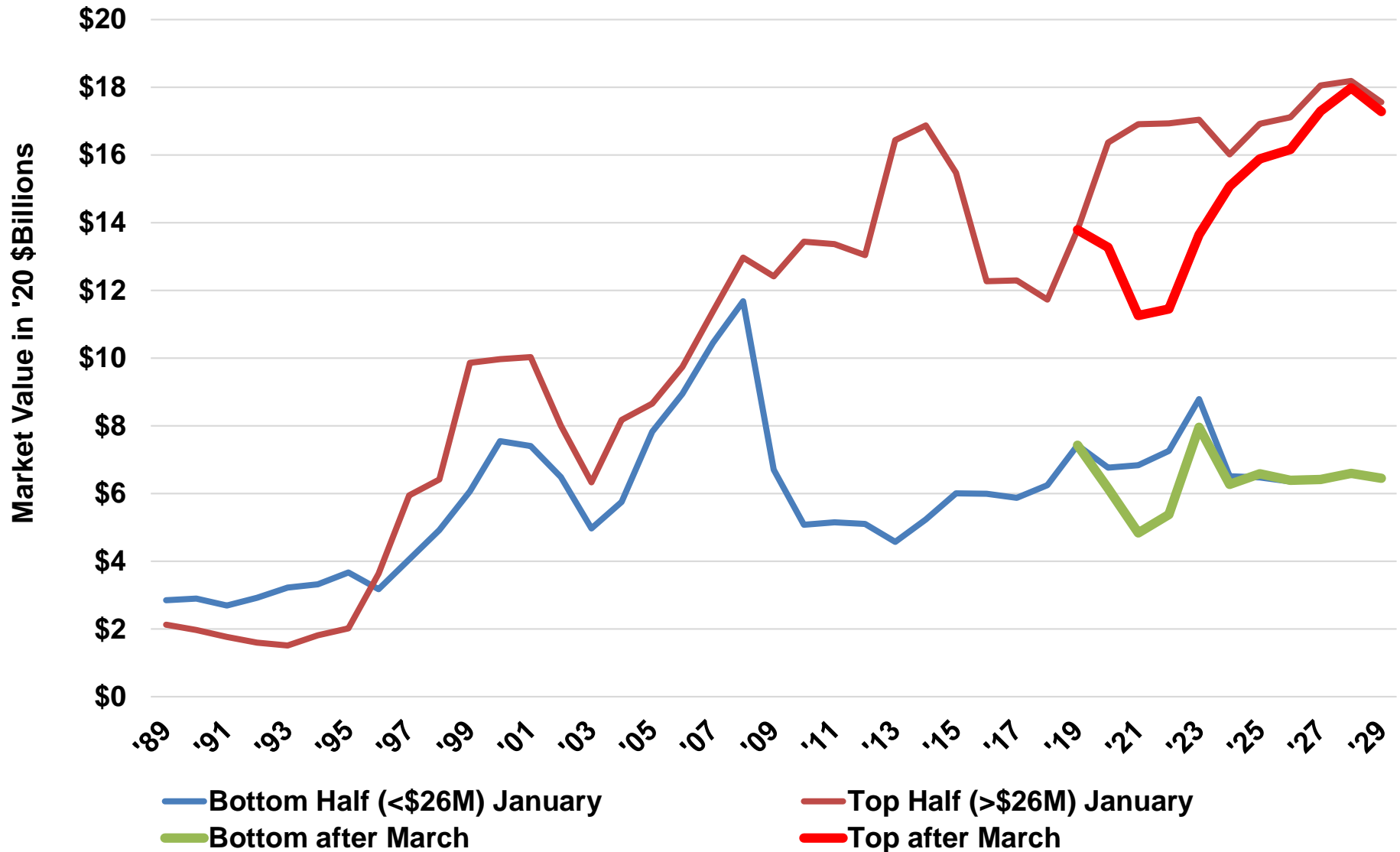


# Jetliner Market Shares By Deliveries

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



# Bottom Half Bizjet Segment vs. Top Half



# Summary: Where We're At

## (And What's Changed)

### • Tailwinds

- Interest rates. Ratio with fuel still holding. **(Watch fuel closely)**
- Investor cash for jetliners. **(Now a risk)**
- Traffic (long-term, until last March). **(Much worse)**
- Defense spending, and combat aircraft in particular. **(Still good)**
- **State aid (but again this just pulls demand forward).**

### • Headwinds

- Traffic (short-term, we hope; why de-linked from GDP?). **(Worse)**
- Commodification: pricing pressure everywhere; fewer new models, even major derivatives. **(Worse)**
- Geopolitics/trade. **(Worse)**
- The large twin aisles that nobody seems to want. **(Worse)**
- Boeing MAX response – discounting, aftermarket deals, etc.
- China: market, politics/trade, FX, traffic. **(Much worse)**

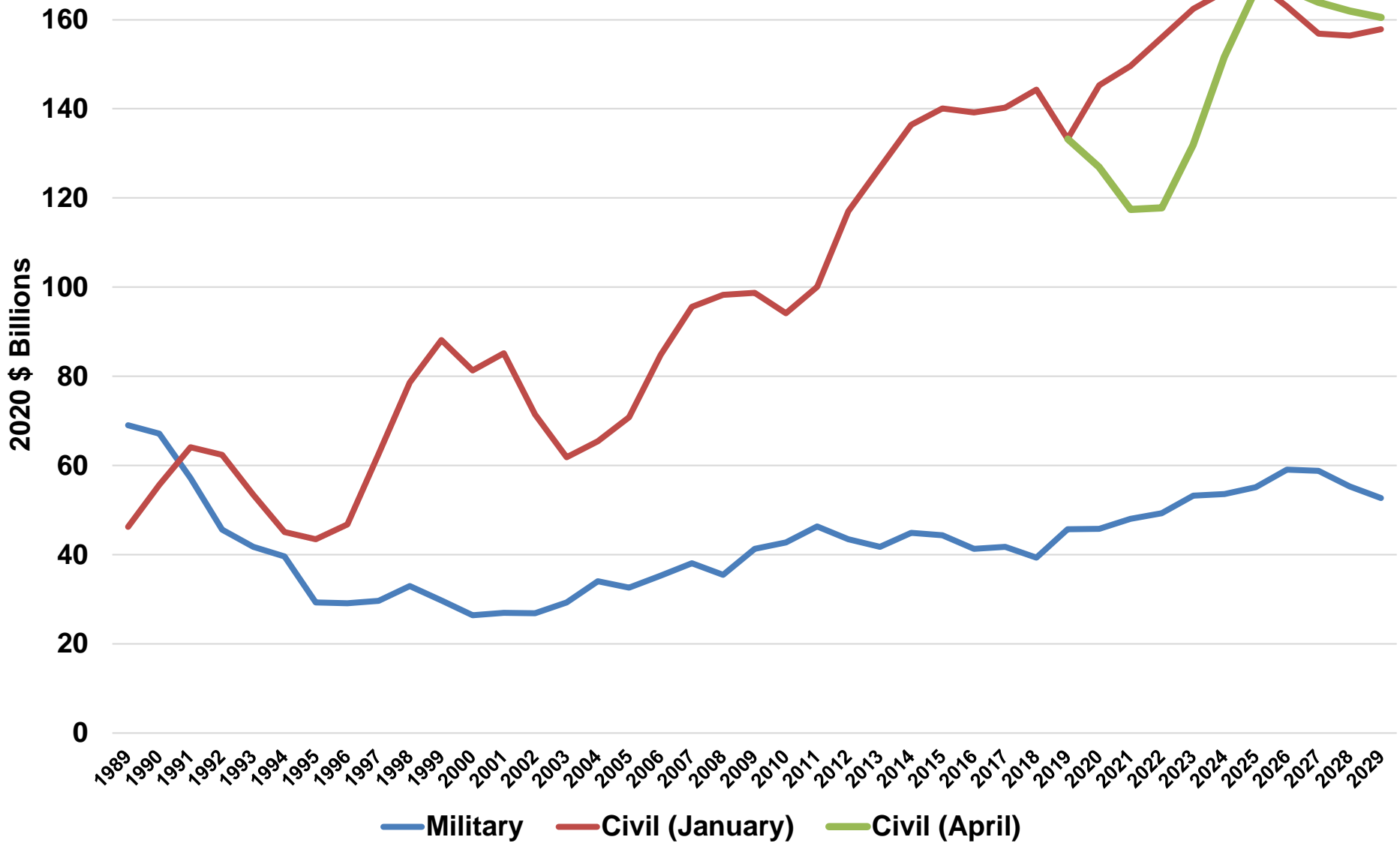
### • Other Winds

- Responses to RayTech: Re-thinking pure-play defense? **(And thinking again; but counter-cyclical balancing best bet).**
- Supremacy of A321neo/XLR, Boeing's response. **(Boeing stuck)**

# Global Aircraft Market Outlook In One Page

<u>Segment</u>	<u>2020</u>	<u>Risk</u>	<u>Elevator Comment</u>
<b>Jetliners-SA</b>	<b>-4.7%</b>		Includes some already-built MAXs. Watch China, fuel, traffic.
<b>Jetliners-TA</b>	<b>-27.0%</b>		Overcapacity an issue. Watch traffic, China. A330neo, A350-1000, 777X, 787 orders a concern
<b>Regionals</b>	<b>-13.3%</b>		Waiting for Boeing supply chain effect on E-2; Scope clause de-risked, but little growth.
<b>Business Aircraft</b>	<b>-15.8%</b>		Another hit after many false starts over a disappointing decade.
<b>Civil Rotorcraft</b>	<b>-3.4%</b>		Large civil hit again. Too many new models aimed at a weak segment (oil/gas).
<b>Military Rotorcraft</b>	<b>-2.0%</b>		AH-64 bounce ends; Programs end/slow; no risk of accelerated downturn; FVL beyond forecast, ex FARA.
<b>Military Transports</b>	<b>-26.1%</b>		A seriously underperforming market.
<b>Fighters</b>	<b>2.9%</b>		I like this market. F-35, plus strong Gen 4.5
<b><u>All Civil</u></b>	<b><u>-16.1%</u></b>		SAJetliner snapback due to MAX, weakness in other segments; more overcapacity risk.
<b><u>All Military</u></b>	<b><u>-0.2%</u></b>		Global insecurity, Tension, Malice. Special mission also boosts topline.
<b><u>Total Industry</u></b>	<b><u>-12.0%</u></b>		<b><u>Just the start of a serious downturn</u></b>

# World Aircraft Deliveries By Value, 1989-2029



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