

Two Thoroughbreds And A Herd Of Donkeys

Leaders And Laggards In The Aircraft Market

Presentation To The National Aeronautic Association

Washington, DC

Richard Aboulafia

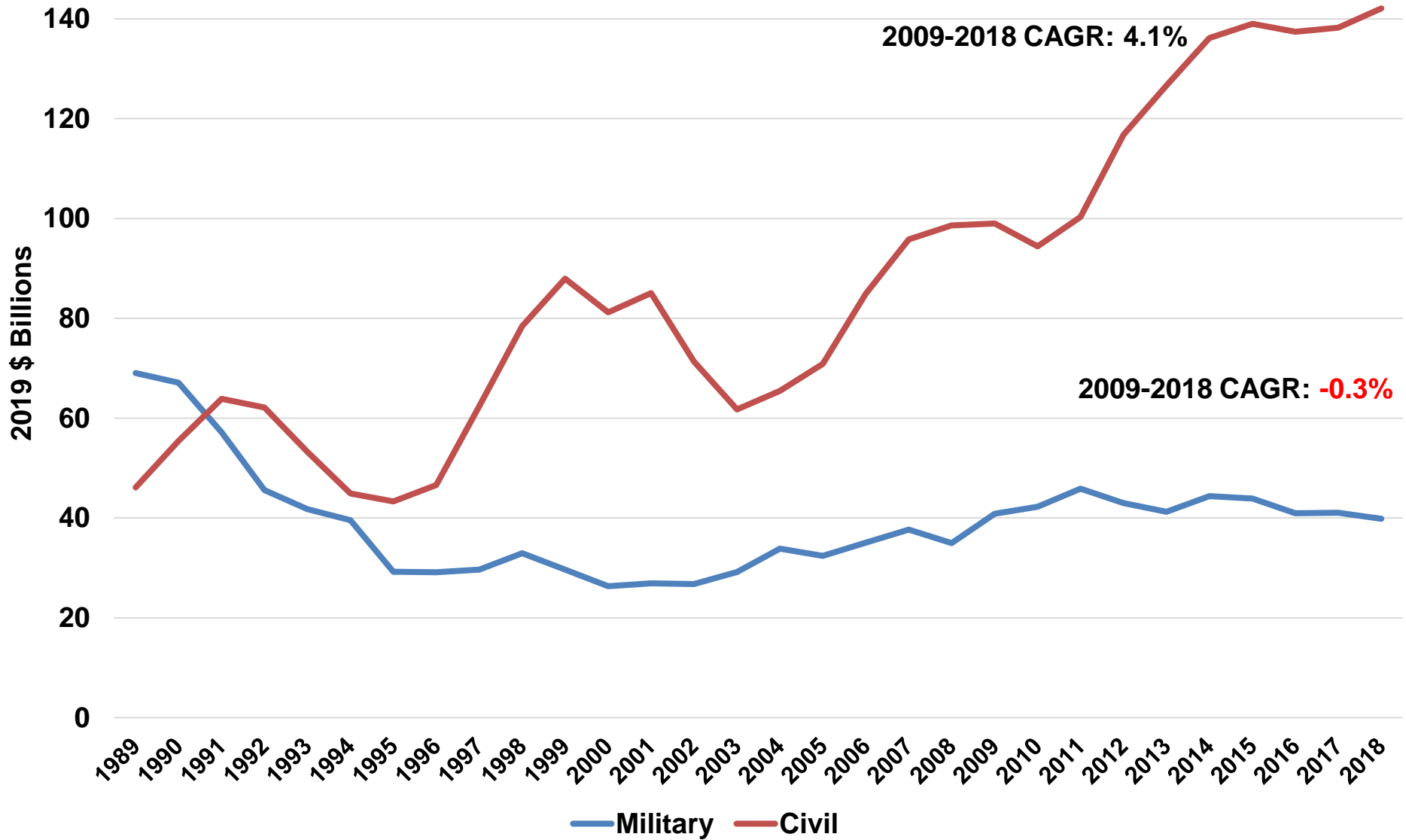
Vice President, Analysis

Teal Group Corporation

www.tealgroup.com

January 2019

World Aircraft Deliveries By Value, 1989-2018



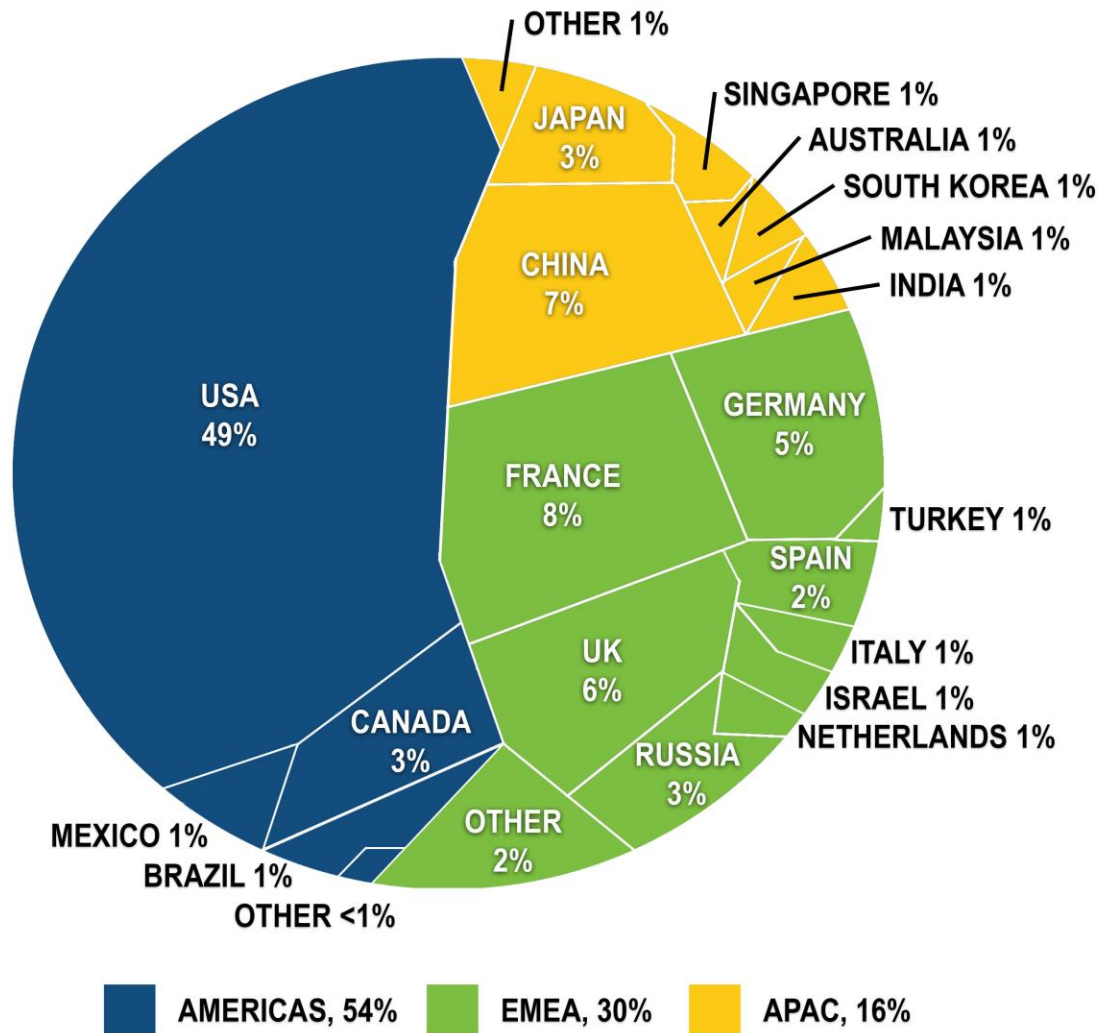
Aircraft Markets, Through Good And Bad Years

<u>World New Deliveries</u>	<u>CAGR</u>	<u>CAGR</u>	<u>CAGR</u>	<u>Change</u>
<u>In 2018 (2019 \$)</u>	<u>'03-'08</u>	<u>'08-'14</u>	<u>'14-17</u>	<u>'17-'18</u>
Large Jetliners (\$111.7 b)	7.4%	9.9%	2.8%	4.3%
Business Aircraft (\$19.7 b)	16.7%	-1.9%	-6.0%	-1.9%
Regionals (\$6.2 b)	3.9%	-3.1%	-4.3%	-6.5%
Civil Rotorcraft (\$4.5 b)	19.8%	-2.0%	-9.4%	4.6%
Military Rotorcraft(\$11.4 b)	9.8%	9.8%	-9.3%	-12.6%
Military Transports (\$6 b)	3.2%	-0.7%	2.6%	-5.2%
Fighters (\$18.6 b)	1.6%	0.8%	1.0%	3.9%
<u>All Civil</u> (\$142.2 b)	<u>9.8%</u>	<u>5.5%</u>	<u>0.5%</u>	<u>2.9%</u>
<u>All Military</u> (\$39.9 b)	<u>3.7%</u>	<u>4.1%</u>	<u>-2.6%</u>	<u>-2.9%</u>
<u>Total</u> (\$182.1 b)	<u>8.0%</u>	<u>5.1%</u>	<u>-0.2%</u>	<u>1.6%</u>

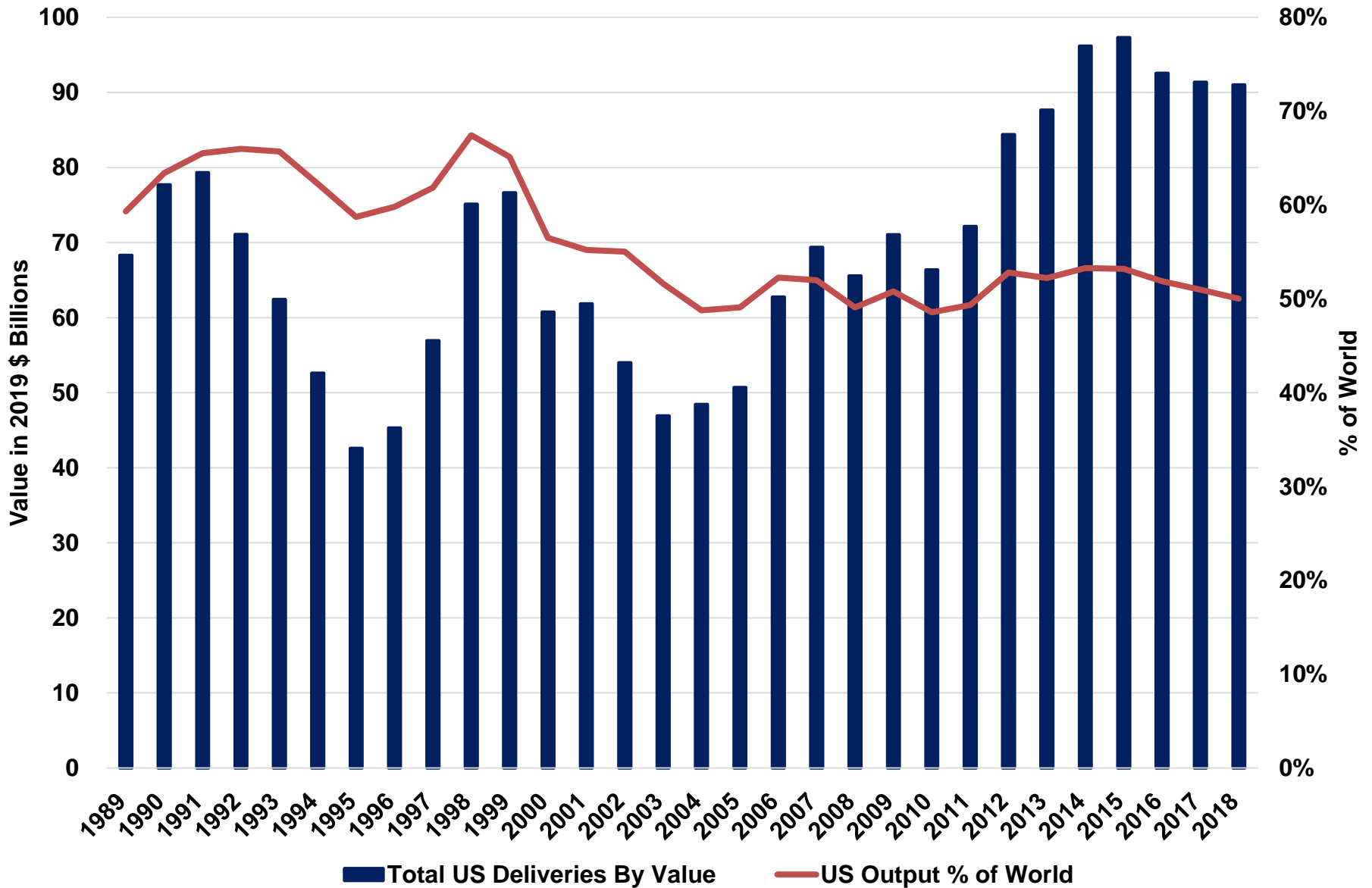


GLOBAL AEROSPACE INDUSTRY WORTH \$838 BILLION; US > NEXT 25 BIGGEST COUNTRIES

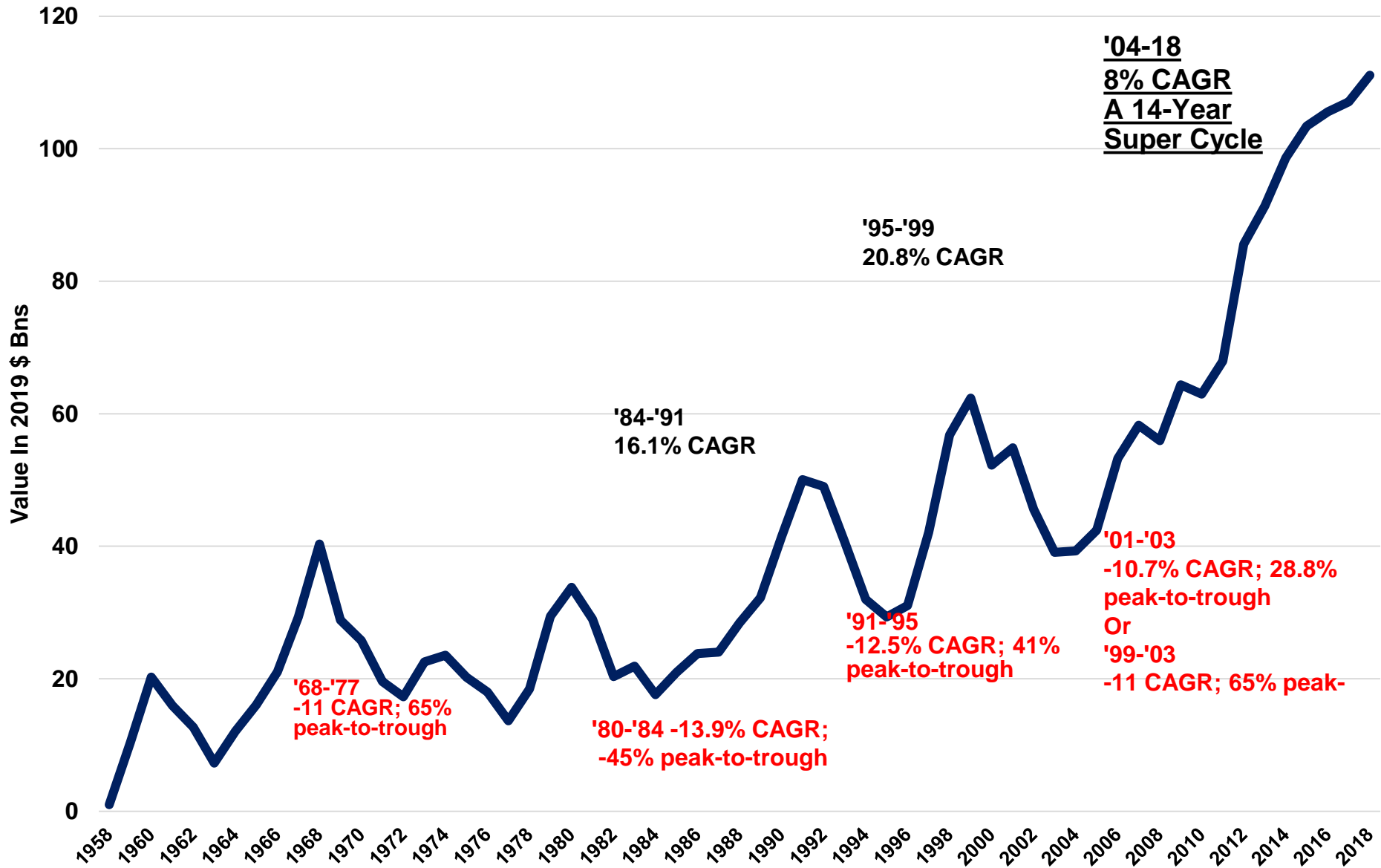
Source:
AeroDynamic
Advisory &
Teal Group



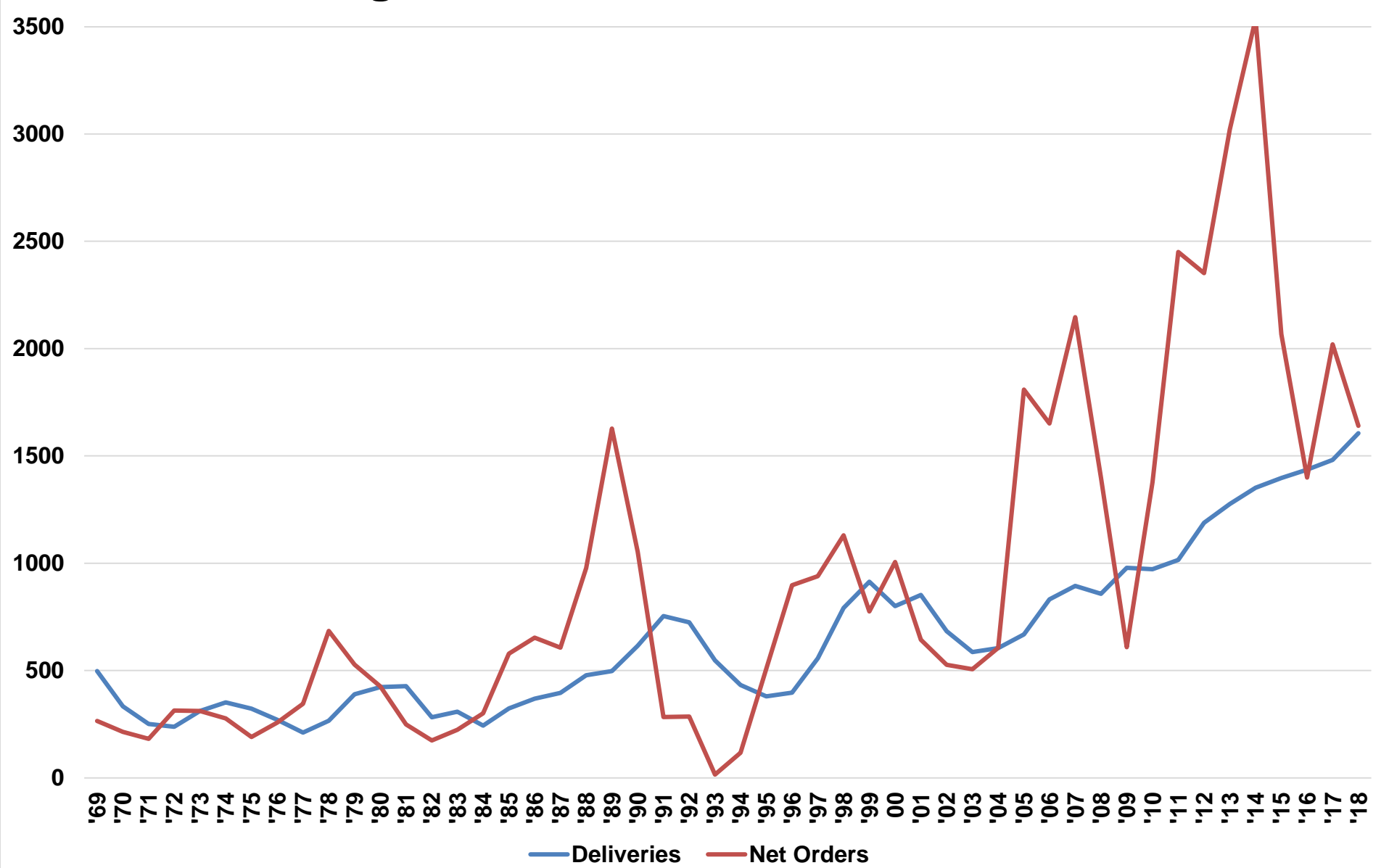
US Aircraft Industry Output



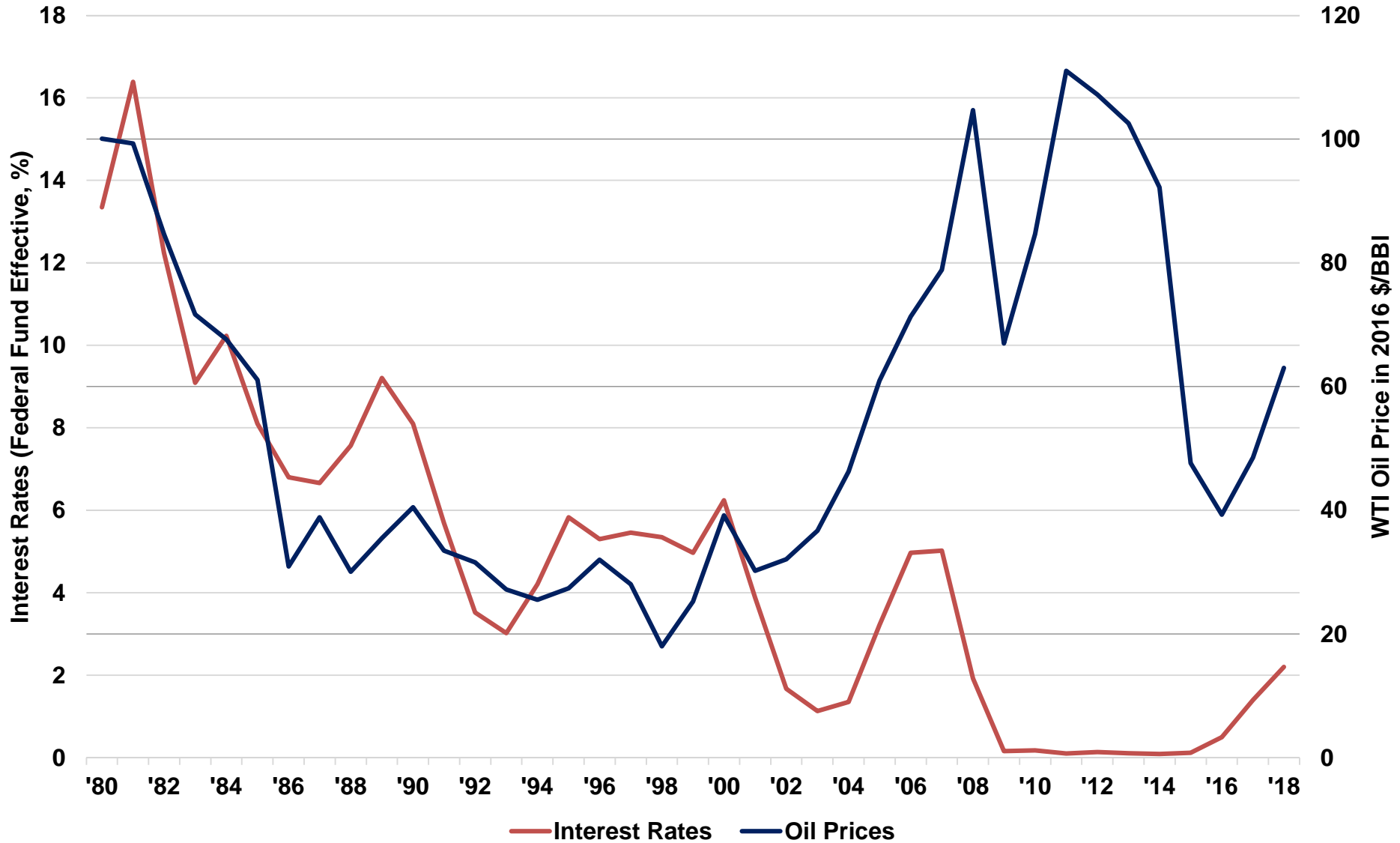
Cyclicality, Our Long-Forgotten Nemesis



Large Jetliner Orders And Deliveries



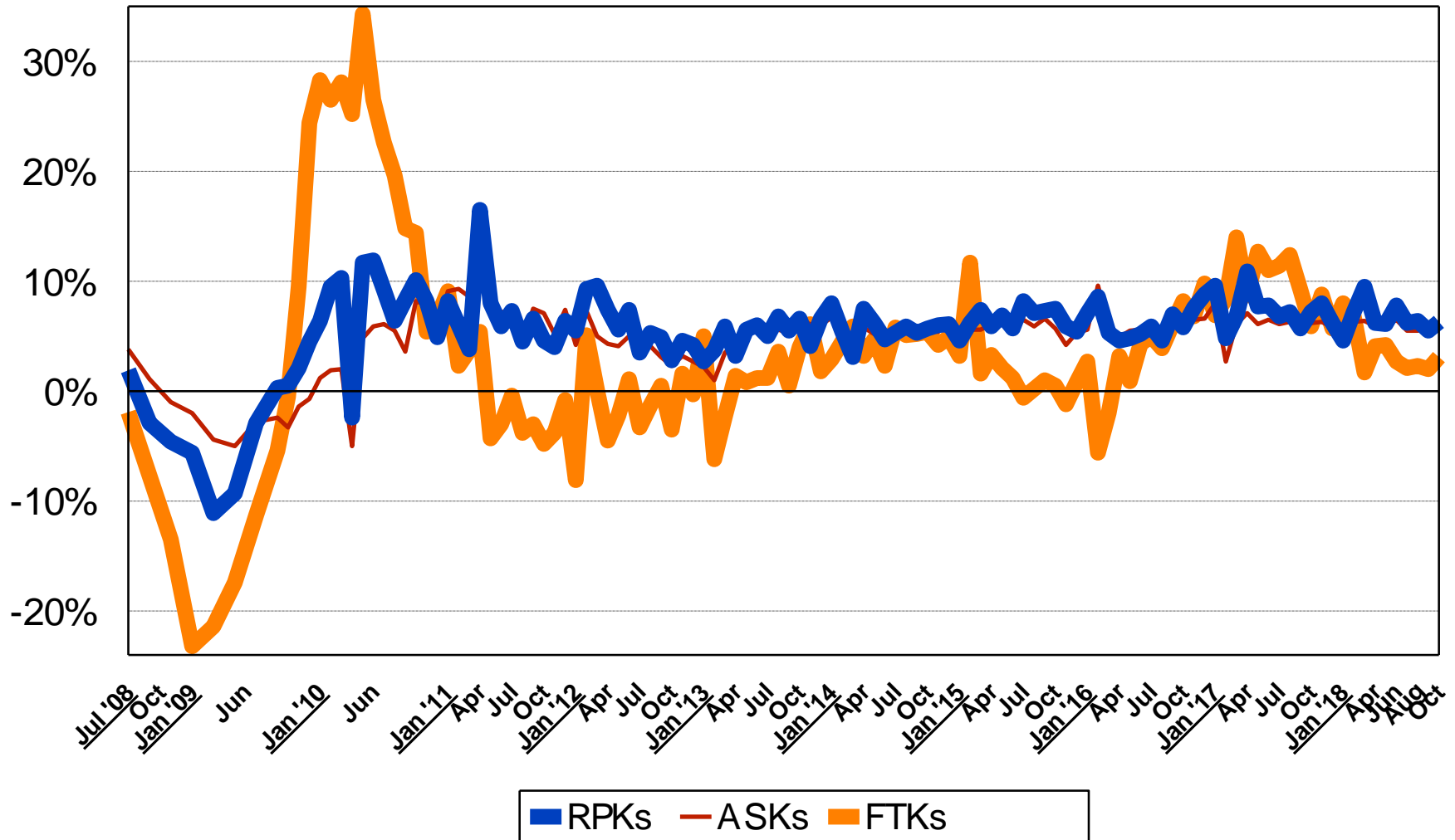
Interest Rates And Oil Prices: Less Than 4%, And \$50-85/bbl, Ideally; But The Ratio Matters Most



Y/Y Traffic: Well Above Trend

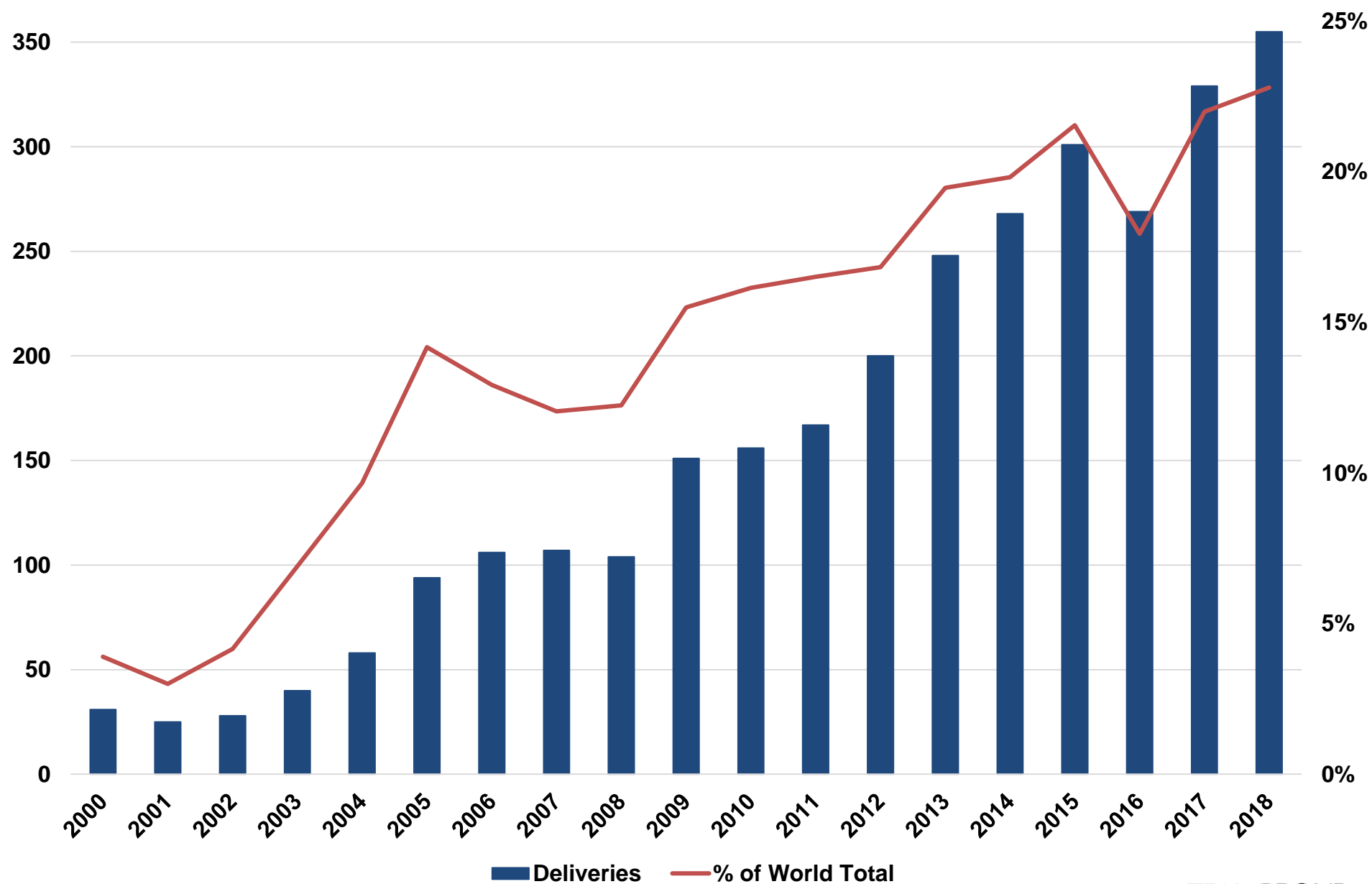
2017 Totals: RPKs 7.6% (10-year average: 5.5%), FTKs 9% (best since 2010 recovery)

2016: RPKs 6.3%, ASKs 6.2%, FTKs 3.8%; 2015: RPKs 6.5%, ASKs 5.6%, FTKs 2.2%

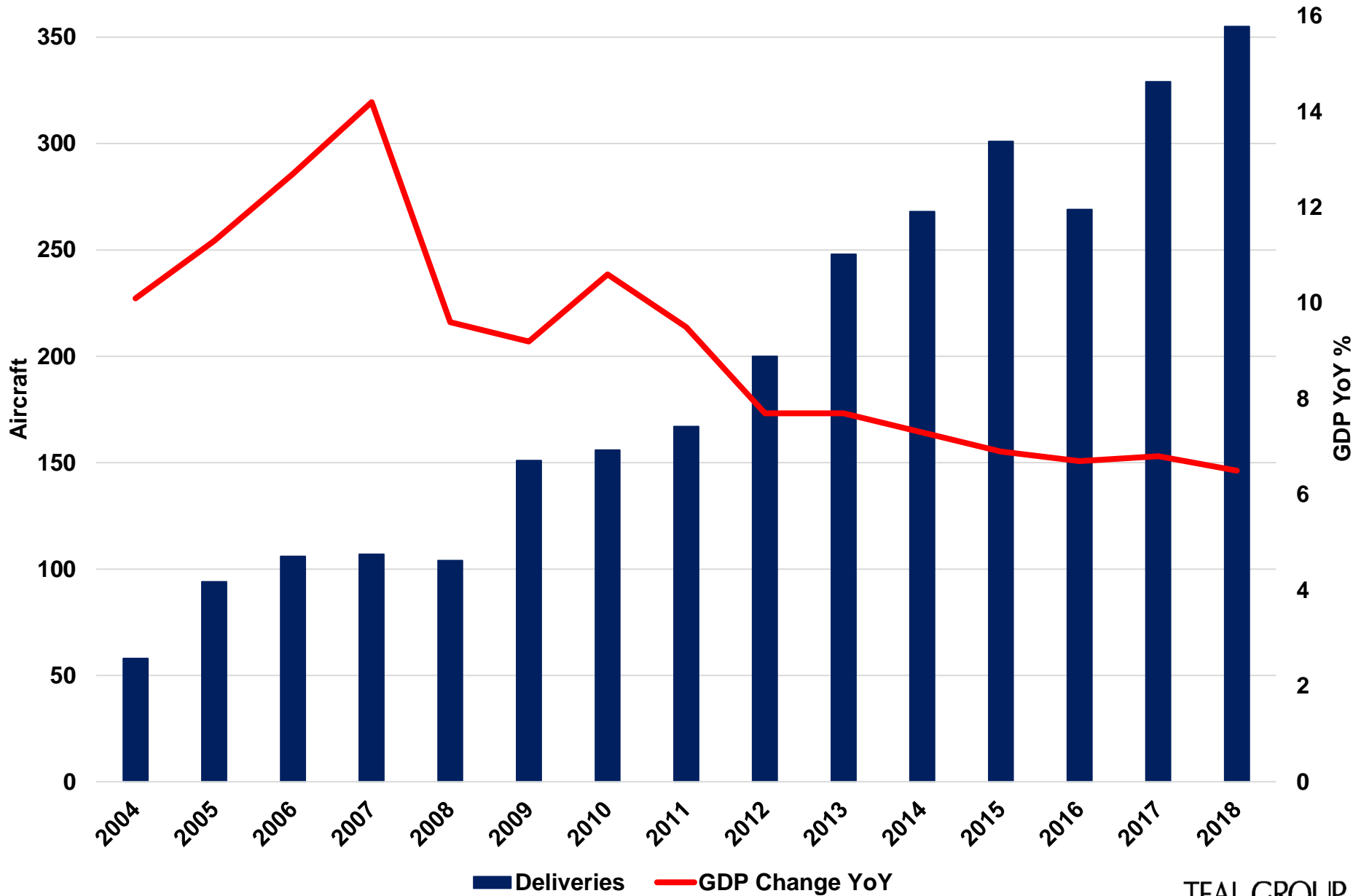


Source: IATA

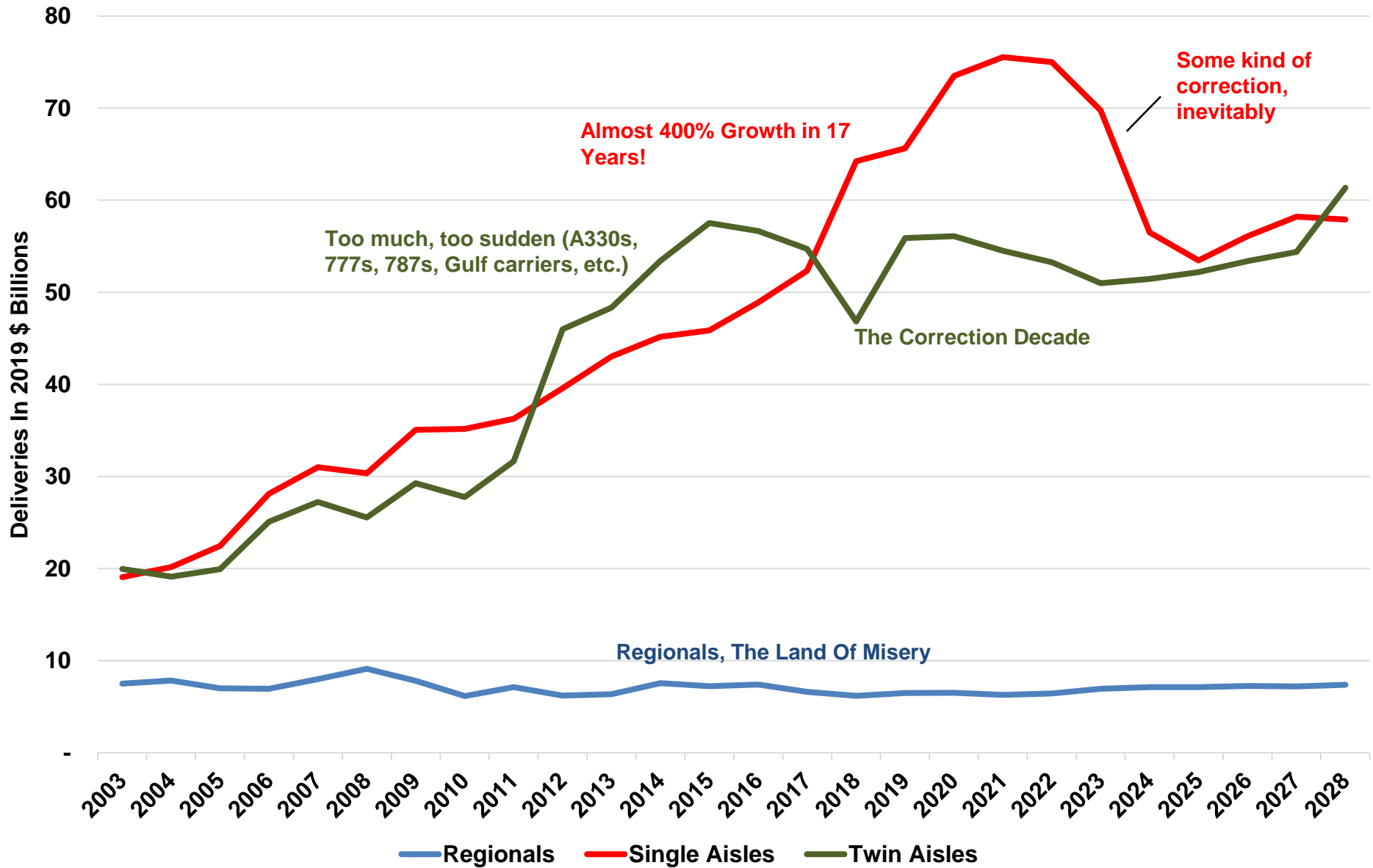
Large Jetliner Deliveries To China: Total And % Of World



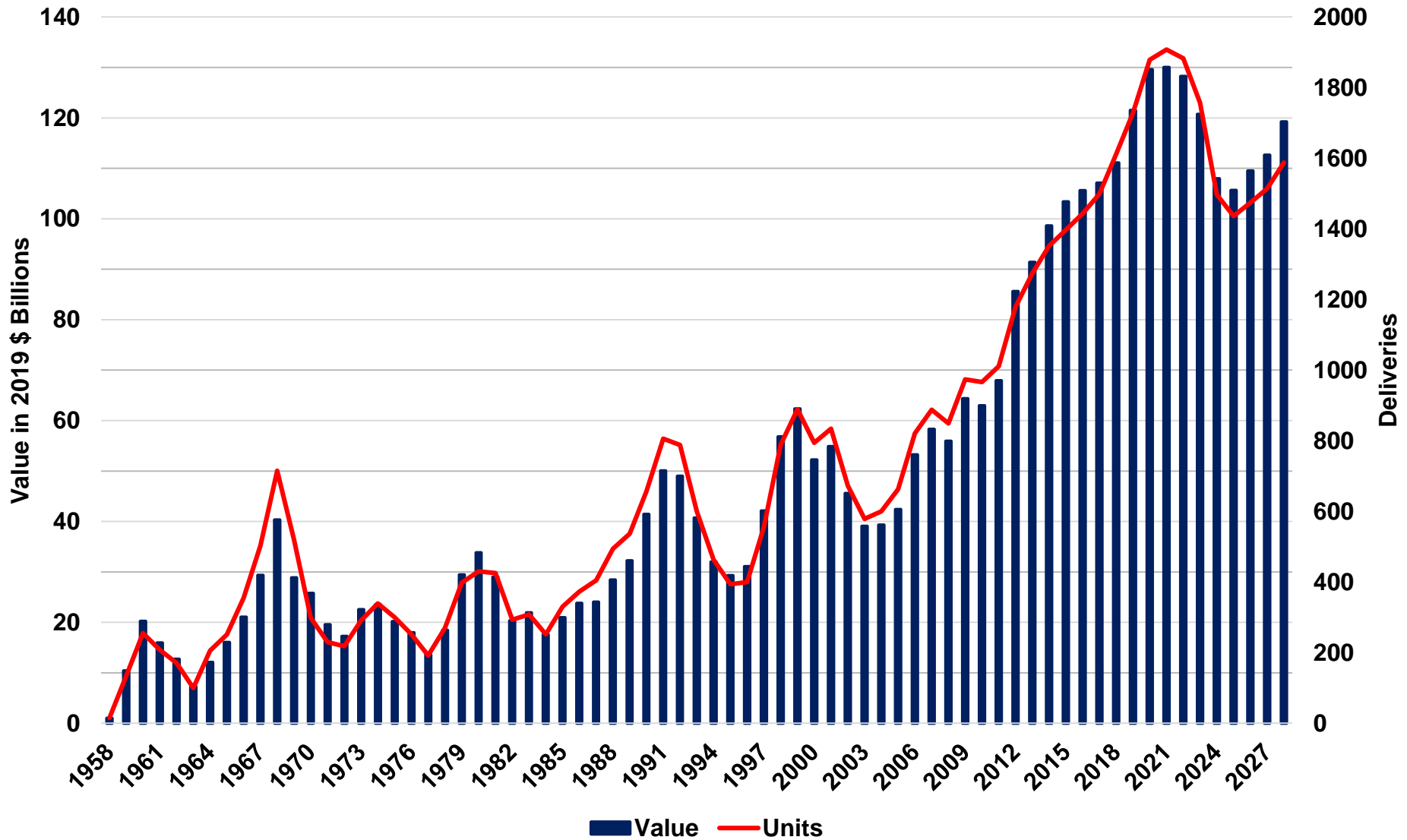
China Large Jetliner Deliveries And GDP Growth



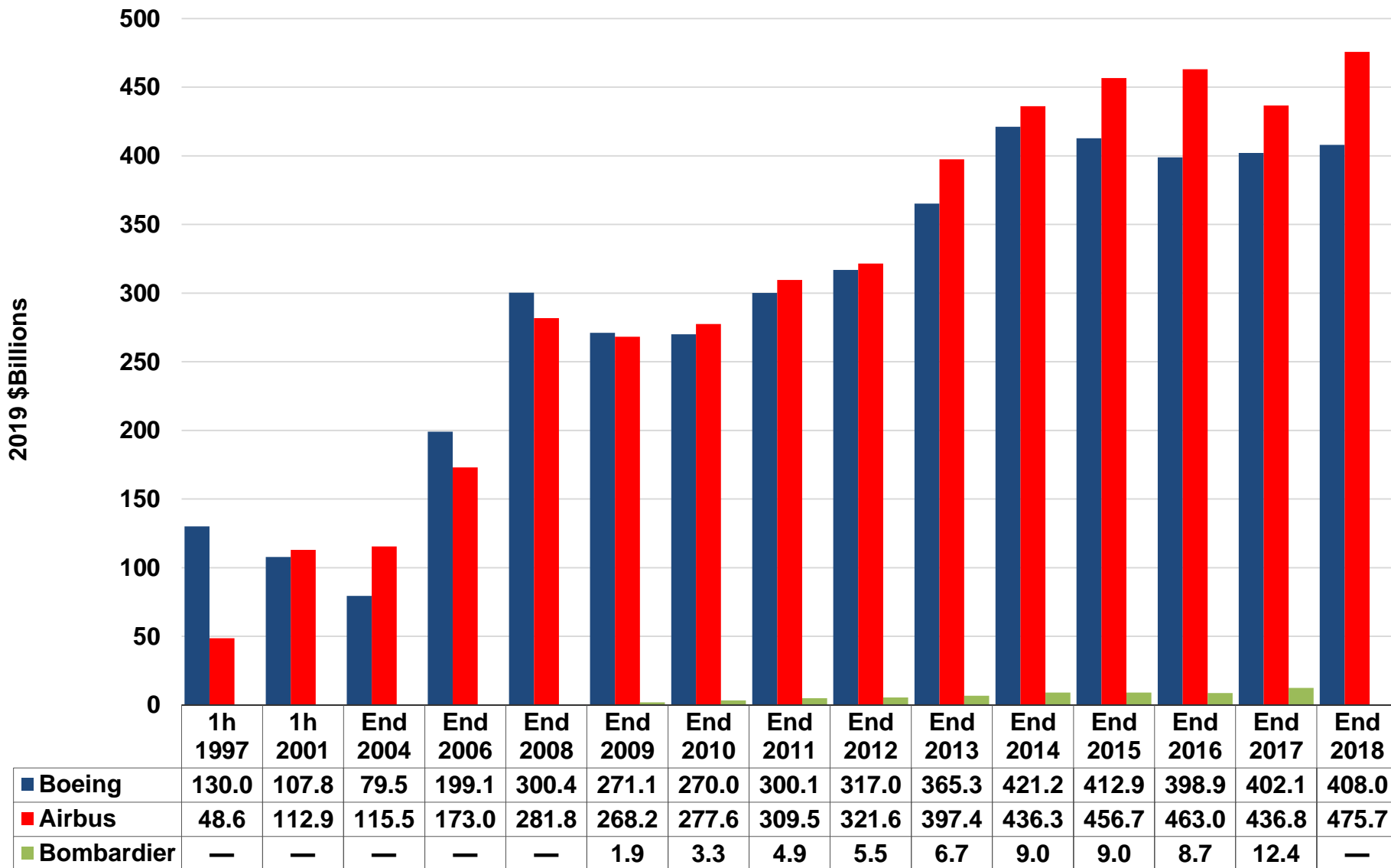
The Air Transport Market By Segment



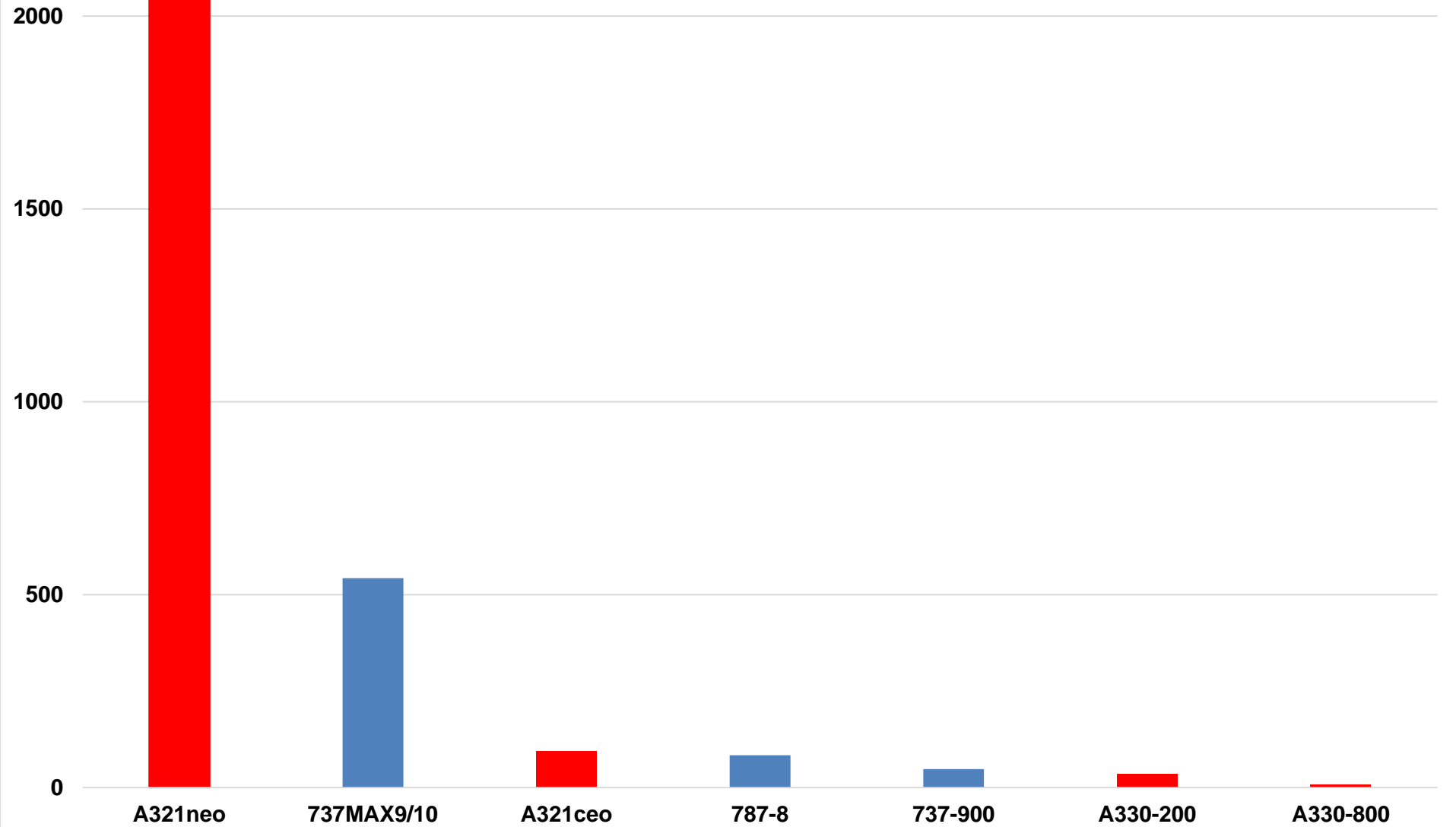
"It Was Different That Time," We Hope To One Day Say



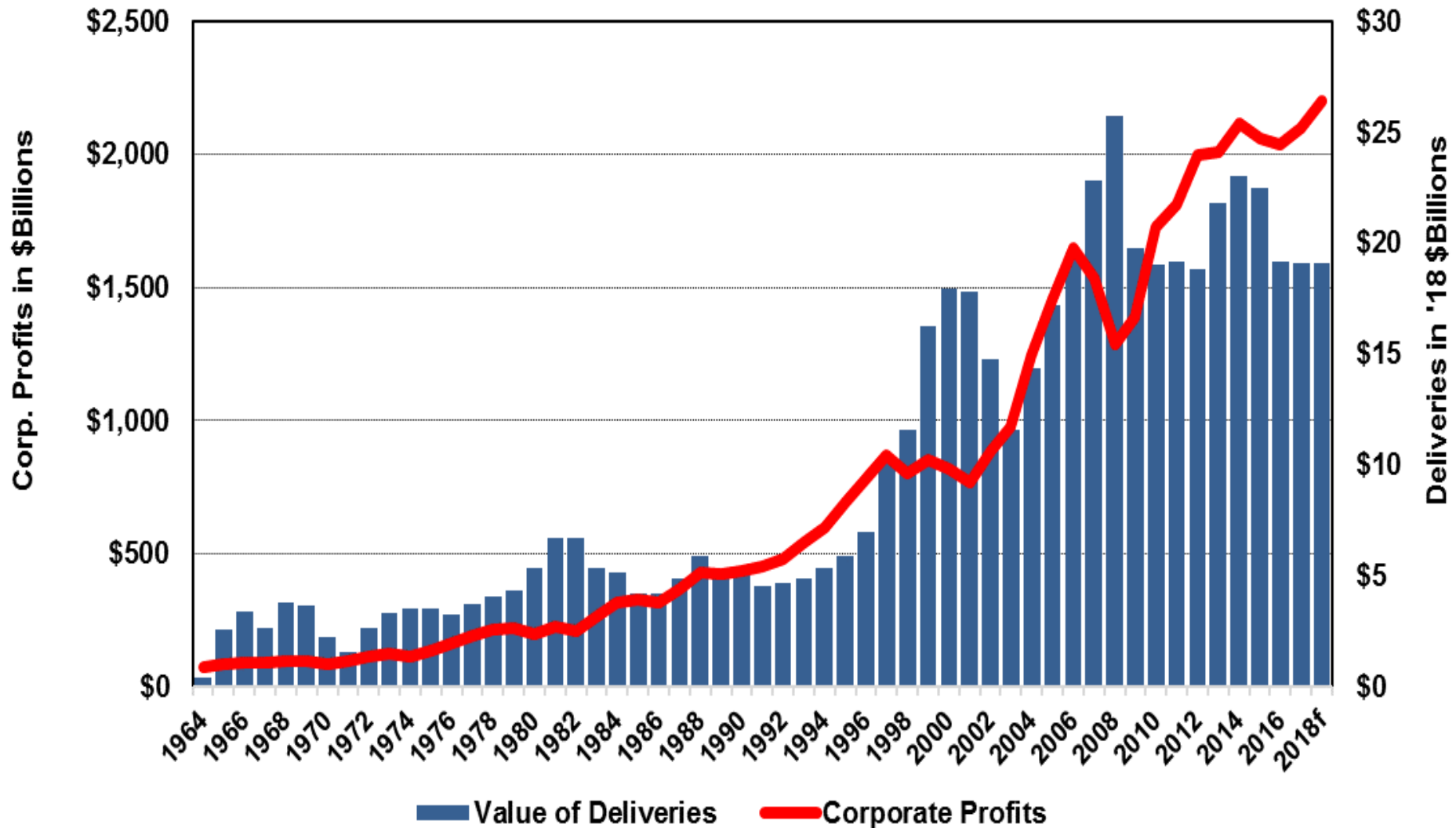
Firm Order Backlog Values



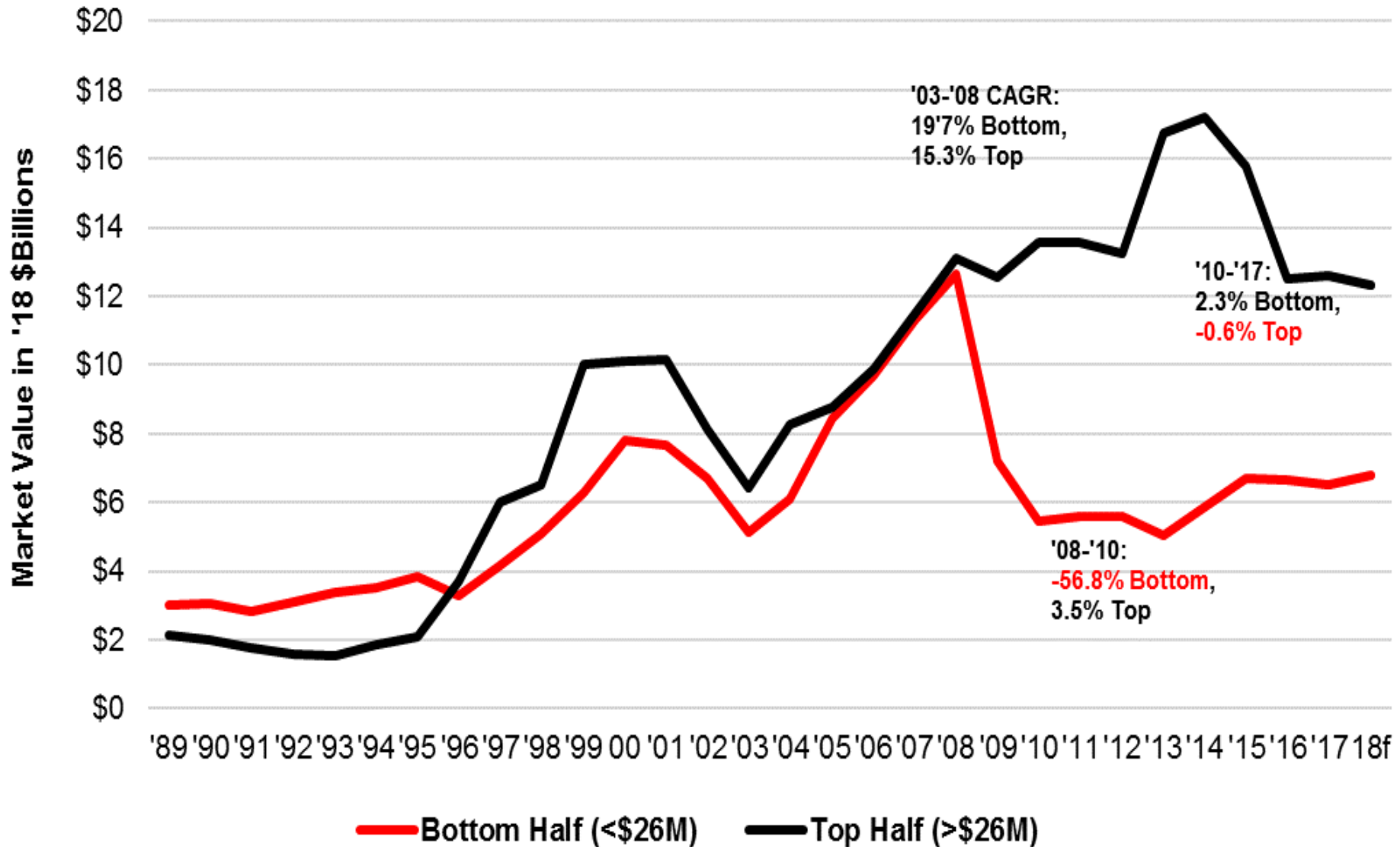
Mid-Market Backlogs: Airbus's Strong Position



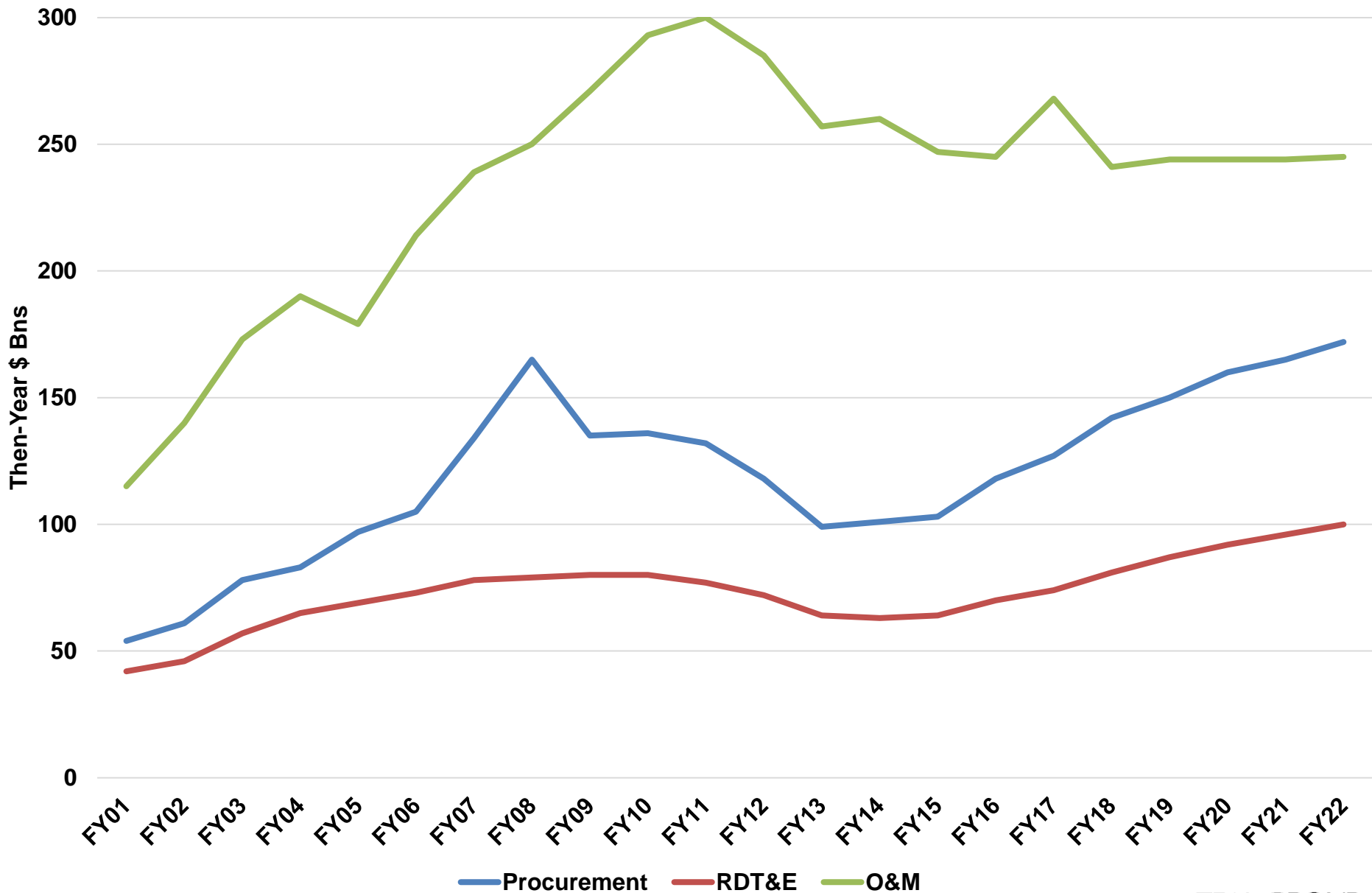
Business Aircraft Deliveries and Corporate Profits



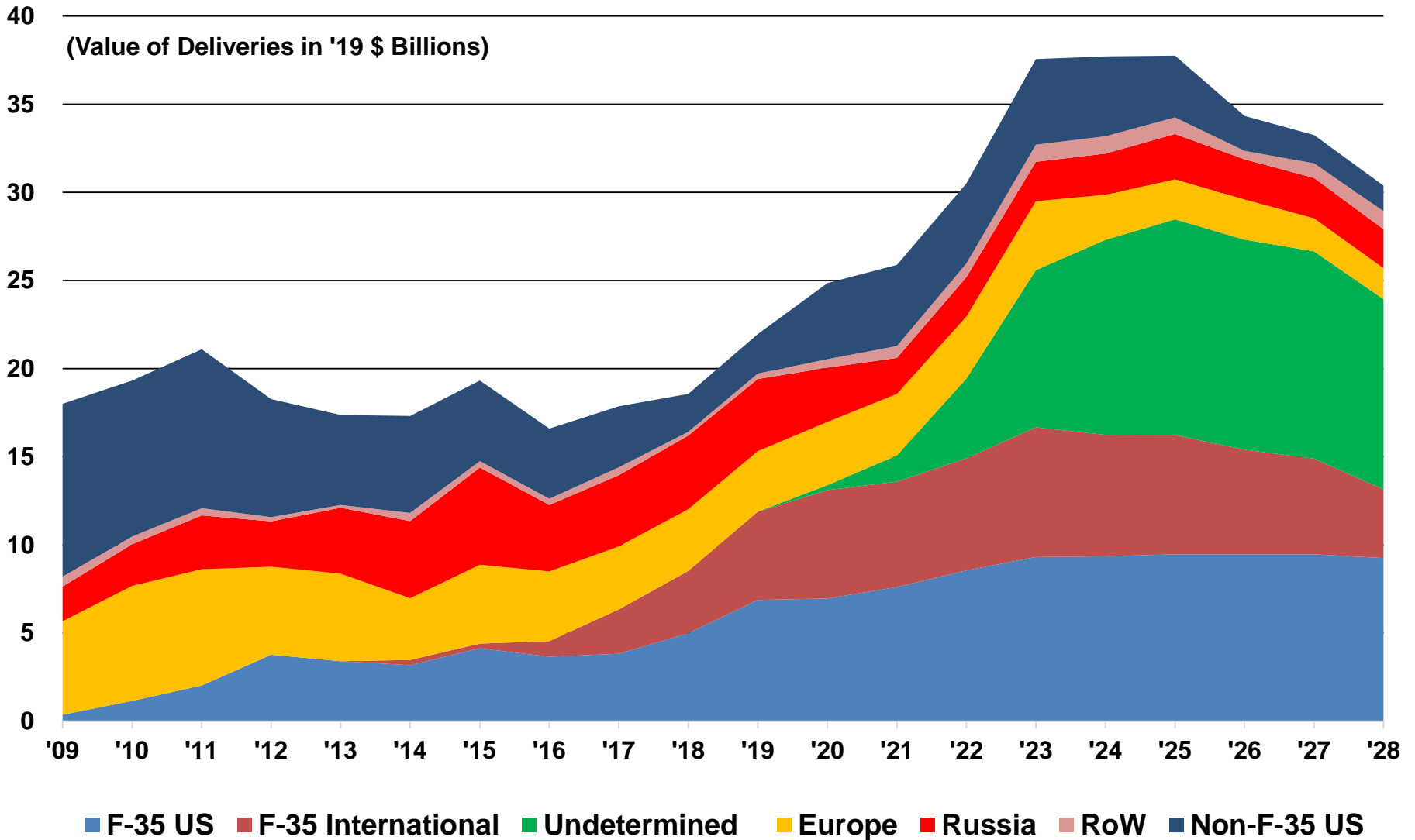
Bottom Half Bizjet Segment vs. Top Half



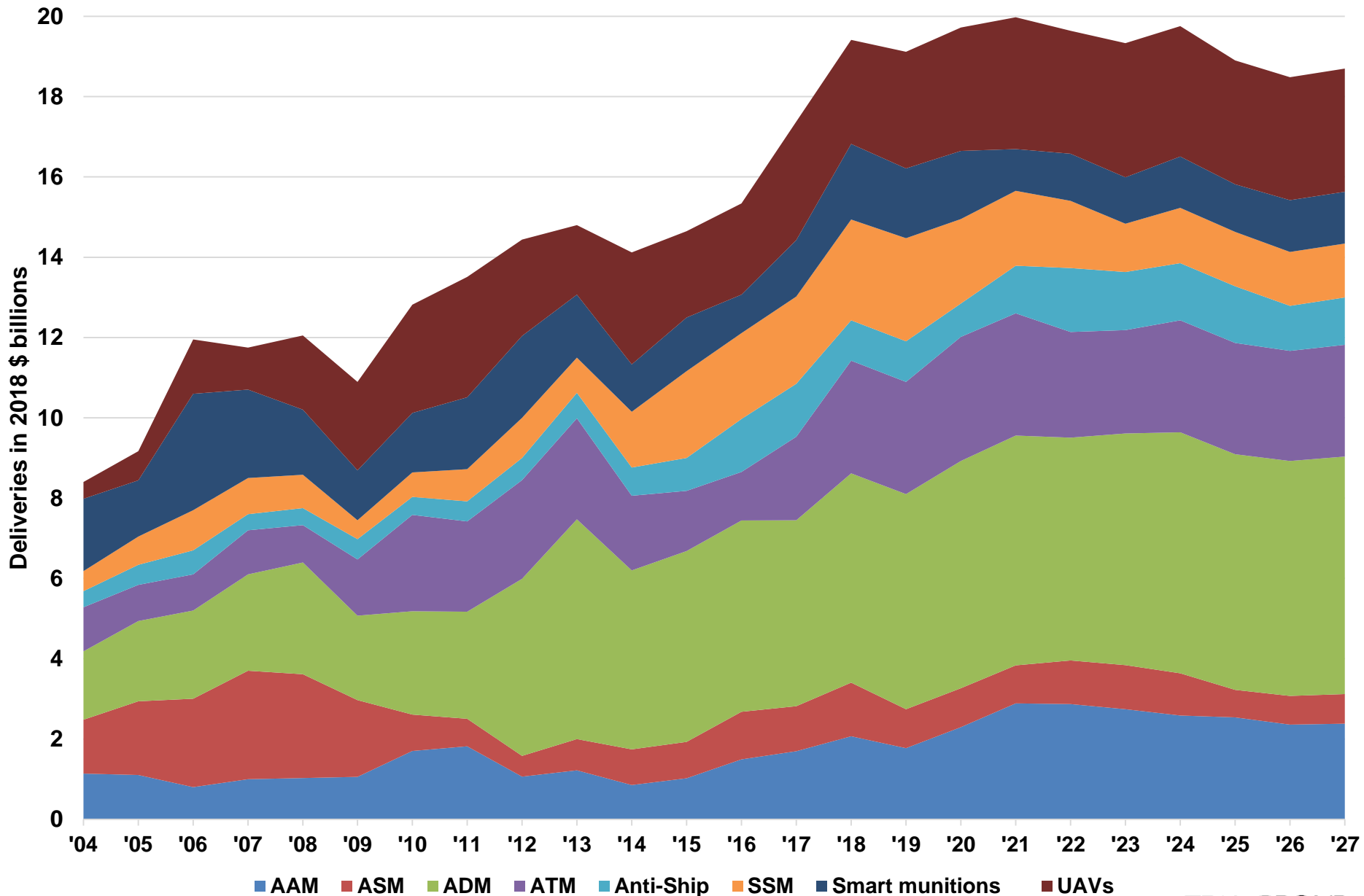
DoD Investment, O+M: Booming Again, In Theory



World Fighter Production Shares



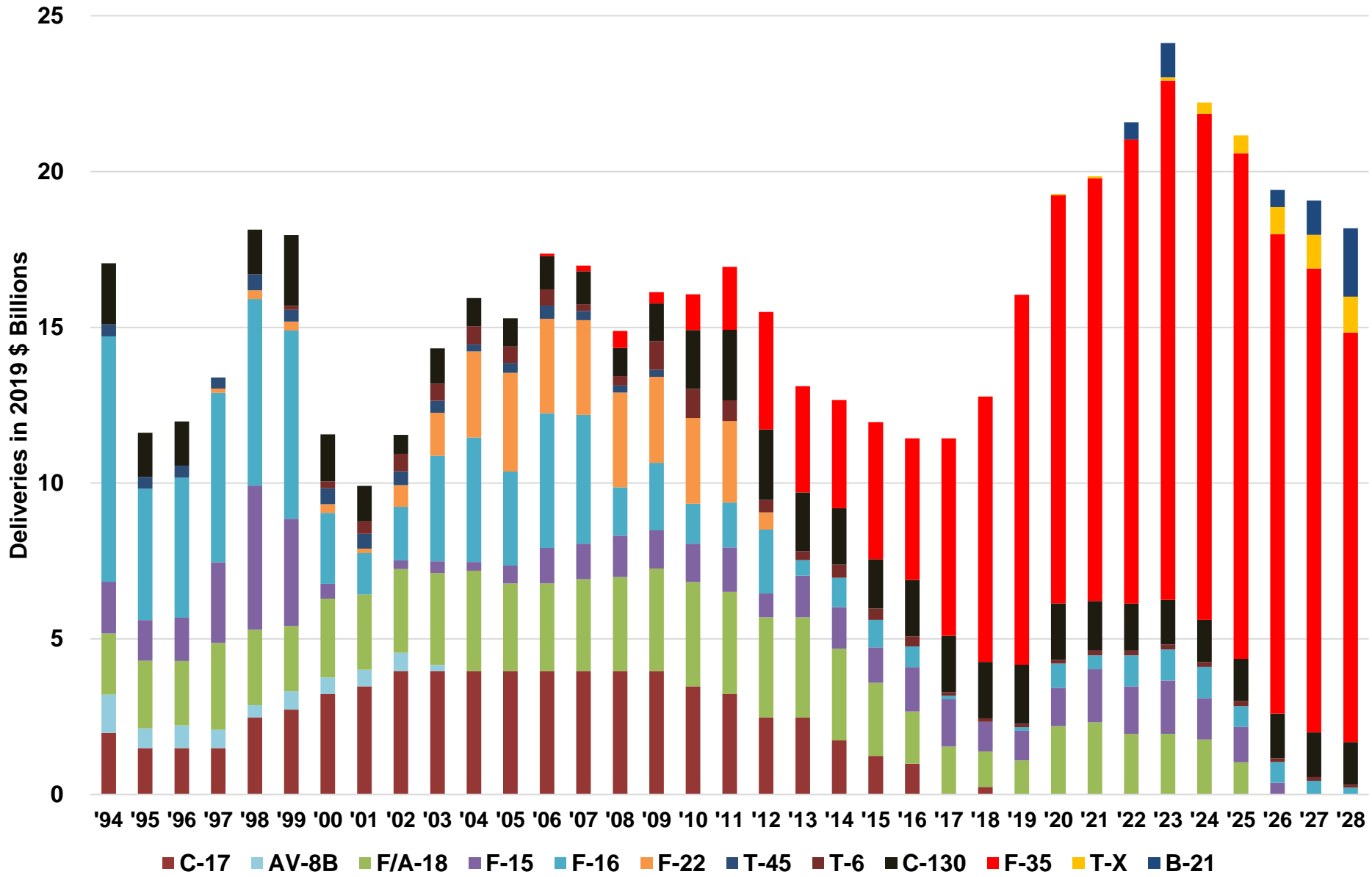
Missiles, Munitions, UAVs: Strong Growth



■ AAM ■ ASM ■ ADM ■ ATM ■ Anti-Ship ■ SSM ■ Smart munitions ■ UAVs

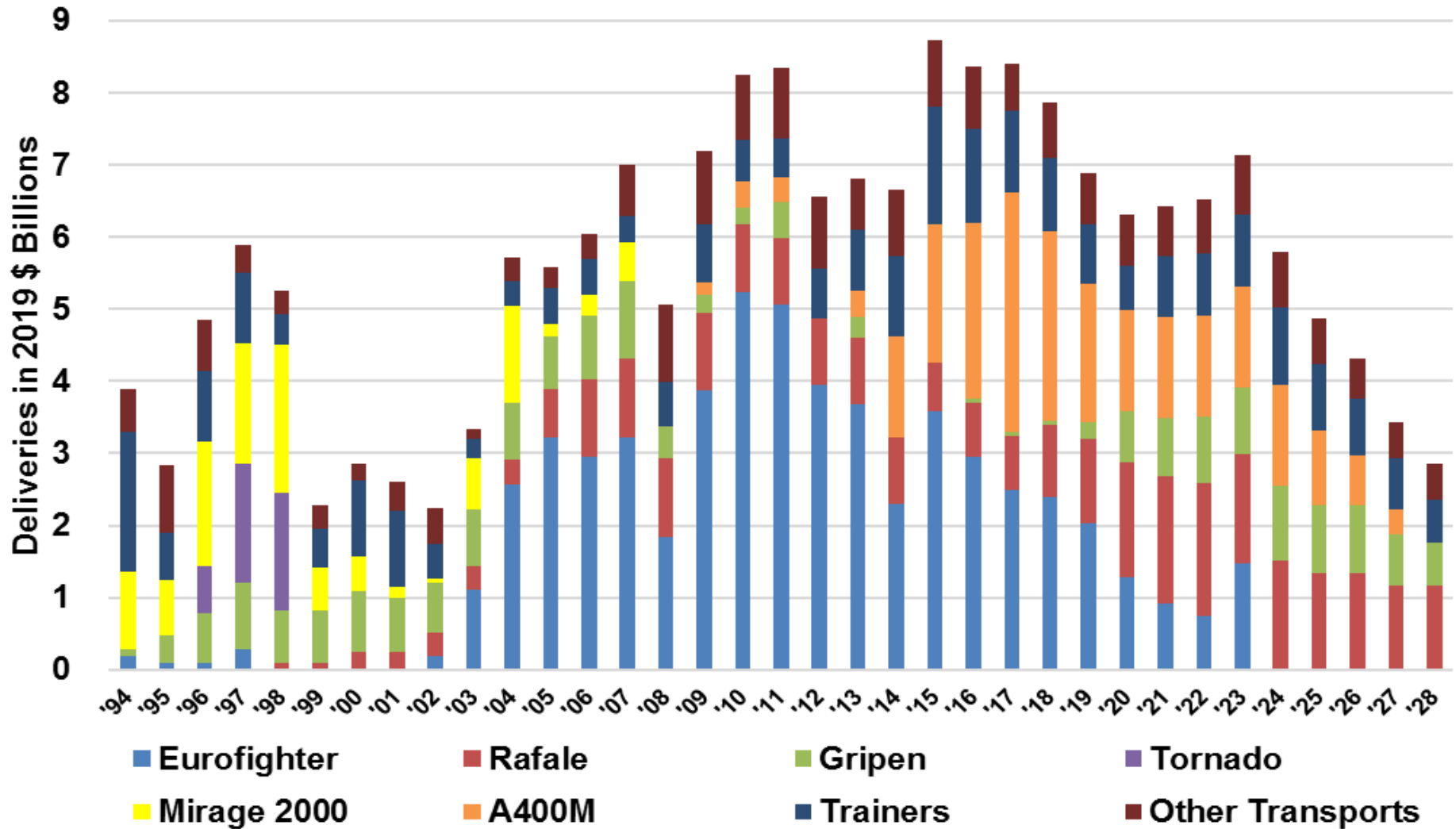


US Military Fixed Wing Aircraft Deliveries

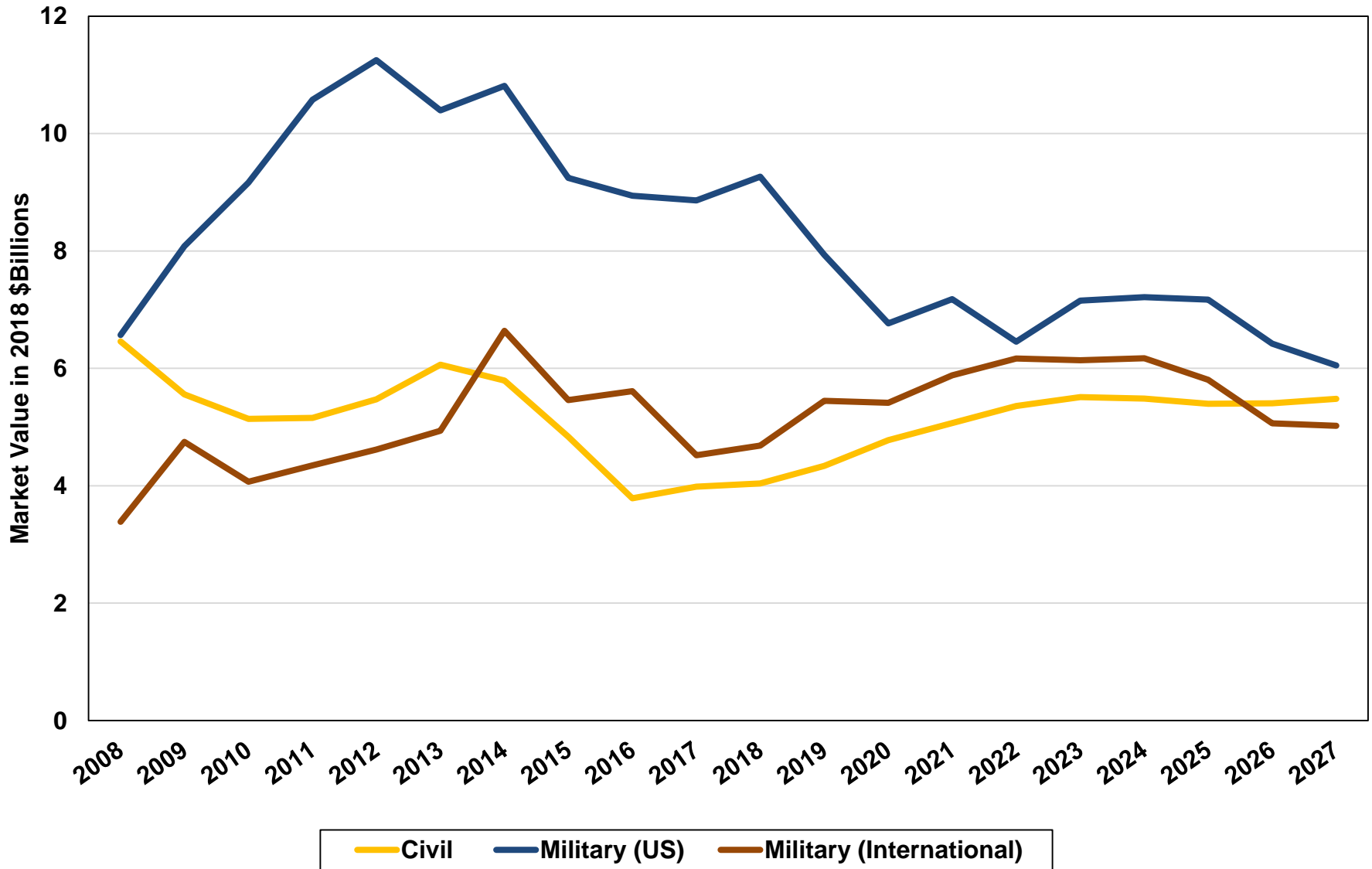


European Military Aircraft Deliveries

Coping Without F-35... To A Point; Germany, France, UK Fighter Decision Looms Large



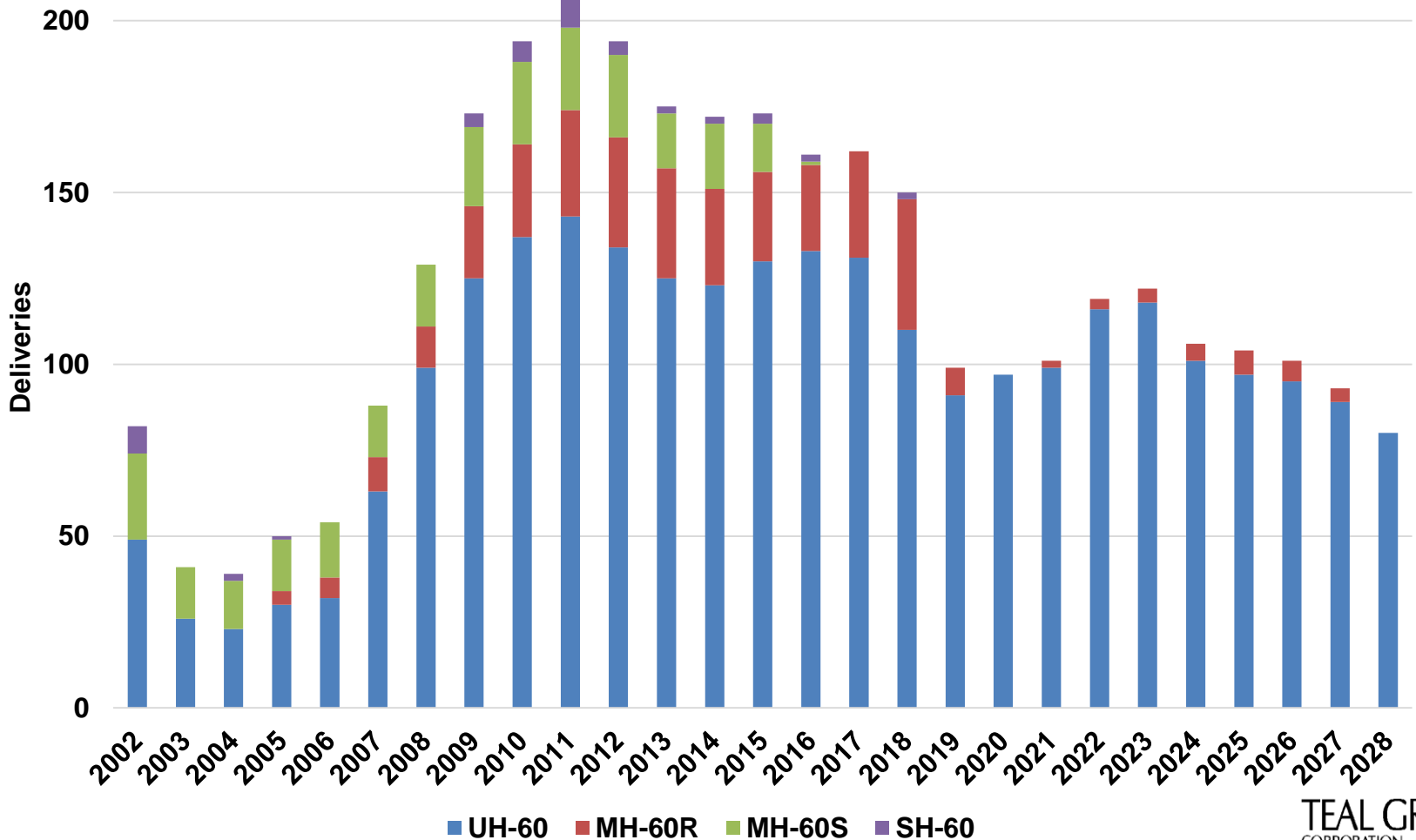
US Military Rotorcraft Market Falling; International Military Growing, Civil Falling



H-60 Illustrates Industry, DoD Dilemma

DoD Plans: UH/HH-60 goal 1,375 UH/HH-60Ms, 760 UH-60Vs.

Issues: ITEP. ITEP Plus What? If a SLEP/systems upgrade, does that turn into new production of a new model? If just ITEP and refurb, is that done by depots or industry?; FVL readiness (V-280)? FVL price tag and operating costs. Great power competition budget versus more of same?



What To Watch This Year

- **Trade wars, tariffs, retaliatory tariffs, the new US Sinophobia, China's self-imposed isolation/Russia alliance.**
 - China as threat or partner/market?
- **General economic downturn.**
 - Always possible, but traffic seems to have a mind of its own.
- **Brexit, of course.**
- **797.**
 - 66%. If not this year, never.
- **Fourth Gen fighter buys.**
 - Also, F-35 clearance, Saudi Arabia.
- **Helos: ITEP/More of same v. FVL.**

Global Aircraft Market Outlook In One Page

<u>Market</u>	<u>2019</u>	<u>Risk</u>	<u>Elevator Comment</u>
Large Jetliners	8.8%		SA ramp dealing w/ production snafus. TA over-capacity an issue. Watch China, fuel, interest rates
Business Aircraft	13.6%		Signs of hope, but many false starts over a disappointing decade. Growth just in high end for now.
Regionals	4.7%		Waiting for E-2; Scope clause is only big risk, but no growth.
Civil Rotorcraft	-5.1%		Still tough. Too many new models aimed at a weak segment (oil/gas).
Military Rotorcraft	6.3%		AH-64 bounce; Programs of record end/slow; no risk of accelerated downturn.
Military Transports	-15.3%		A seriously underperforming market.
Fighters	18.3%		I like this market. F-35, plus strong Gen 4.5
<u>All Civil</u>	<u>8.9%</u>		Jetliner growth compensating for weakness in other segments; more risk from emerging markets, oil.
<u>All Military</u>	<u>8.4%</u>		Global insecurity, Tension, Malice. Special mission also boosts topline.
<u>Total Industry</u>	<u>8.8%</u>		<u>Overall outlook as strong as last year, but greater dependence on two segments.</u>