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***Private and Confidential***

# Perspectives on the A&D Market

**Prepared for:**

TURBINE ENGINE TECHNOLOGY SYMPOSIUM
TETS 2010
ENERGY EFFICIENT • MISSION CAPABLE

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## We would like to introduce five key questions to help you think about the issues and bellwethers that we see in the next one to two years

1. **How has the global recession affected the aerospace and defense market?**
2. **Where is the defense budget headed?**
3. **What kind of commercial recovery are we really in?**
4. **Are the defense & commercial markets counter cyclical or complementary?**
5. **How can industry respond?**

*Source: RSAdvisors analysis*

## We would like to introduce five key questions to help you think about the issues and bellwethers that we see in the next one to two years

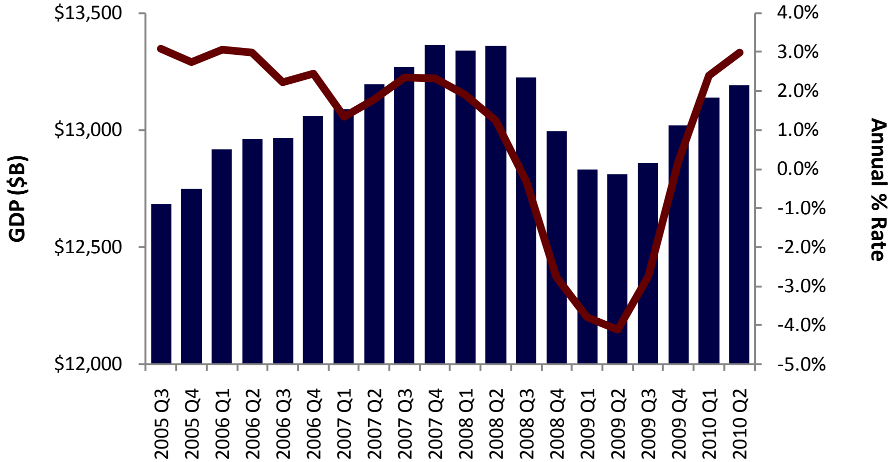
- **How has the global recession affected the aerospace and defense market?**

*Source: RSAdvisors analysis*

# Changes in the market were accelerated by the recession, however not all of them were surprises…

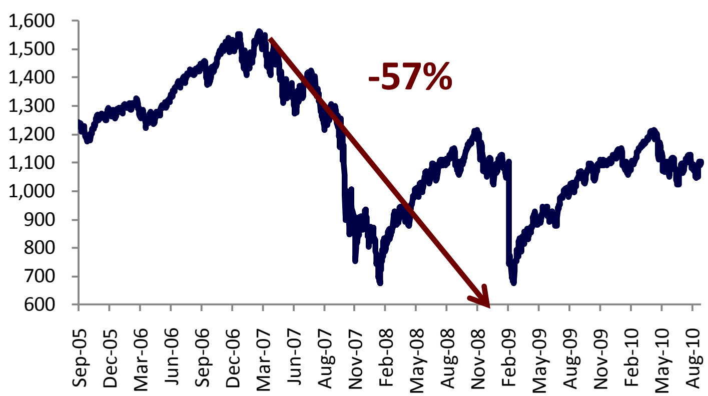
## Quarterly US GDP

(in billions, 2005-2010)




## S&P 500

(2005-2010)




*Source: CapitalIQ, RSAdvisors analysis*

## Impact on A&D Industry

### Commercial

- Triggered the last down cycle in commercial aerospace
- Reminded everyone that the business jet industry is cyclical
- Forced a reduction in airline seating and heavy manufacturing capacity

### Government

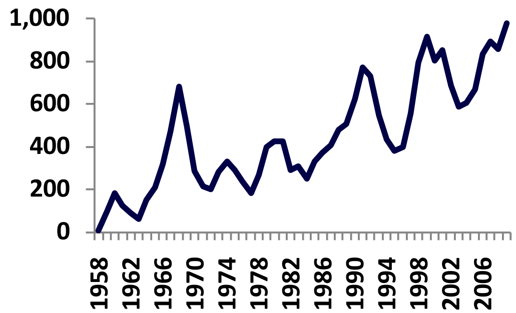
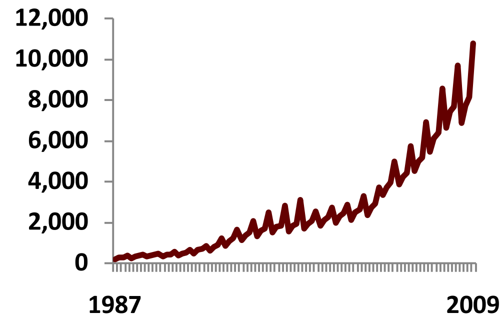
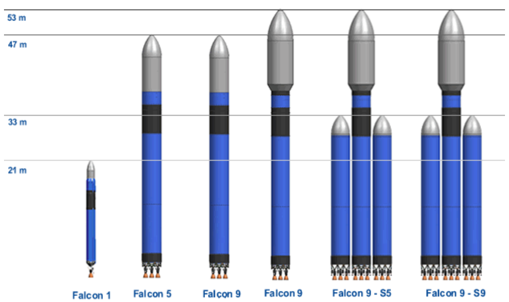
- Highlighted the role governmental debt will play in steeper defense spending
- Complicated national security challenges with “whole of government solutions”
- Introduced a more benign view of near peer threats

### Mergers & Acquisitions

- Shifted the balance of power between strategic buyers and private equity firms

## We classify these and other changes into three categories: cyclical trends vs. long term trends vs. discontinuities

### Recent Changes to the Status Quo

| | | | |
|---|---|---|---|
| **"Change"** | Commercial aircraft's robust recovery | China overtakes Japan as the 2nd largest economy | For profit space exploration "takes off" |
| **Indicator** | **Global Commercial Jet Deliveries**<br> | **China's Quarterly GDP**<br> | **SpaceX launches Falcon 9**<br> |
| **Cause** | • Economic cycle<br>• Aircraft age & cost | • Demographics | • Public policy (NOT technology) |
| **Type of Change** | **Cyclical Trend** | **Long Term Trend** | **Discontinuity** |
| Other Examples | • Defense budgets<br>• Acquisition reform | • Aging federal workforce<br>• Increasing integration of economies | • Technology revolutions |

*Source: CapitalIQ, SpaceX, RSAdvisors analysis*

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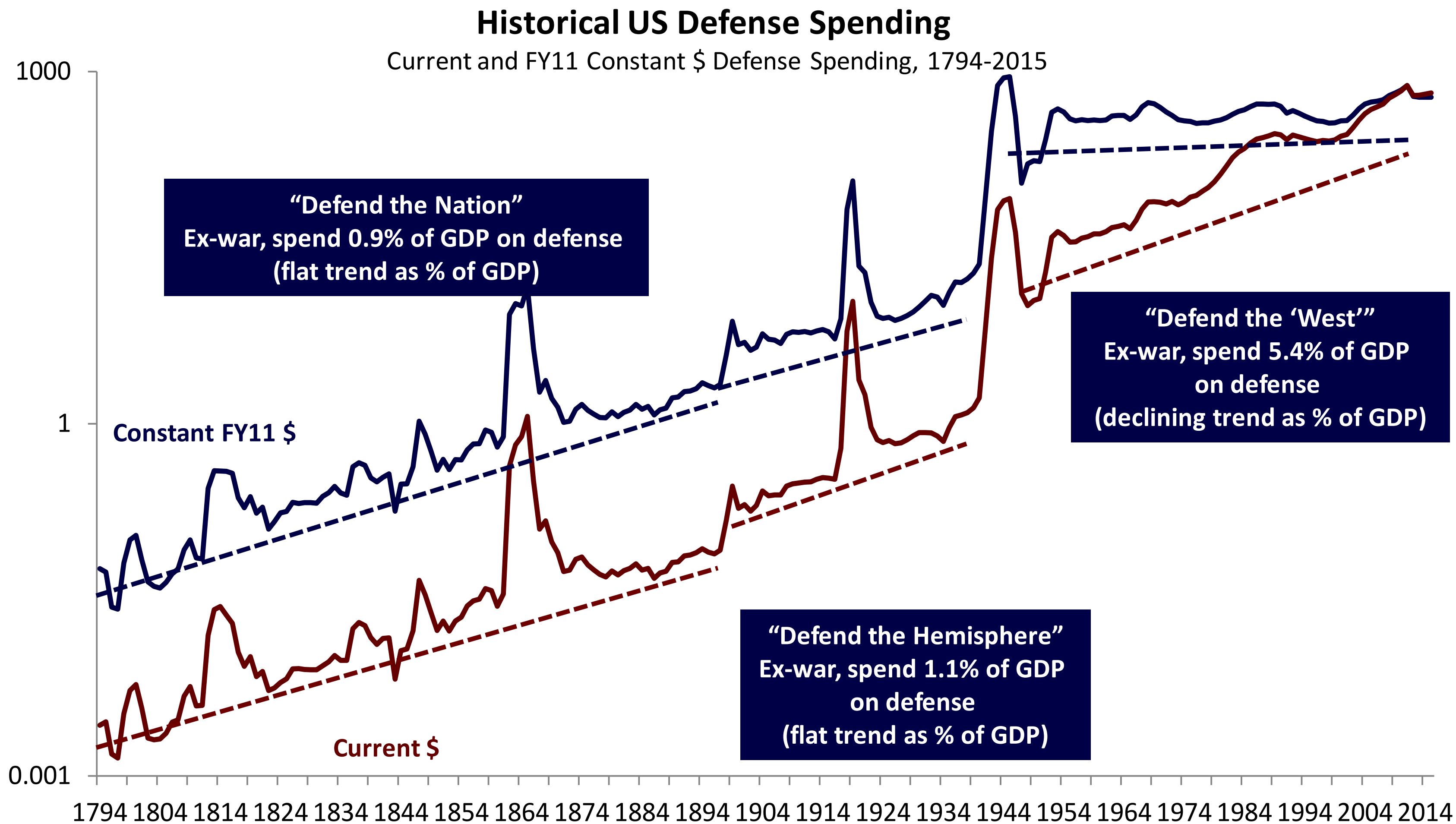
- **Where is the defense budget headed?**

*Source: RSAdvisors analysis*

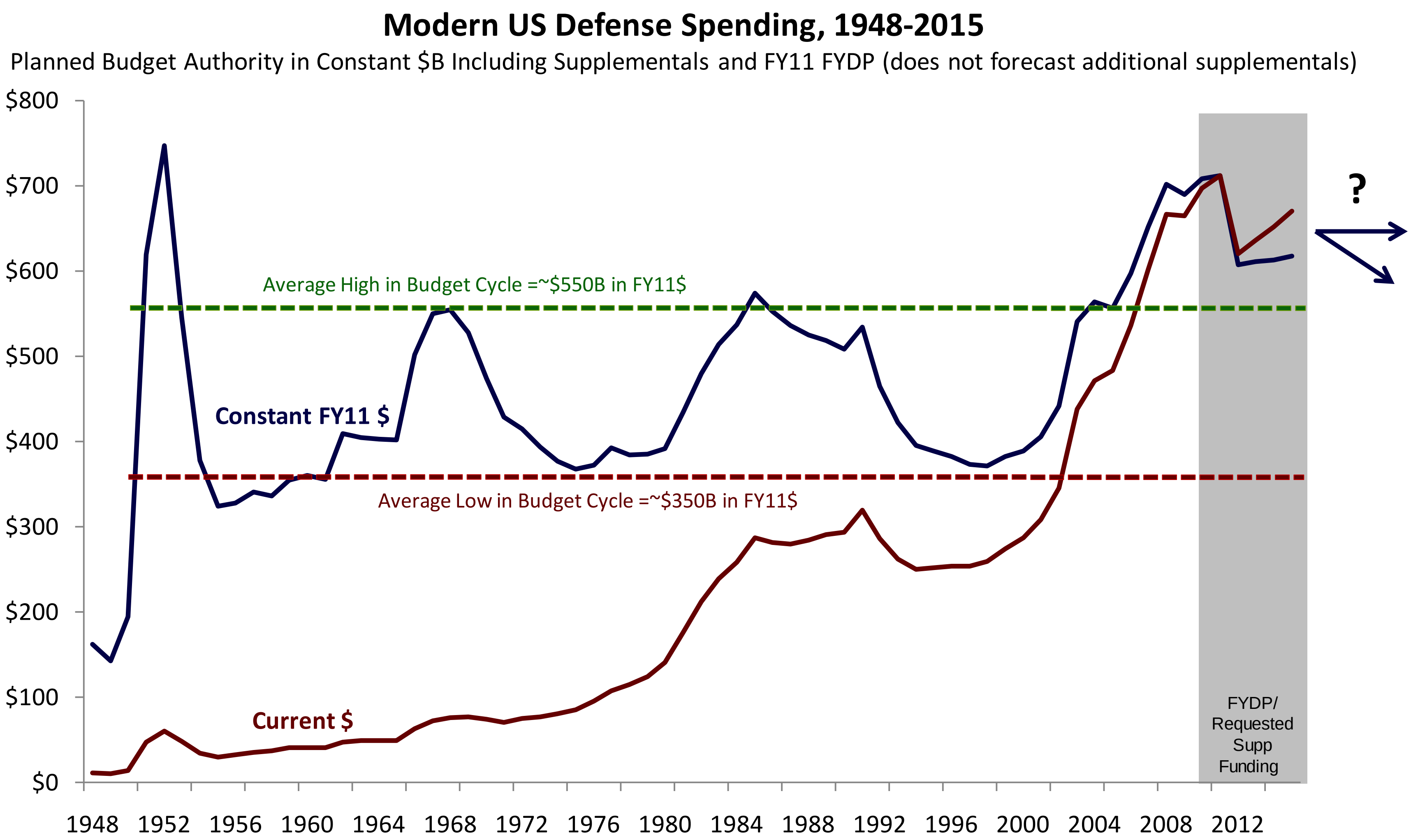
# US defense spending has oscillated within three spending bands over US history…




*Source: US Department of Commerce, US Department of Defense, RSAdvisors analysis*

# Where is the defense budget headed?

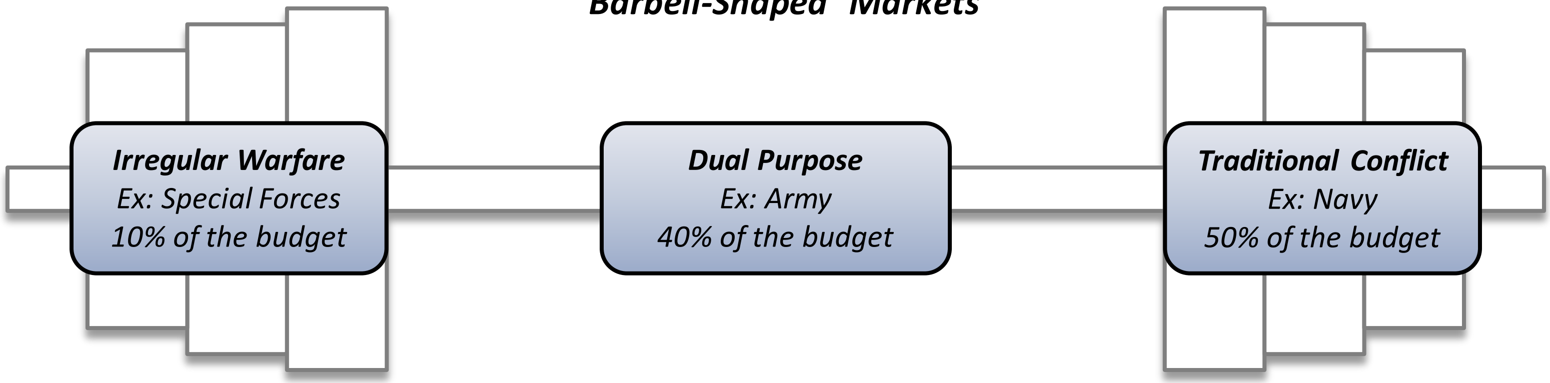
## …post-WWII, we have stayed within a $350B-$550B "bounded range"; current wars have us above the range and begs the question…are we in a new band?




*Source: US Department of Defense, RSAdvisors analysis*

## And with US DoD facing a wide spectrum of threats, from the fight of today to future, near-peer adversaries, how do you organize to address it?

***"Barbell-Shaped" Markets***




| | | |
|---|---|---|
| ***Slice #1*** | **<u>The Long War</u>**<br>*Rapid acquisition, off-the-shelf/short development, quick response is key, COCOM centric* | **<u>Deterrence</u>**<br>*Very long cycle, tech. development, platform-oriented but limited production, services centric* |
| ***Slice #2*** | **<u>Reset/Retrofit</u>**<br>*Install "black boxes" in existing equipment to plug into network, maintenance, repair* | **<u>Transformation</u>**<br>*Desire for large, horizontal integrating networks, leverage the IT revolution* |
| ***Slice #3*** | ***<u>Operational and Policy Support Oriented Services</u>***<br>*Logistics, operations, and intelligence support* | ***<u>High-skilled Services</u>***<br>*Technically skilled services* |

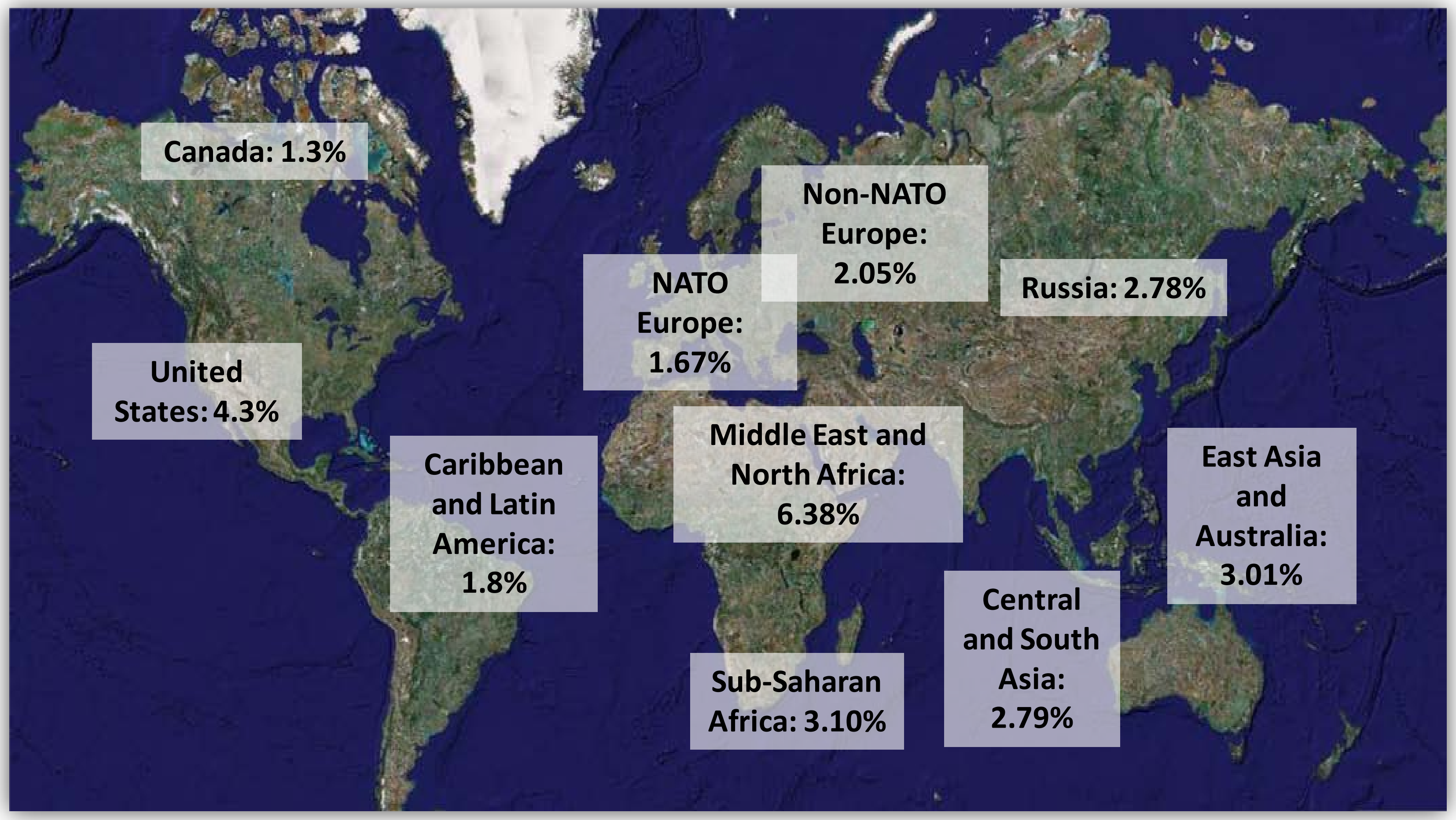
**Is it one or two industrial bases? Can they be the same suppliers? How does DoD organize?**

*Source: US Department of Defense, RSAdvisors analysis*

## Europe lags much of the world in defense spending, with NATO states in particular spending very little on defense

### Aggregated Percent of GDP Spent on Defense

Defense Spending as a % of GDP by Region




**Historically nations that spend less than 3% of GDP on defense tend to face necessary tradeoffs**

*Source: World Bank, SIPRI*

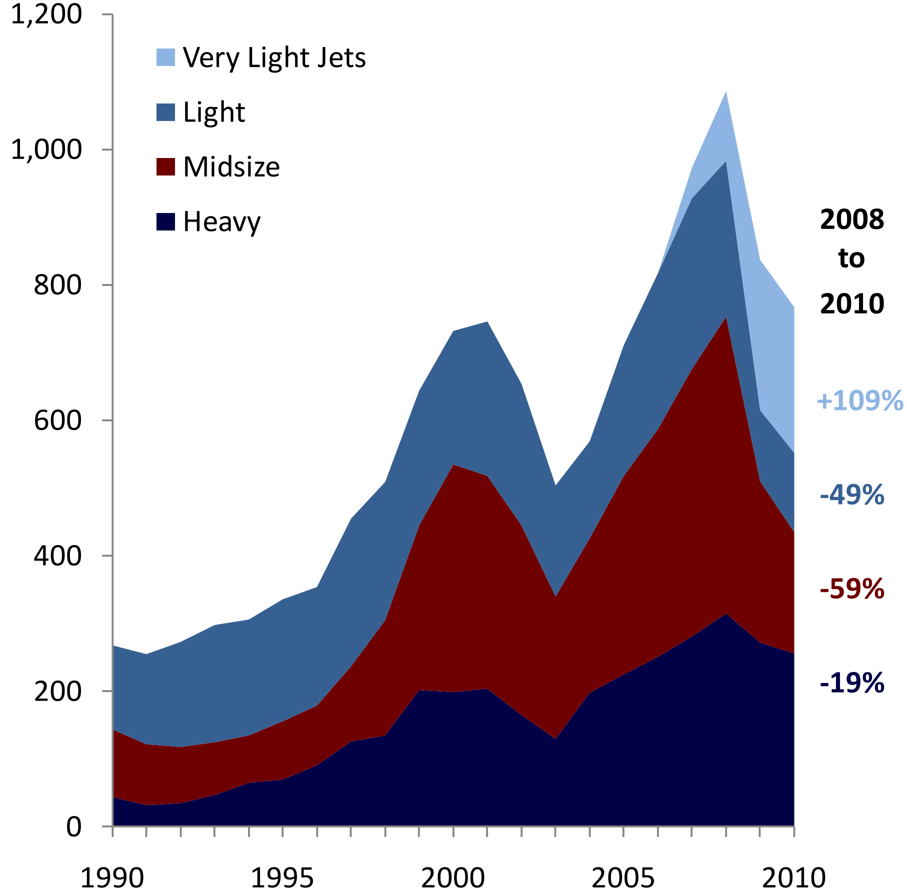
- **What kind of commercial recovery are we really in?**

*Source: RSAdvisors analysis*

## Business jets have been hit hardest by the recession, and should be poised for growth; but we won't see 2008 levels for at least 5 years

### Global Deliveries Per Year

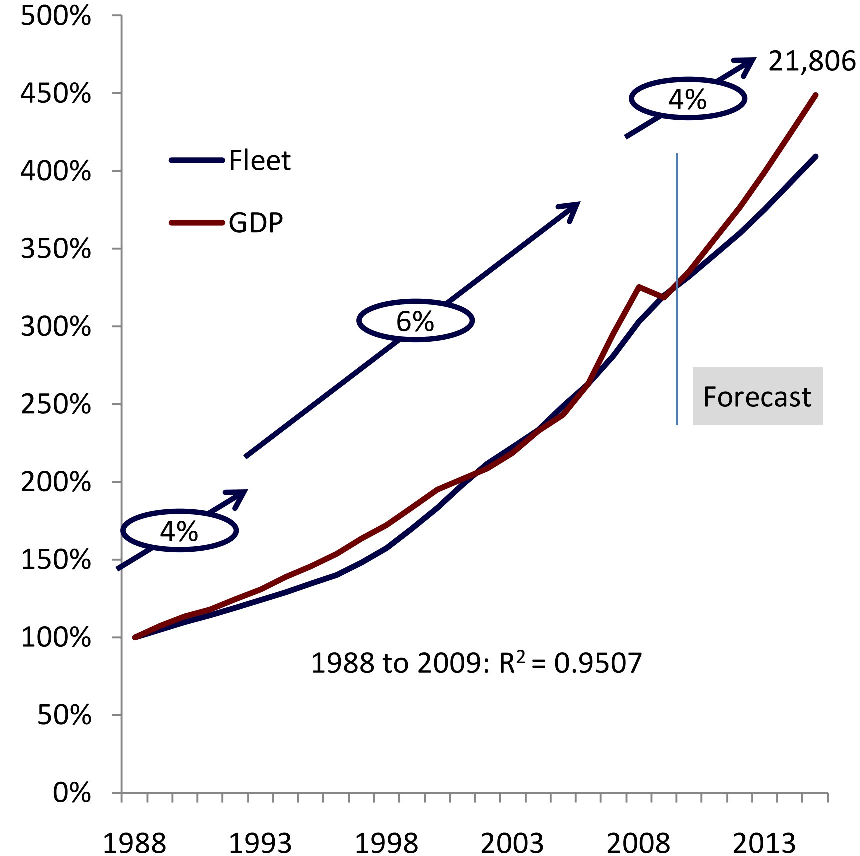
1990 - 2010




### Global Fleet Compared to Global GDP

1988-2015

**As of 3/1/10, the active fleet is now 17,239, up 203 from the end of 2009**

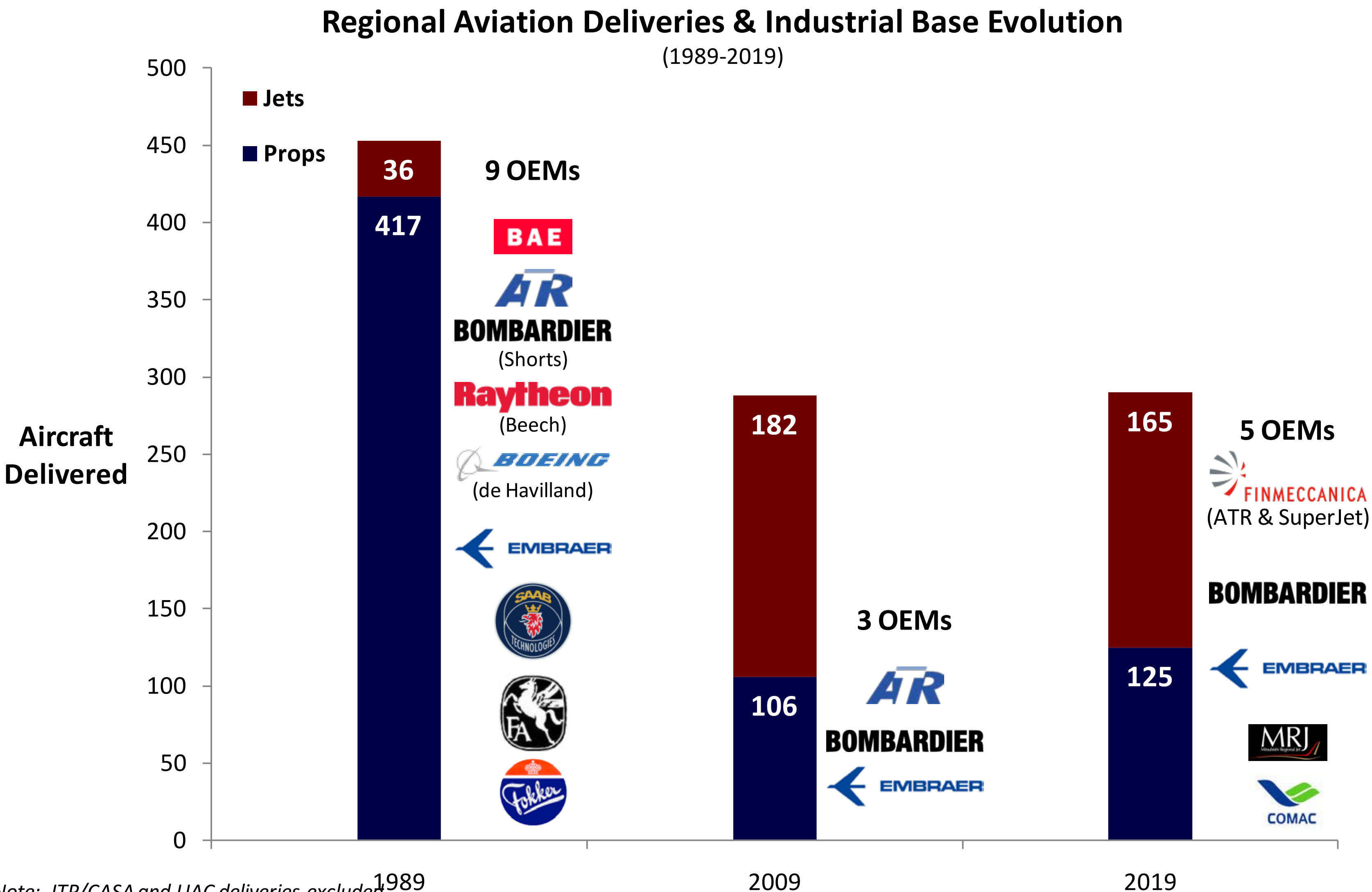



*Note: Very light jets exclude the Eclipse 500*

*Source: GAMA, JETNET, Business and Commercial Aviation, RSAdvisors analysis*

*What kind of commercial recovery?*

## Regional transport production has seen strong consolidation, a renewed balance between props and jets, and new interest from Asia

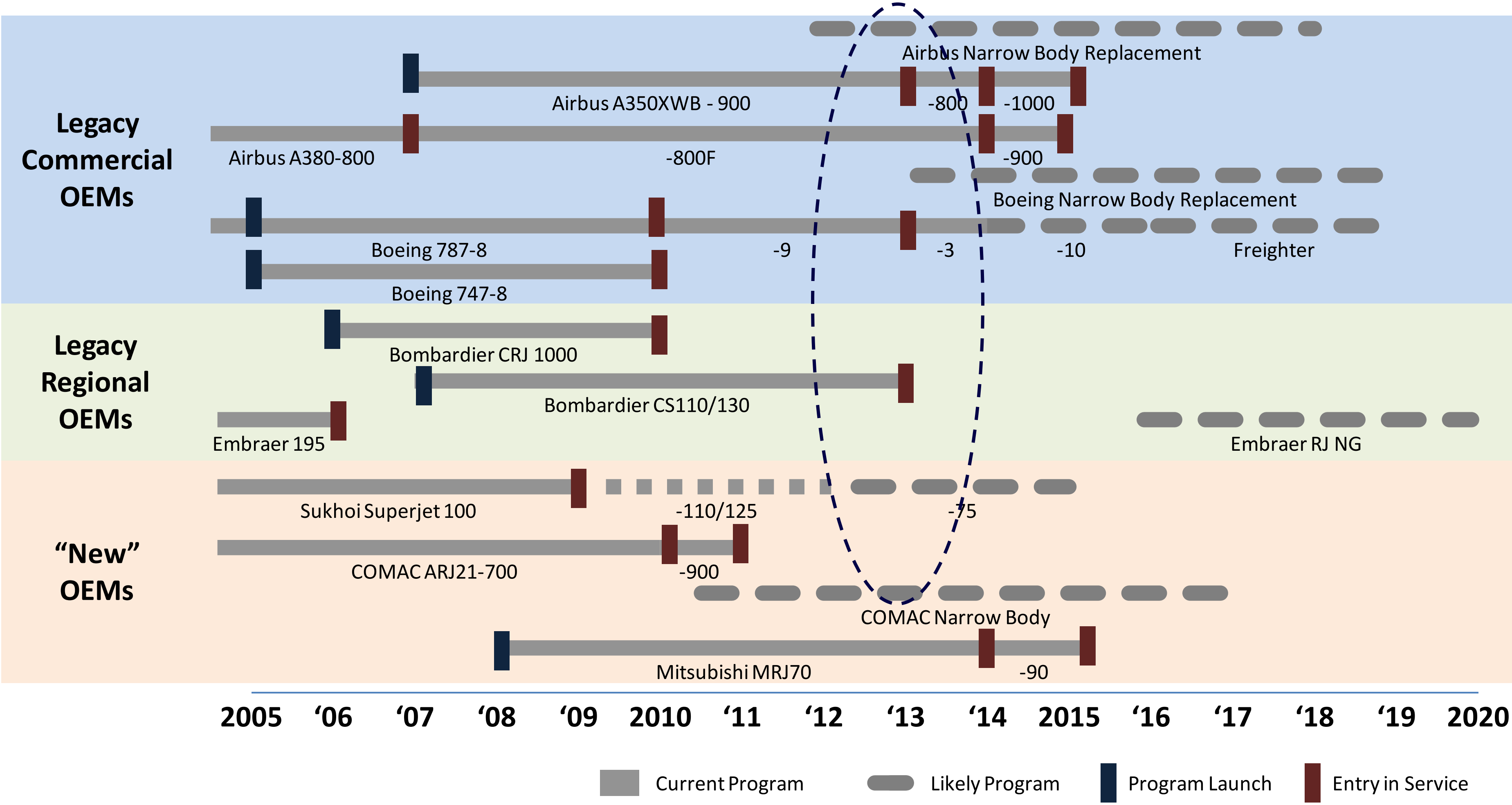



*Note: ITP/CASA and UAC deliveries excluded*
*Source: Company released information, Teal, RSAdvisors analysis*

## What kind of commercial recovery?

## Focus on the A380 and 787 have created a window for new commercial entries into the narrow body segment, with regional players moving upstream

### New Commercial Jet Programs
(2005-2020)




*Source: Company released data, RSAdvisors analysis*

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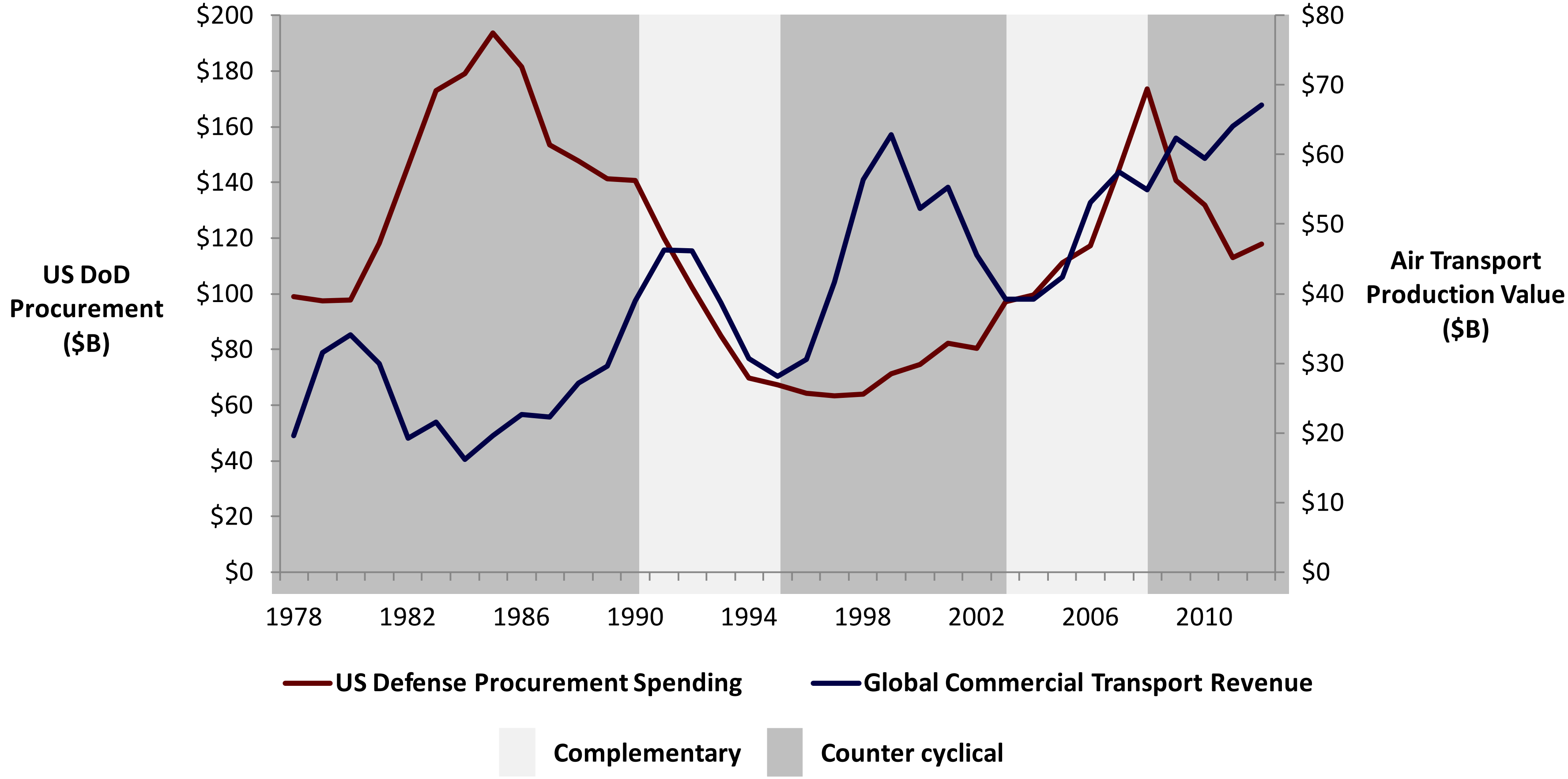
- **Are the defense and commercial markets counter cyclical or complementary?**

*Source: RSAdvisors analysis*

# Global commercial transport revenue vs. US defense procurement spending

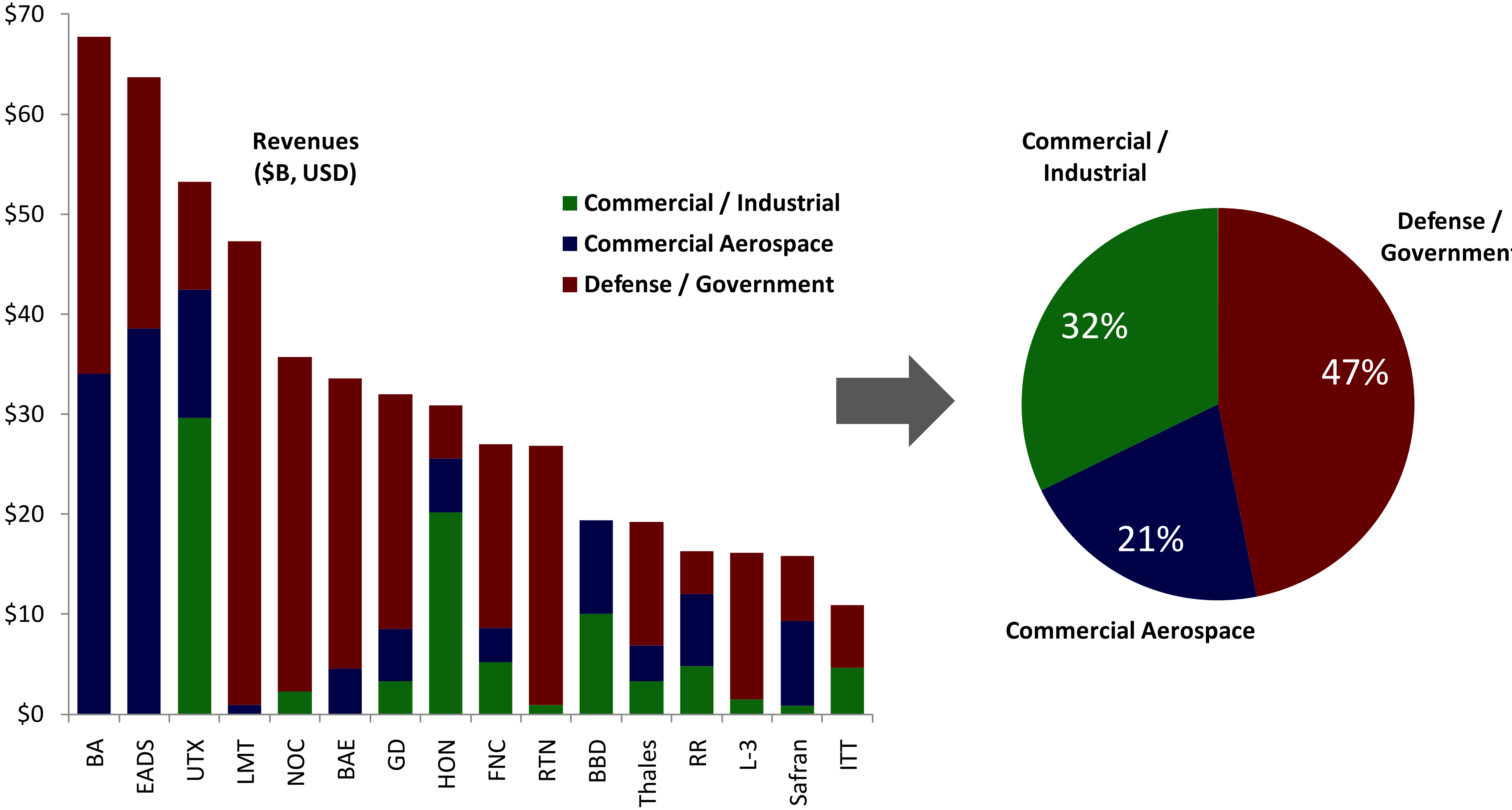
## Air Transport Production Value vs. US Defense & Security Procurement, 1978-2015




*Source: US Government, Teal, company released data, RSAdvisors analysis*

# The industry is more diverse than you think

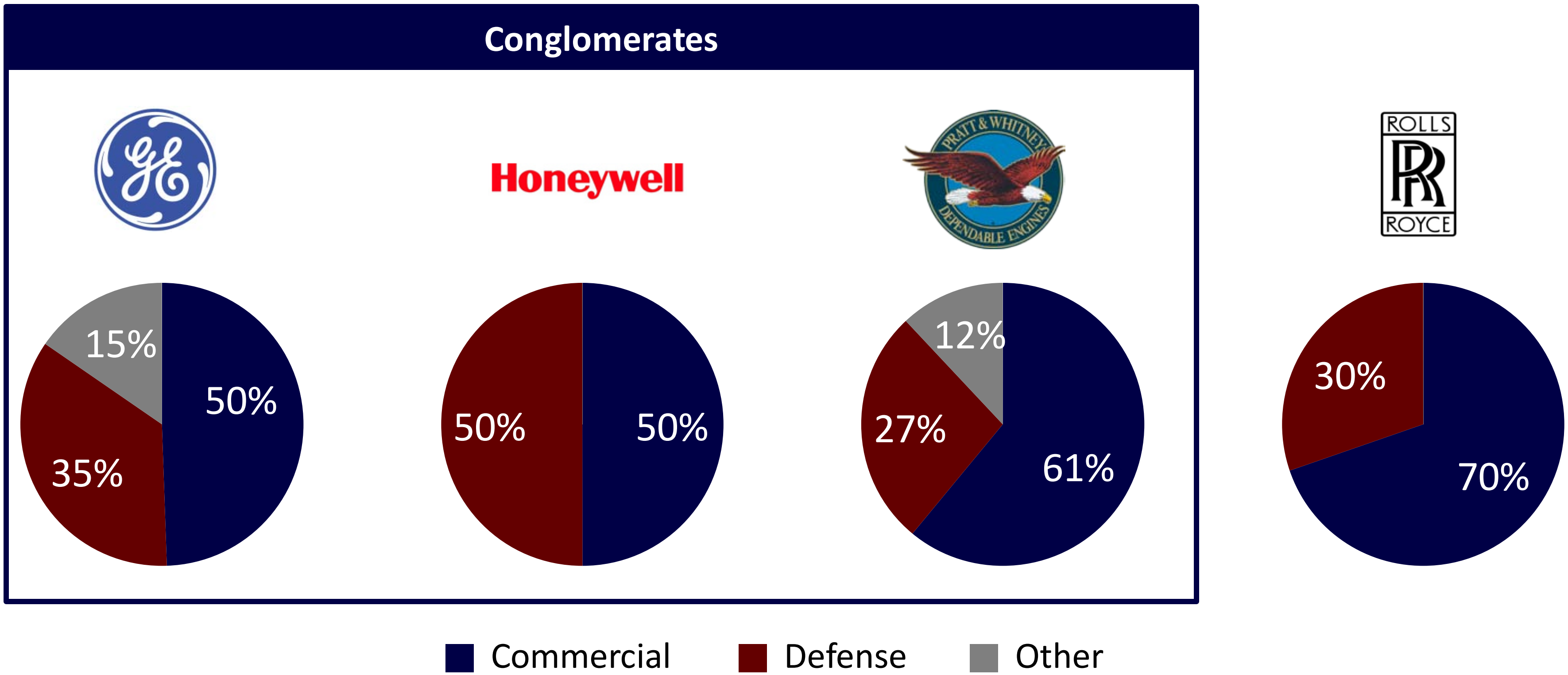
## Top A&D companies, by 2009 revenues[1], share of business by sector




*Note: 1) excludes corporate reporting units*
*Source: CapitalQ, company filings, RSAdvisors analysis*

# And the engine OEMS have already figured this out

## Engine OEM Revenue[1] Mix




*Note: 1) Revenue mix is reflective of engine business only*
*Source: Company released data, RSAdvisors analysis*

- **How can industry respond?**

*Source: RSAdvisors analysis*

## *How can industry respond?*

## Unlike other industries, we have some breathing room – $20B of free cash flow a year to deploy in four different options

- **Reinvest through organic growth domestically**
  - i.e. reshape strategy to meet new market threats, i.e. Raytheon shift away from systems integration to system and component development
  - i.e. develop a new engine
- **Reinvest through organic growth internationally**
  - i.e. develop indigenous sales channels
  - i.e. build a local production line
- **Give the money back**
  - i.e. dividend cash back to shareholders and investors
- **Grow or diversify through strategic mergers and acquisitions**
  - i.e. AlliedSignal's acquisition of Honeywell
  - i.e. Northrop Grumman's early consolidation of unmanned systems
  - i.e. Goodrich's acquisition of Rohr, Coltec, Barnes, TRW Aeronautical, etc.

*Source: RSAdvisors analysis*

# For some, mergers and acquisitions show that we are in a new period of reshaping the portfolio (i.e. getting to GD in the '90s?)

## Recent Major Transactions

### Acquisitions
(Transaction Value in $M)

- argon ST → BOEING: $799M
- INSIGHT TECHNOLOGY → L3: $613M
- bvT surface fleet → BAE: $487M
- AIS → GOODRICH: $375M
- DECRANE AEROSPACE → GOODRICH: $280M

### Divestitures
(Transaction Value in $M)

- NORTHROP GRUMMAN → TASC: $1,650M
- NORTHROP GRUMMAN → NORTHROP GRUMMAN Shipbuilding: ?
- LOCKHEED MARTIN → LOCKHEED MARTIN EIG: ?
- LOCKHEED MARTIN → PAE: ?
- BAE → BAE Platform Solutions: ?

*Note: Northrop Grumman has announced plans to separate the Shipbuilding division; Lockheed Martin has announced plans to divest EIG and PAE; BAE has announced plans to sell its engine controls, commercial avionics, and power and energy management business units*

*Source: CapitalIQ, company released data, RSAdvisors analysis*

## We would like to introduce five key questions to help you think about the issues and bellwethers that we see in the next one to two years

- **How has the global recession affected the aerospace and defense market?**
  - Answer: It reminded us we are in a cyclical industry
- **What's happening to the defense and security budget?**
  - Answer: It's under pressure, but still robust for the near term and the US will remain the largest market in the world over the long term
- **What kind of commercial recovery are we really in?**
  - Answer: One that is segmented with high growth (narrow bodies), no growth (regionals, large business jets), and continued uncertainty (commercial jumbos, small business jets)
- **Are the defense and commercial markets counter cyclical or complementary?**
  - Answer: Both
- **How can industry respond?**
  - Answer: By doing something, not standing still – historically companies that adopted a pro-active strategy performed better in the recovery

*Source: RSAdvisors analysis*

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