COVID-19 And Military Aerospace Markets
The Closest The Industry Has To A Safe Haven

March 2020

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Defense: Overall

- Defense still defensive.
  - Generally a safe haven, for investors, and for suppliers.
  - For both, and for primes, it's all about the civil-military ratio, and for this crisis, higher military exposure is best.
  - Primarily true for US; export markets and Europe may be another story.
- Production pauses unlikely to be a major disruption.
  - In the event of prolonged commercial jetliner lines closures, KC-46 and P-8 deliveries may be at risk but given low rates should be able to catch up.
  - Italian, Japan F-35 FACOs open again.
  - Workforce protection/prioritization could remain issues for months ahead.
- DoD payment accelerations likely, particularly for suppliers.

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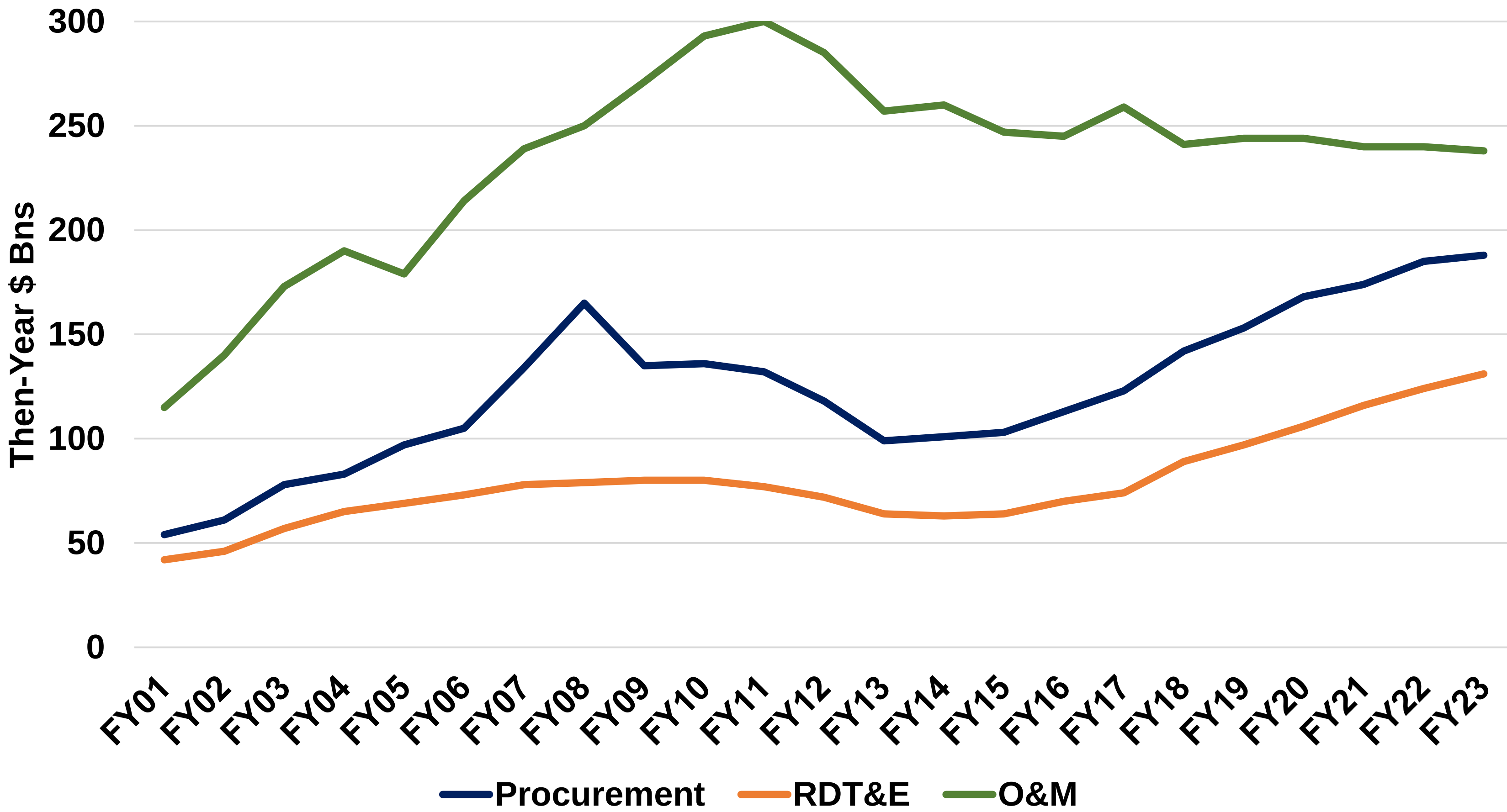
Defense: Budgets

- Defense budgets linked to threats, perception of threats, and domestic politics, not macroeconomics.
    - Stimulus packages in the trillions; Trump administration budget requests have $1 trillion deficits; in this context $150-200 billion procurement budget not a major concern. Budget hawks rare in DC today.
    - However, deficit spending and overall debt loads getting into uncharted territory; this might start pressuring discretionary budgets (including defense) down in a few years.
    - Defense cash could also be re-prioritized for medical research and facilities.
- Strong temptation to use defense procurement as part of broader stimulus spending package.
    - "Shovel-ready" procurement programs will benefit at expense of R&D and new-start procurement.
    - F-35 will do well, along with F-15EX and F/A-18E/F (latter is unfunded priority again).
    - CH-47 Block II, UH-60M, etc. versus FVL.
- Some key export markets linked to resource prices.
    - Some insulation from sovereign wealth funds, but if oil stays cheap Saudi and Gulf State orders will diminish.

DoD Investment: Plateauing After A Boom, And Dwarfed By COVID-Related Stimulus Packages



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Defense: Companies

- Pure-Play defense primes in best shape.
  - Lockheed Martin and Northrop Grumman which have little commercial business, are better positioned in the current crisis than General Dynamics (Gulfstream) and (especially) Boeing.
  - Raytheon finalizing its merger with United Technologies, a union that will dramatically increase its commercial business.
- Supplier companies generally in worse shape due to civil exposure; smaller companies already facing liquidity issues, particularly at third and fourth tier.
  - To deal with the cash flow crunch, companies with heavy civil exposure will be forced to cut discretionary expenditure. There are already layoffs.
  - Capital spending on new plant and equipment is likely to be cut. Long-term research and development will suffer in favor of research with more immediate payoffs.
  - Companies with existing programs better placed than those seeking next generational programs. With Congress concerned about jobs, it will be especially difficult to cancel or cut existing programs to fund new priorities.
- Mergers and acquisitions, particularly involving commercial aerospace, will become more uncertain in this environment.
  - Companies preserving cash rather than seeking opportunities to invest it.

Markets: Aircraft

- Primary recipient of "shovel-ready" Congressional inserts.
  - F/A-18E/F back out of FY 2021 budget, but stimulus dynamic helps ensure Congressional inserts.
  - Helps F-15EX stay in budget, and F-35 too.
  - C-130J may benefit too.
- FVL at risk, particularly FLRAA.
  - CH-47F Block II likely beneficiary, along with UH-60M.
  - FARA may be far enough along to be safe.
- B-21 likely to pull through despite any political shifts.
  - Nuclear weapons a Republican priority; production line in blue California.
- European programs more at risk for budgetary reasons.
  - Crucial time for Tempest, FCAS due to imminent decline of current programs.
  - Eurofighter might be in better shape if Germany can still keep Tornado replacement plan intact.
- Saudi fighter, transport procurements face additional delays.

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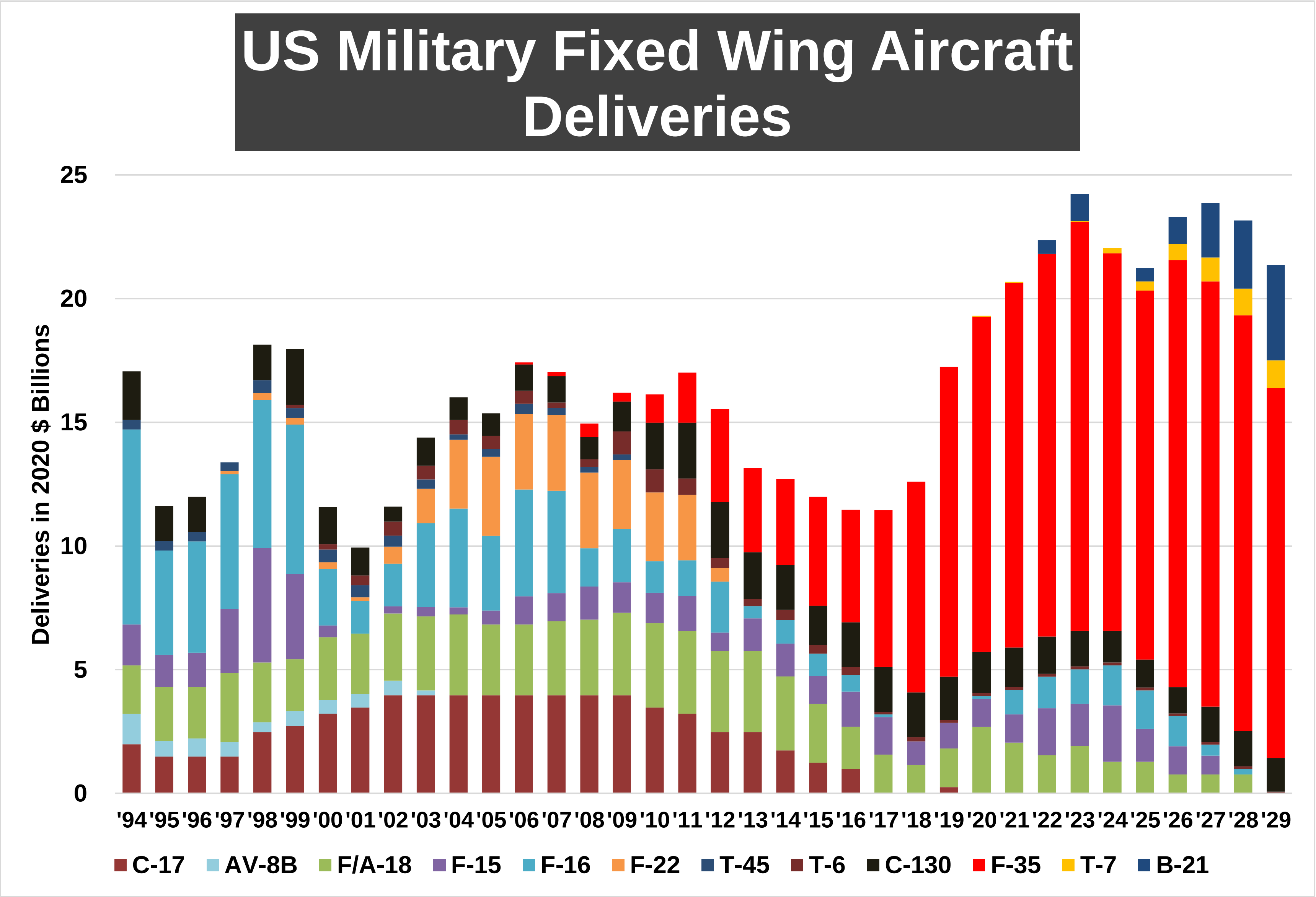

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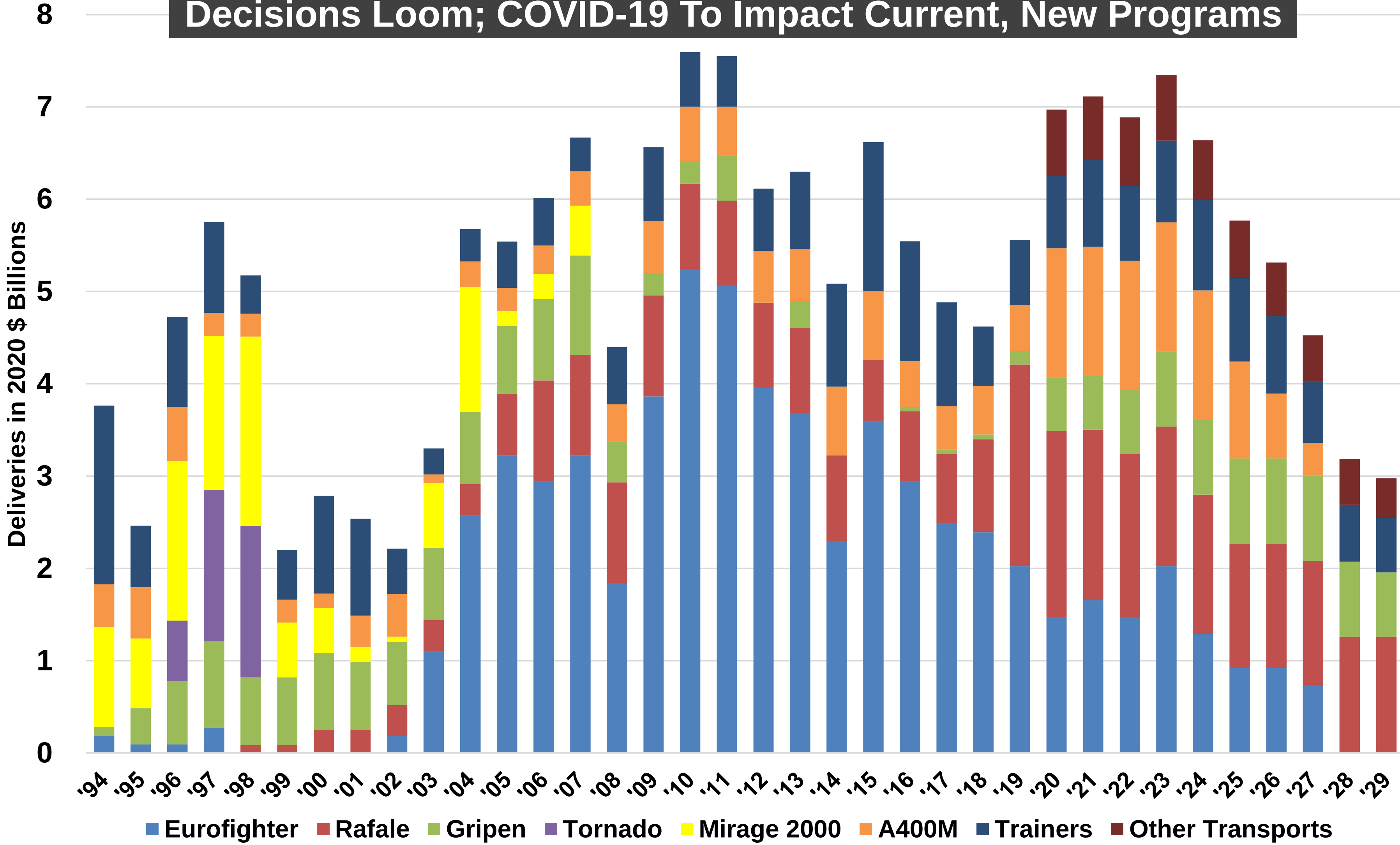
European Military Aircraft Deliveries

Coping Without F-35...To A Point; Germany, France, UK Fighter Decisions Loom; COVID-19 To Impact Current, New Programs



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Defense: Utilization and Support

- Utilization, aftermarket likely to stay on track.
  - De-stocking not a major prospect for military customers, unlike with commercial.
  - Combat missions unlikely to decline; adversaries tend to exploit crises with probes and airspace incursions.
  - Training hours relatively inflexible.
  - Possible humanitarian mission flight hours uptick.
  - Force structures, like budgets generally linked to threats, not macroeconomics.
  - Some military exercises cancelled; likely to be temporary phenomenon.
  - If procurement levels do rise as a form of economic stimulus, possible cutbacks in major fighter upgrades.

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Markets: Missiles

- Missile RDT&E growth has been primarily due to the strategic shift in focus from Global War on Terror (GWOT) to focus on near-peer competitors (China and Russia). COVID-19 will reinforce this trend in short/mid-term, especially with China.
- This ongoing shift has led to expansion in two key areas:
  - Hypersonic/ballistic strike weapons
  - Strategic nuclear force modernization (GBSD).
- 2020 elections could impact these programs if Trump loses the election or the Democrats win control of the Senate and retain control of the House.
  - Recent Democratic party positions do not favor the new generation of strike weapons since they are seen in connection with Trump's repudiation of the INF Treaty with Russia. The Democratic Party has generally been unenthusiastic about strategic nuclear force modernization.
- Since 2020 is an election year, COVID-19 impacts in the political sphere could have substantial impact in the missile sector; impacts in the UAV sector are less likely.

Markets:
Civil UAS

- As companies pull back on investments in future capabilities, they are likely to refrain from beginning proof-of-concepts to examine how they can apply UAS to their operations, particularly since start-up costs can be considerable.
- Venture capital investments in commercial unmanned aerial systems (UAS) start-ups are likely to plummet.
  - There will be a flight to safer investments that pay off in a shorter time period. Routine access to airspace that would allow the commercial UAS industry to take off is taking time as the FAA develops the rules. With many of these small start-ups unprofitable, they will find it difficult to survive.
- National US and developed world UAS programs unaffected.
  - State and municipal acquisitions likely impacted by budget crunch.
  - Delayed adaptation of civil UAS in emerging markets due to economic fallout.
- Within the commercial market, new UAS deployments by oil and gas companies will likely be hurt.
  - These companies have been early UAS adopters, but the plunge in oil prices is leading them to dramatically cut back future investments.

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