# World Aviation/Defense Market Outlook

## Firing On All Turbines

**Presentation To PNAA 2007 Conference**

Lynnwood, WA

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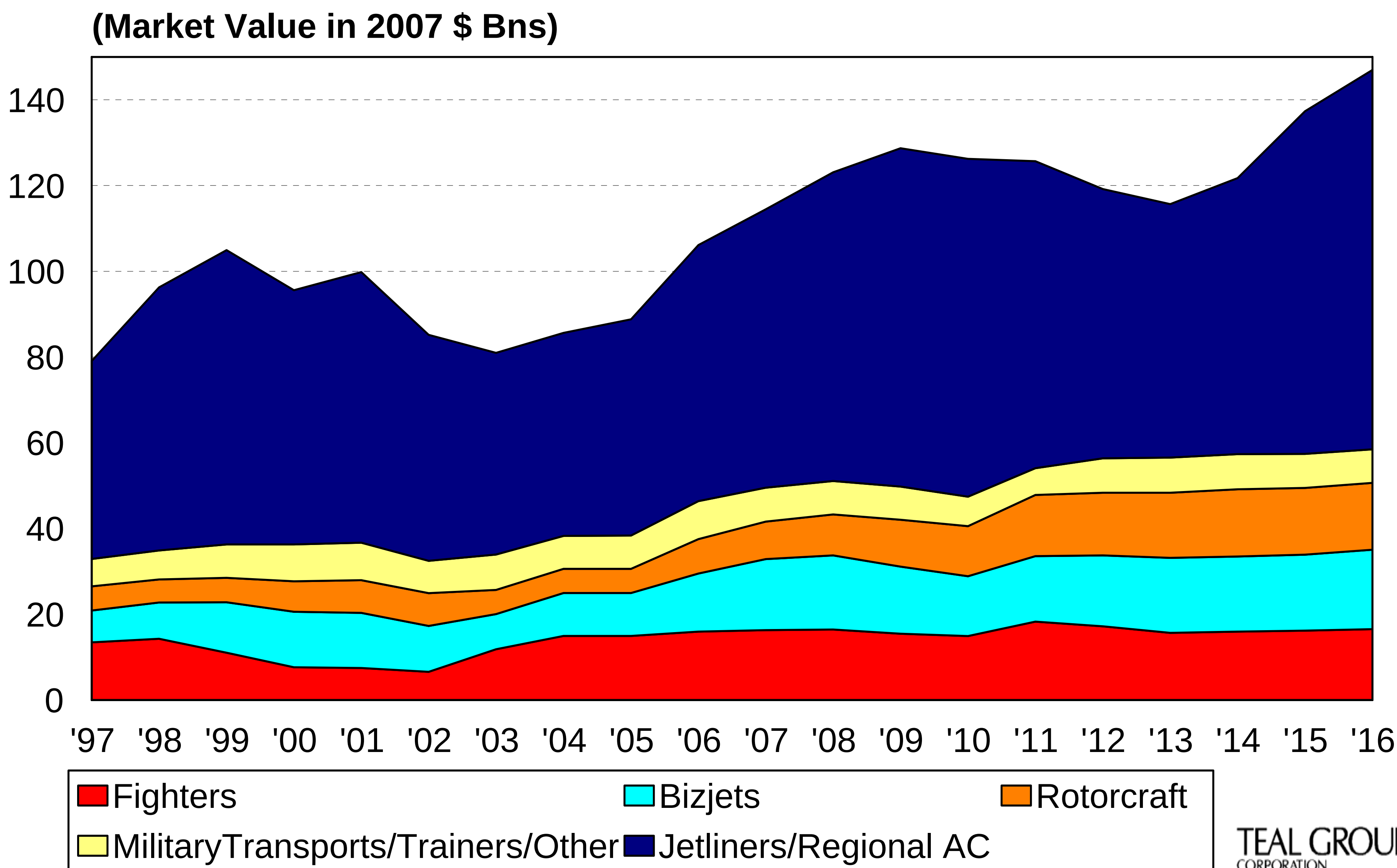
# Aircraft Production Forecast 1997-2016

## First Civil/Military Upturn In 20+ Years

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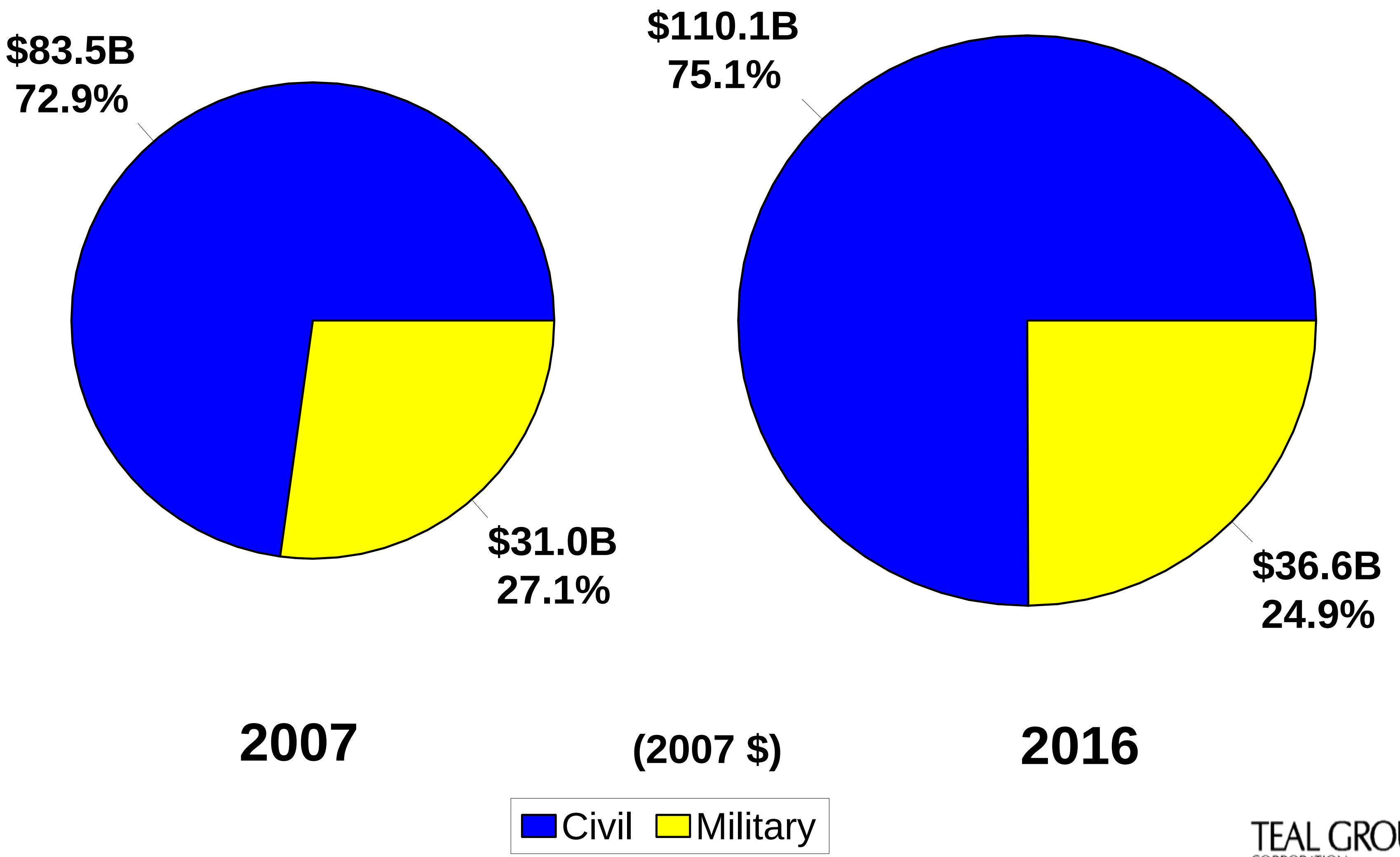
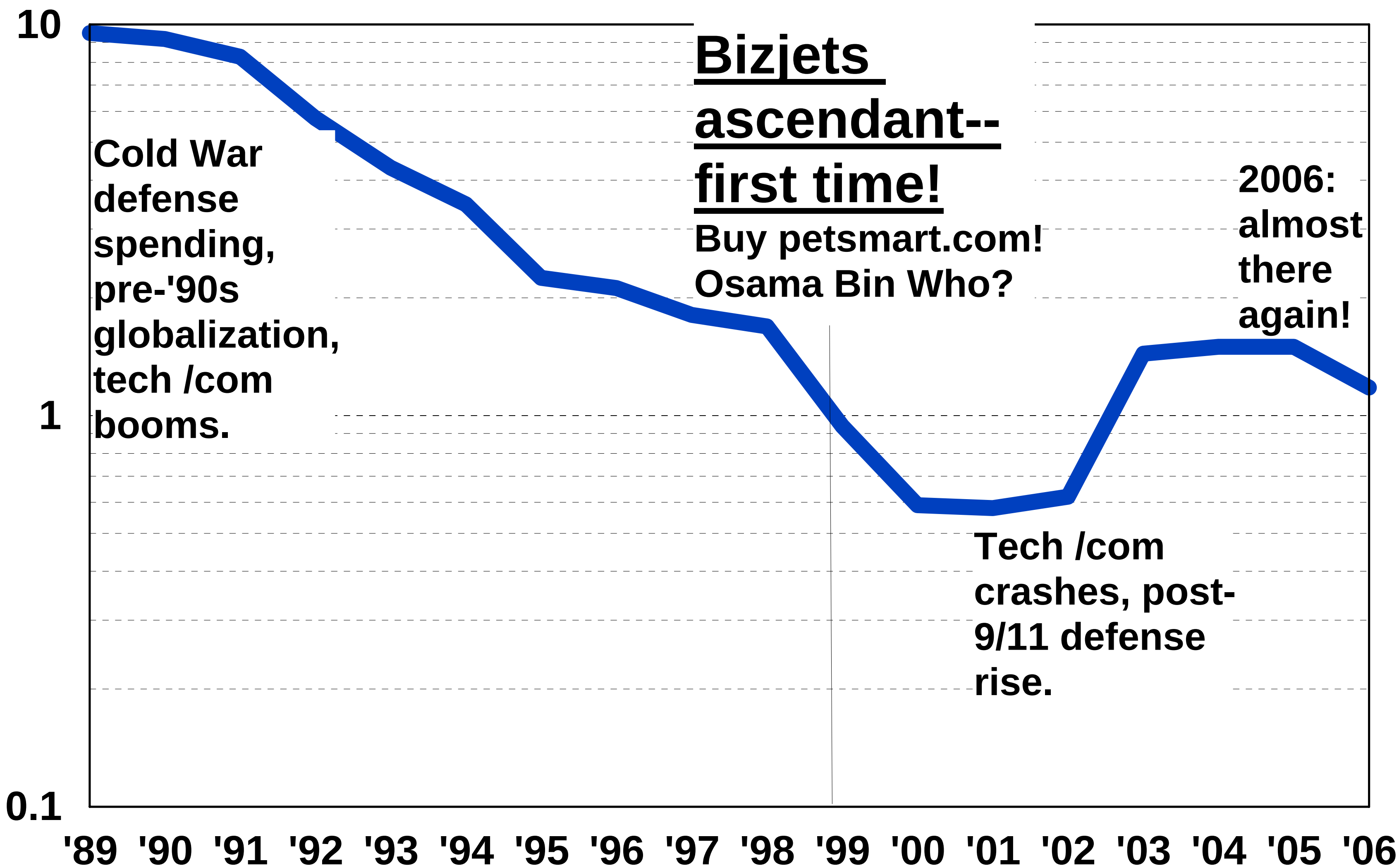
# Aircraft Production: Civil and Military



# Teal Group Guns:Caviar Index

## Value of Combat Aircraft:Business Jet Markets

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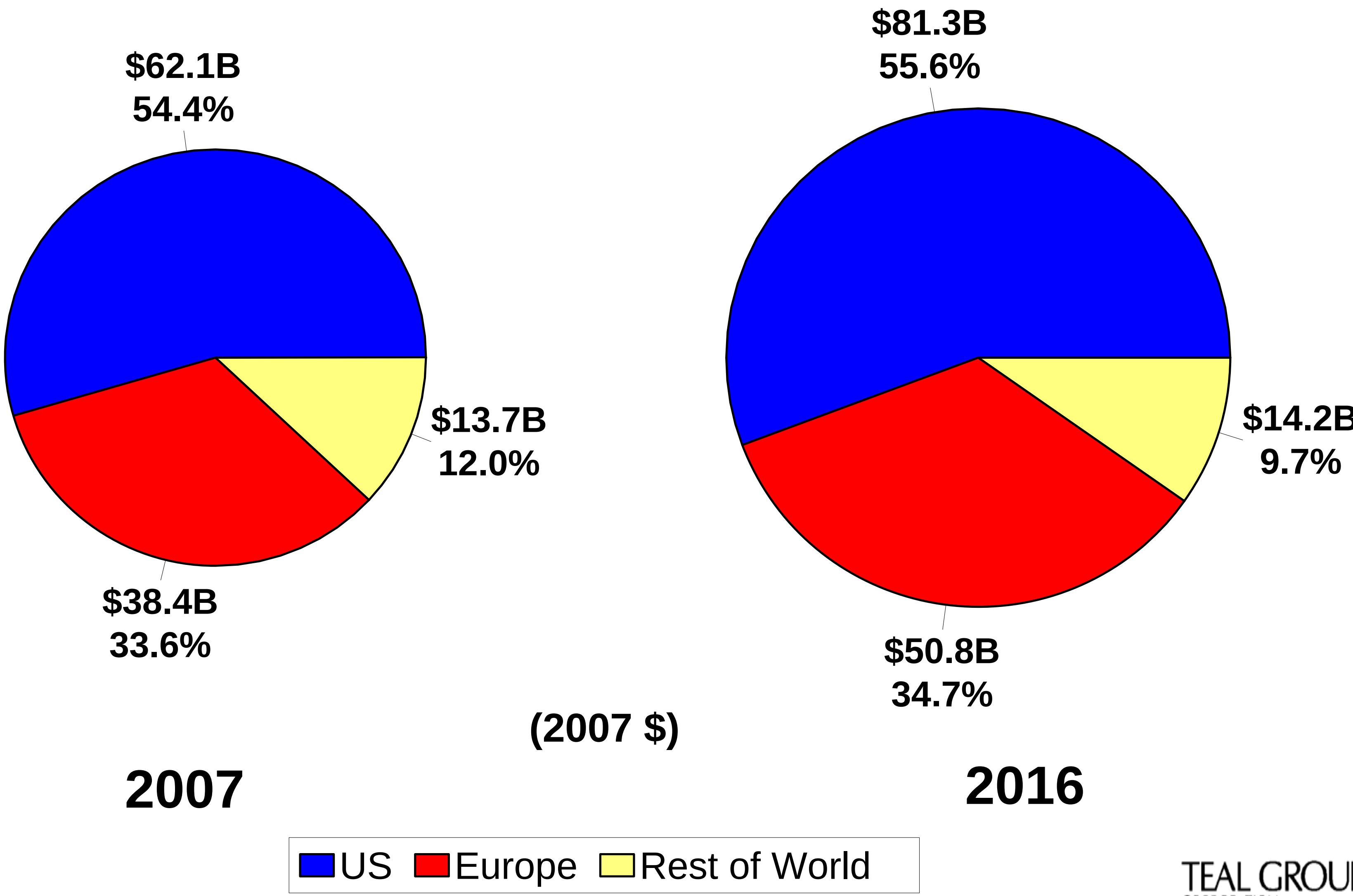
# Aircraft Production By Region

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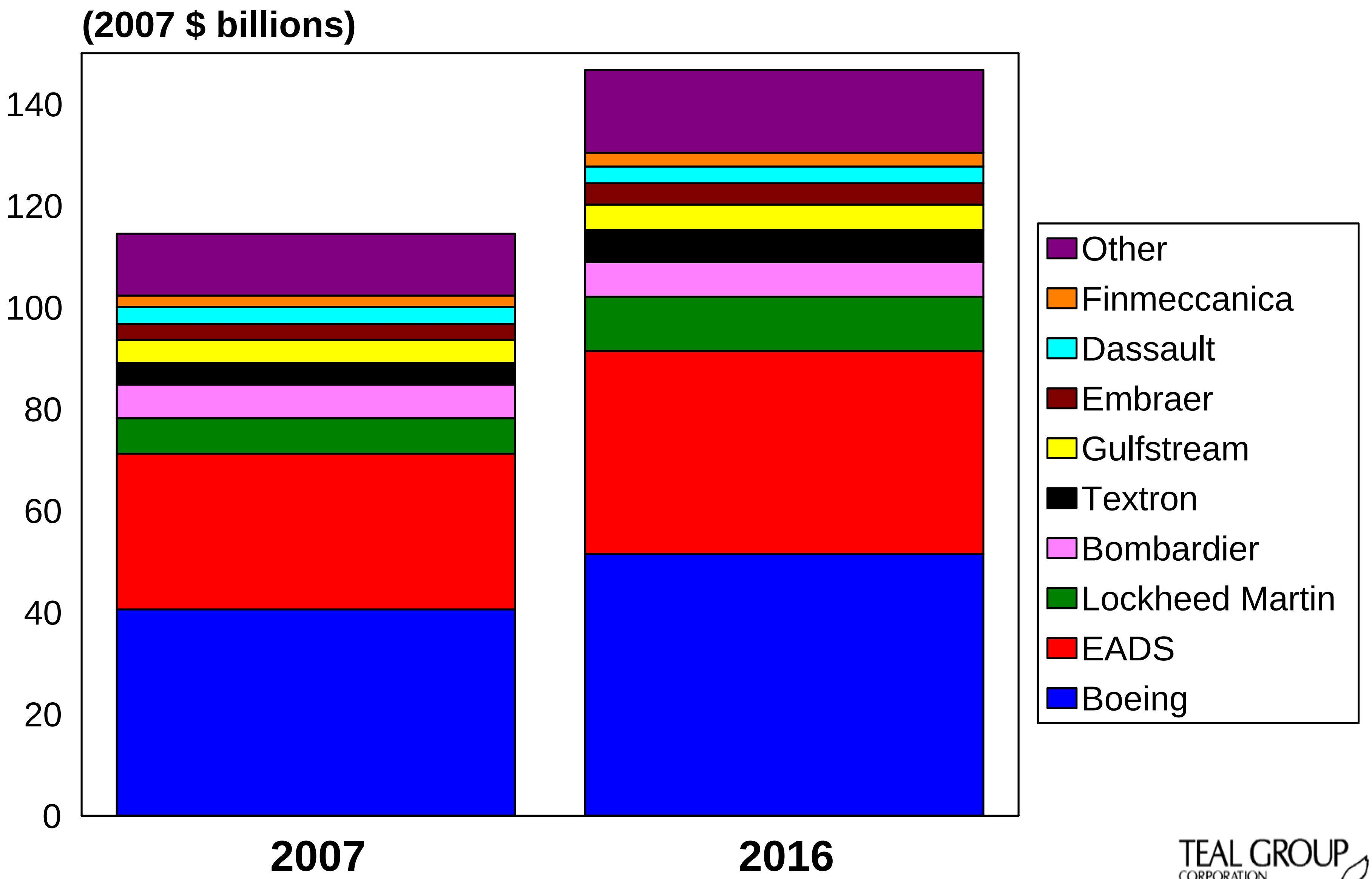
# The Big Aircraft Builders

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# The Civil Market

# Teal Jetliner Market Comment

- **2005/2006 record years for orders.**
  - **Numbers will drop in 2007, but twin aisle demand will keep value market value high. Large US orders unlikely before 2008/2009.**
  - **Production peak 2009/10; 2011/2013 market drop due more to product line changes than market weakness.**
- **Boeing ahead in deliveries, orders, and backlog in 2006; first time it achieved all three since 2001.**
- **Imperative that Airbus prioritize A350.**

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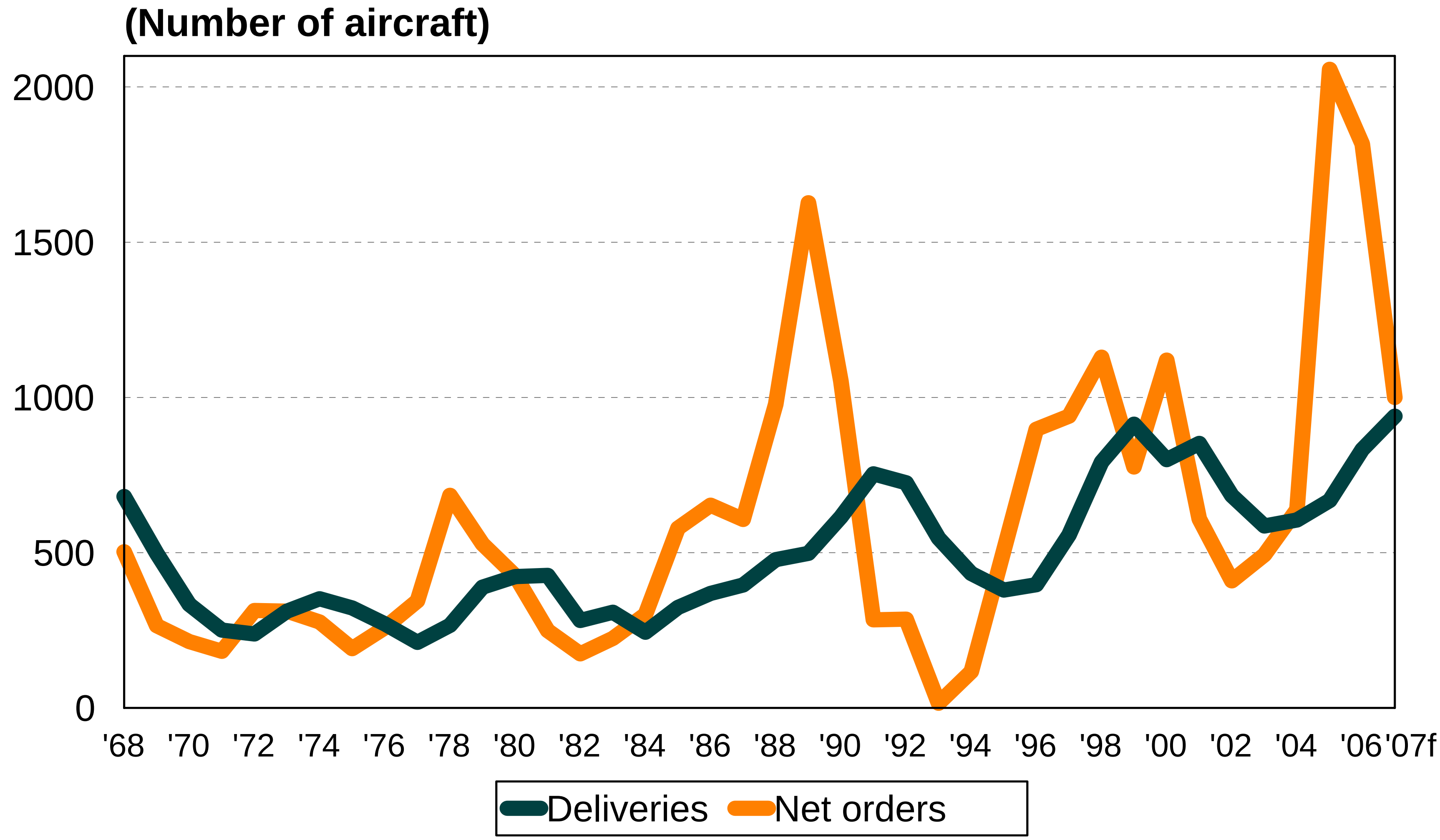
# Historical Jetliner Orders And Deliveries

## Continued Industry Strength; US Recovery Prospects




**All Airbus and Boeing aircraft**

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# Teal Group Order/Delivery/ Backlog Valuation Methodology

- **Orders are net after cancellations.**
- **Numbers provided by manufacturers.**
  - **Assumes A350 orders converted to XWBs.**
  - **No manufacturer backlog adjustment except:**
    - **5 Iraqi Airways A310s.**
    - **18 Emirates A340-600s.**
- **Constant, simplified, discount prices.**
  - **Boeing prices: 717: $30 m; 737: $44.5 m; 747-400: $172 m; 747-8: $179 m; 767: $100 m; 777: $151 m; 787: $122 m.**
  - **Airbus prices: A318/19/20/21: $45.5 m; A330: $113 m; A350 XWB: $126 m; A340-300: $120 m; A340-5/600: $148 m; A380: $190 m.**

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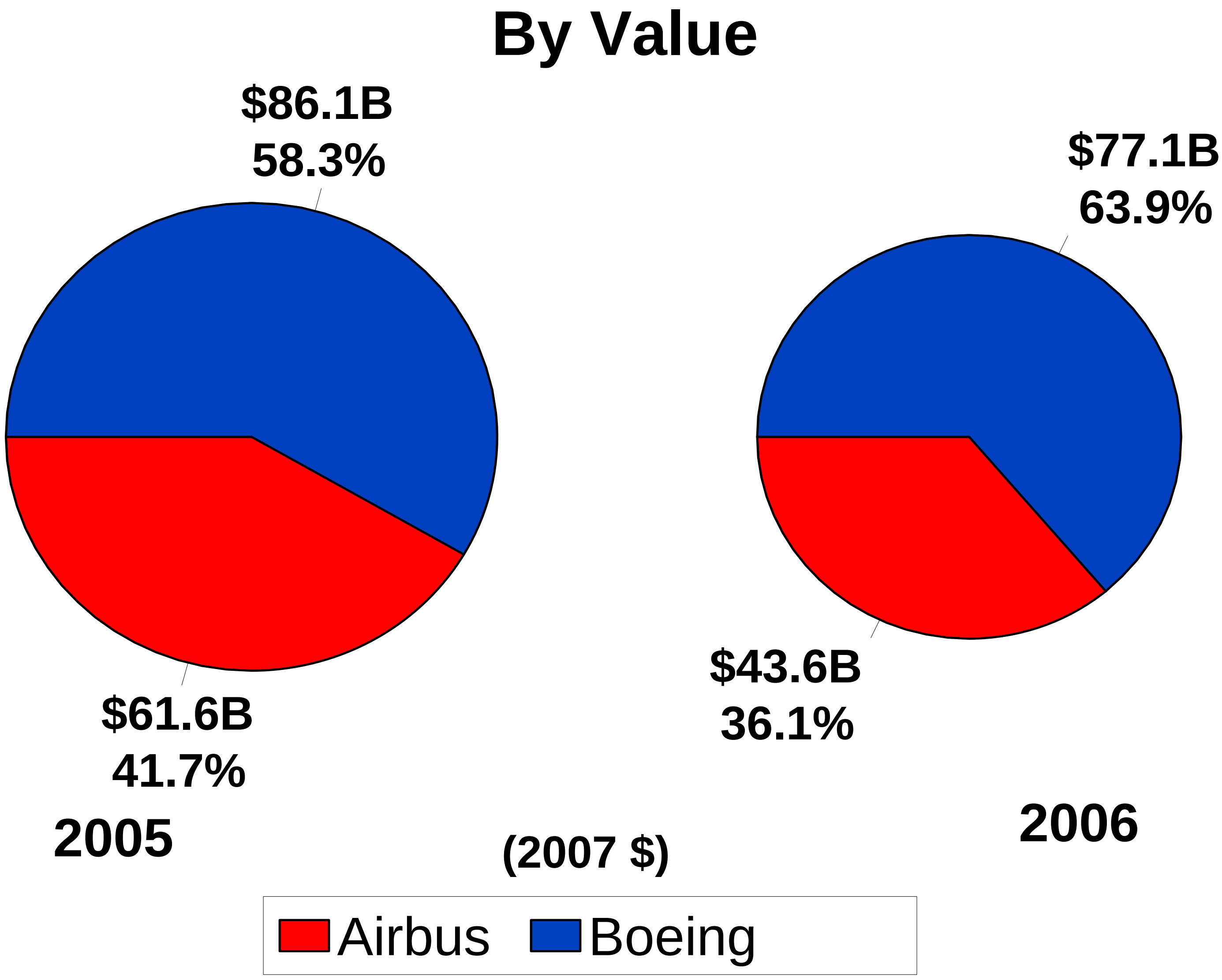
# Large Jetliner Net Orders

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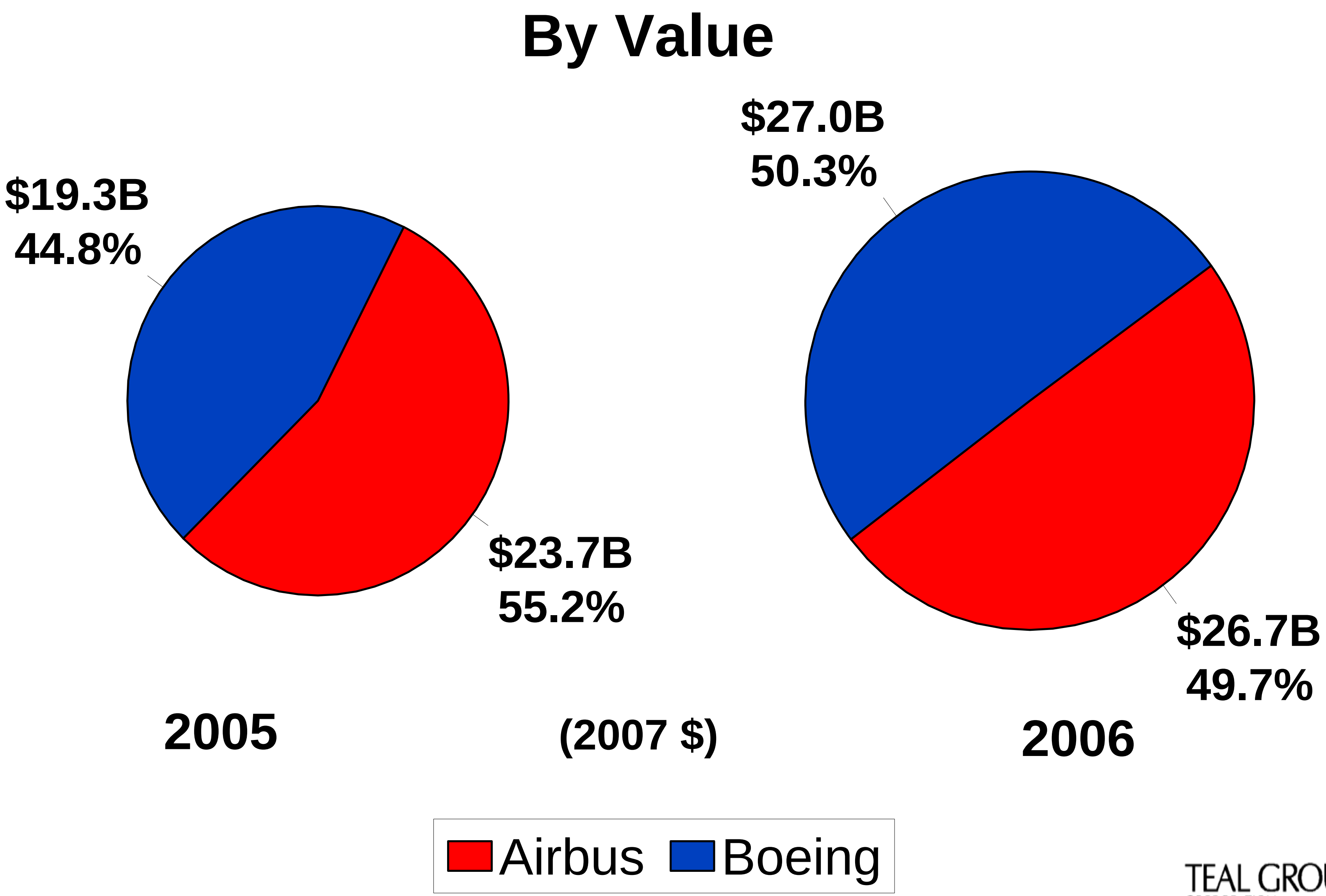
# Large Jetliner Deliveries

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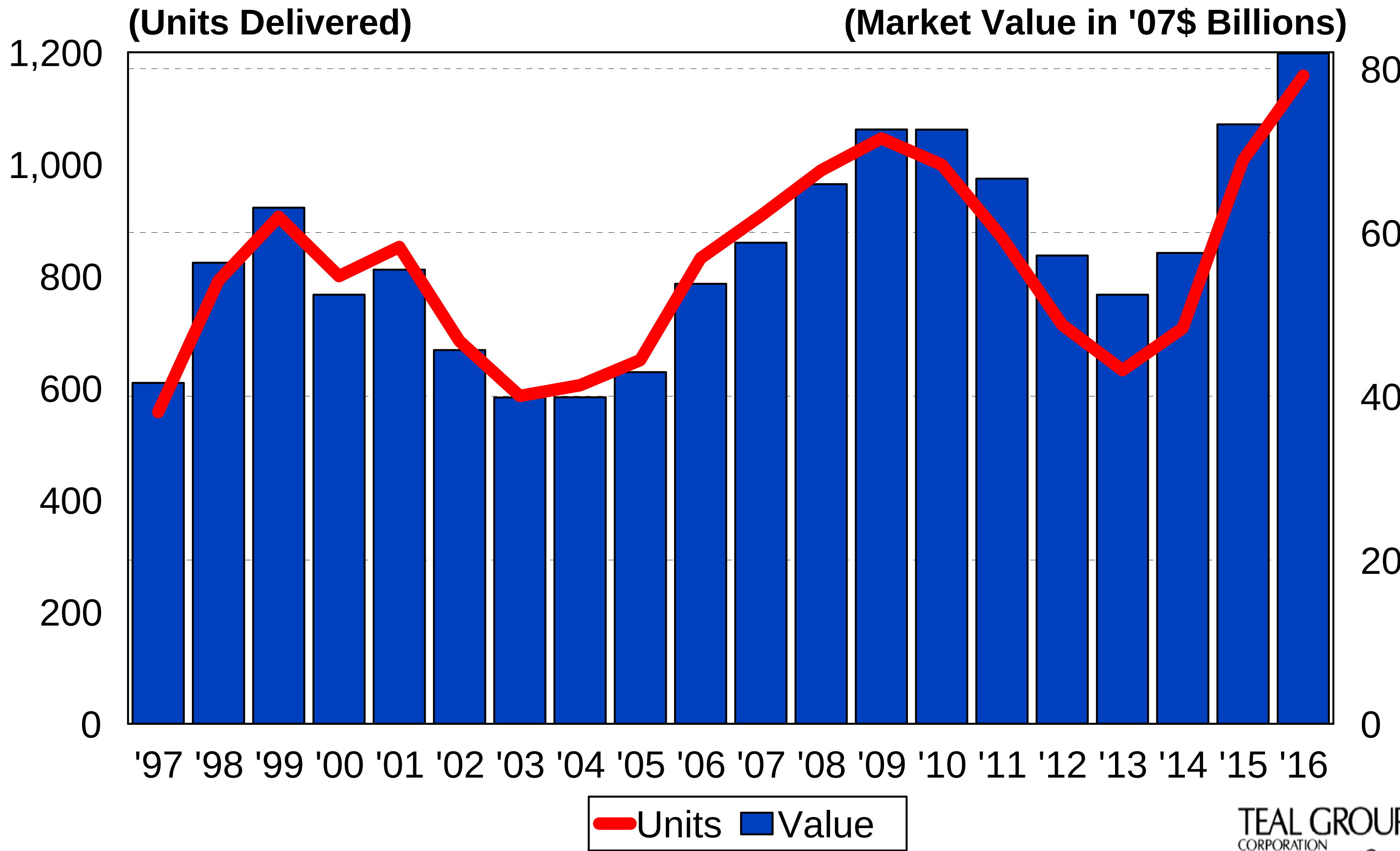
# Commercial Jetliners History And Forecast

## Best Market In Years, Unless They Overdo It

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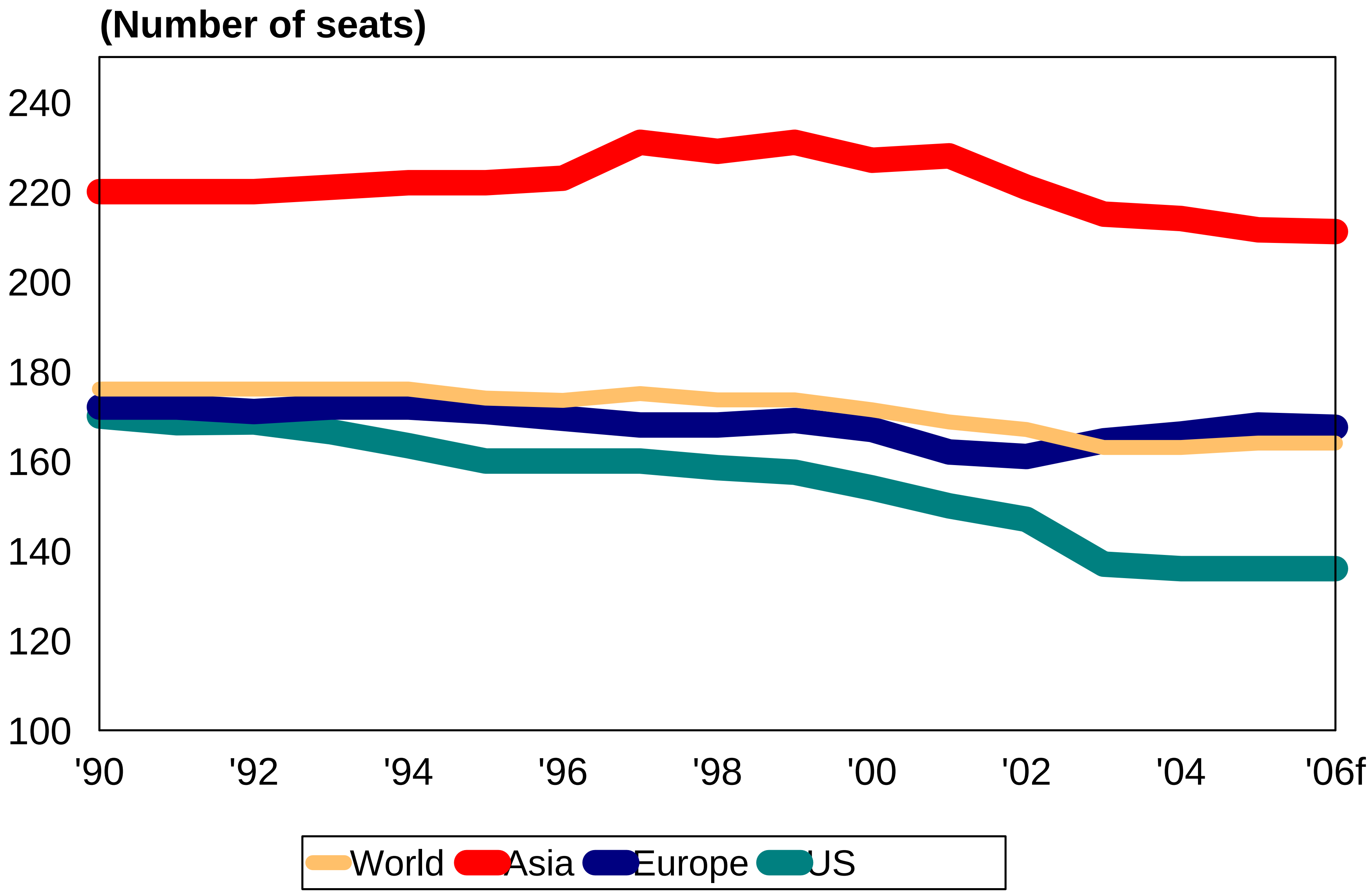
# Average Number Of Seats Per Aircraft




**Source: Airline Monitor**

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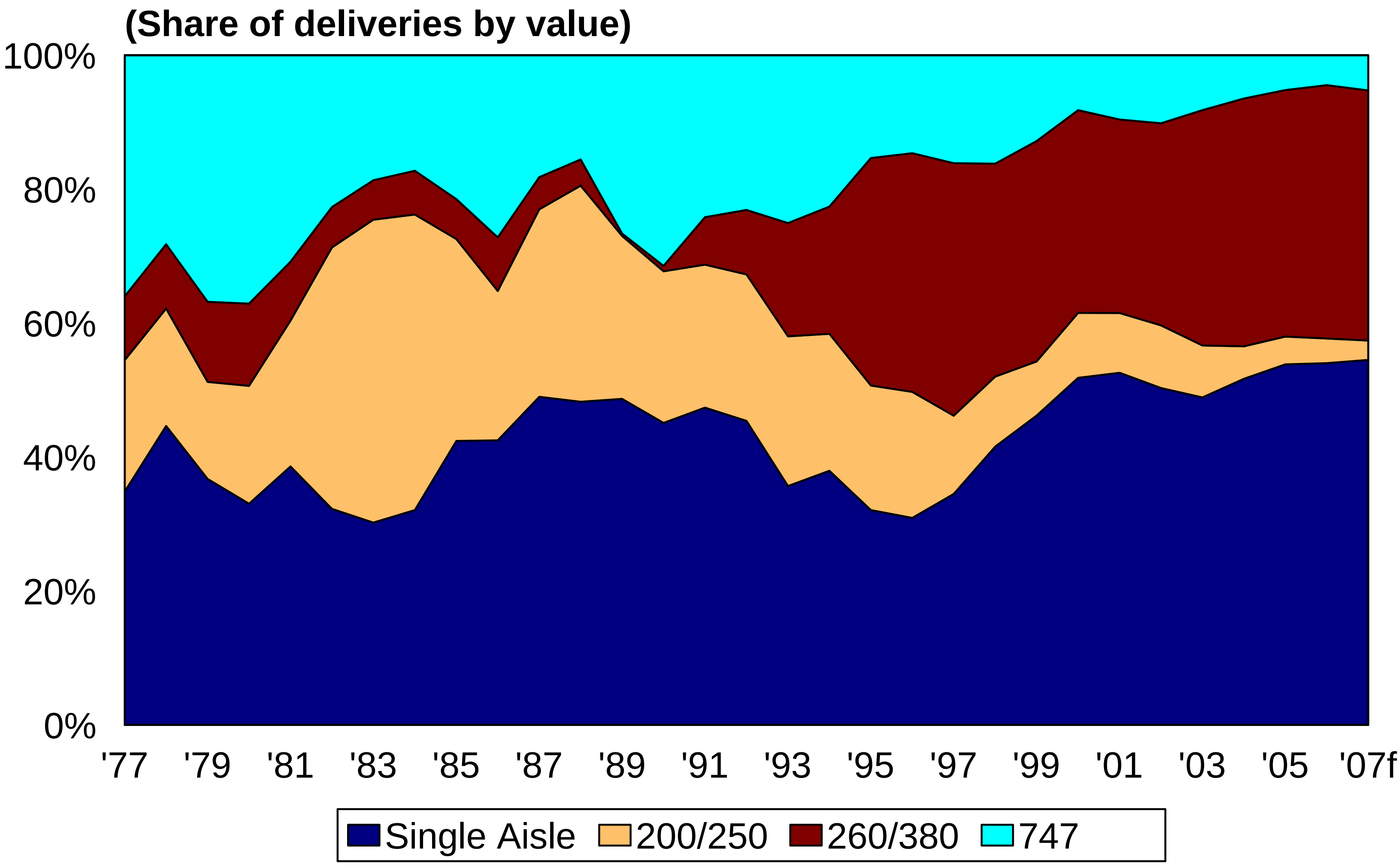
# Jetliner Segment Deliveries, 1977-2007




**100+ seats, Airbus and Boeing only**

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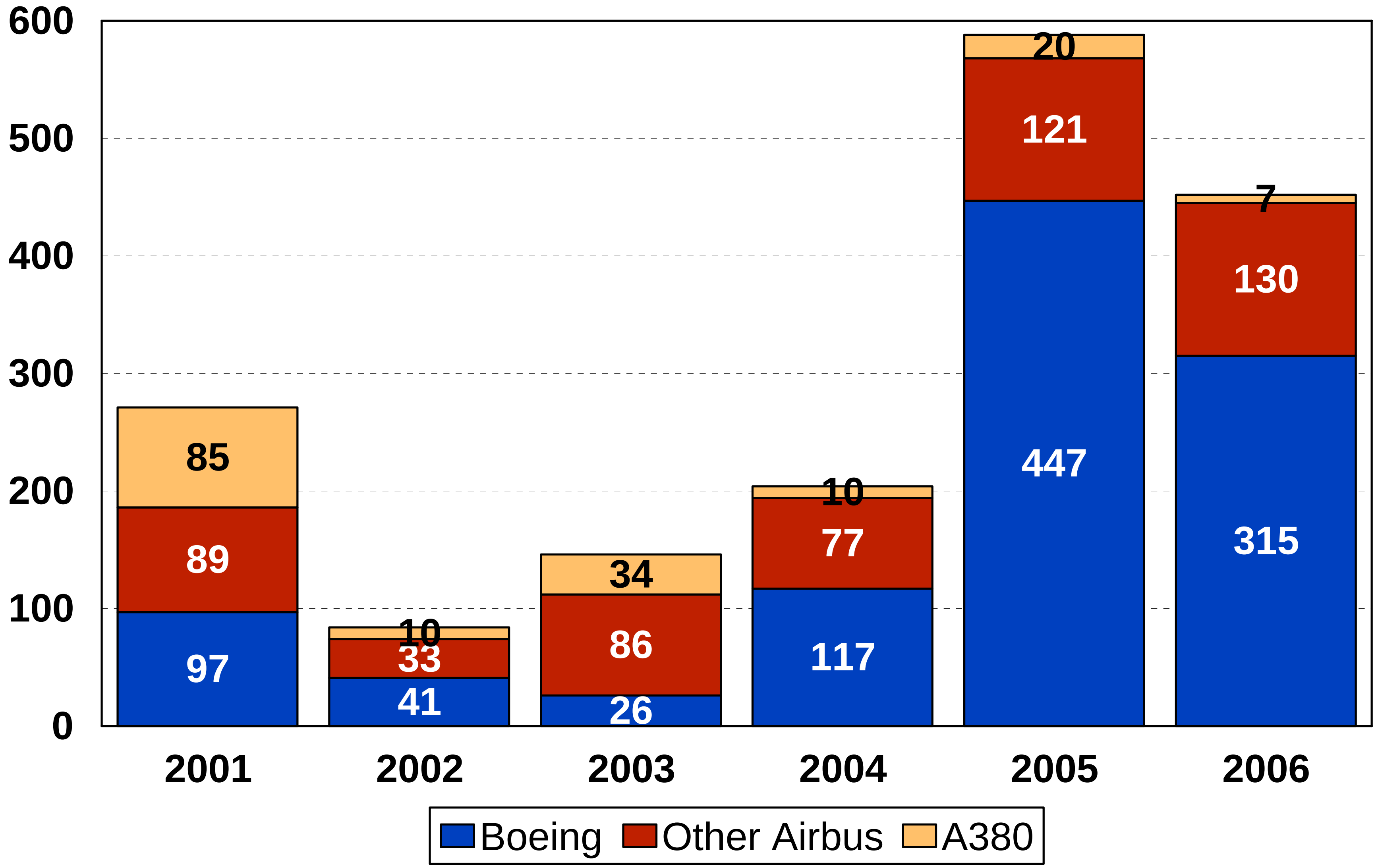
# Twin Aisle Orders Since A380 Launch




**166 A380s, 162 747s 1,382 mid market (incl.102 A350s)**

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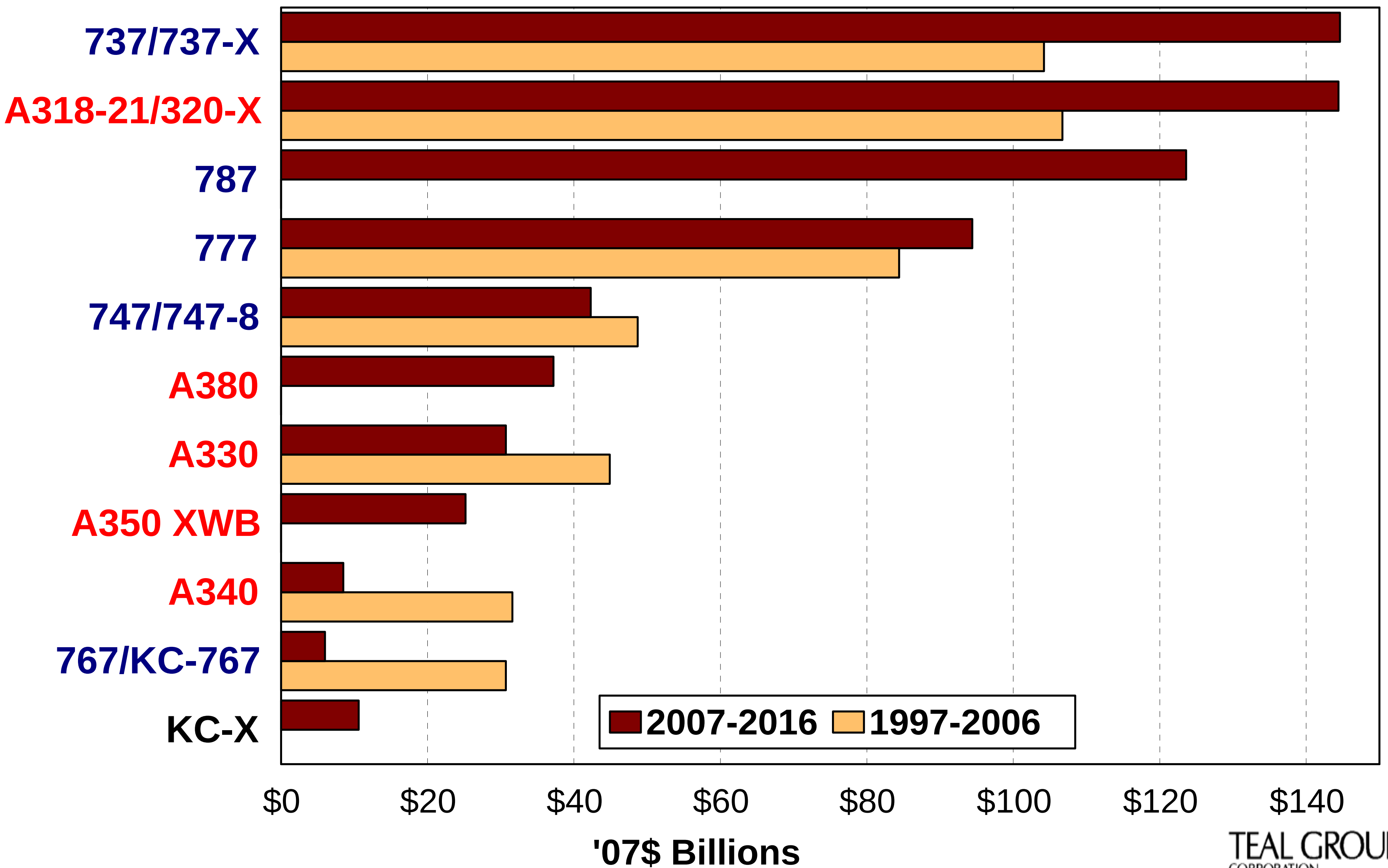
# Jetliner Programs: Watch The Middle Market

## Cumulative Value

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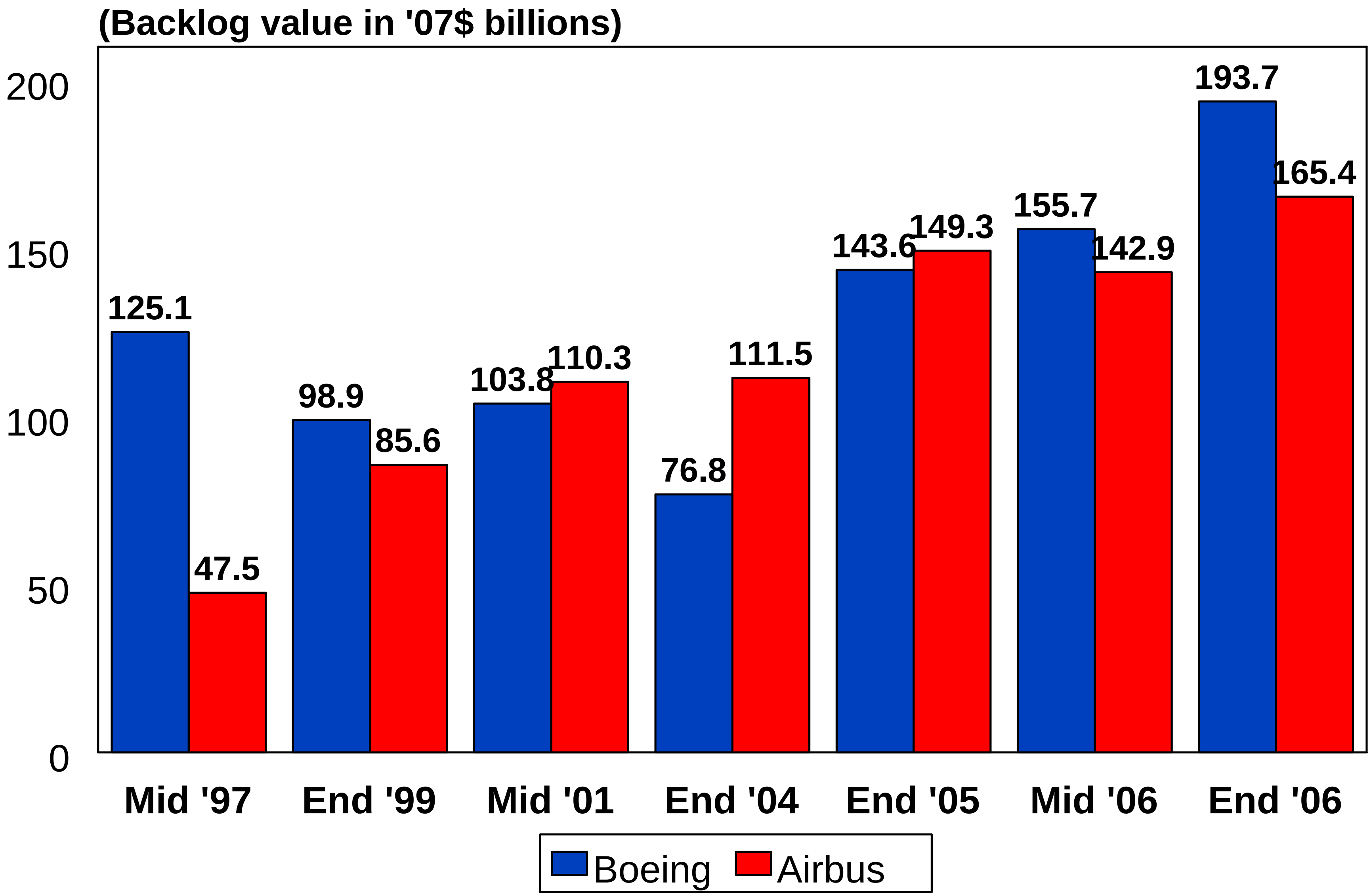
# Comparative Backlog Values




**Excludes Emirates A340-600s, Iraqi A310s.**

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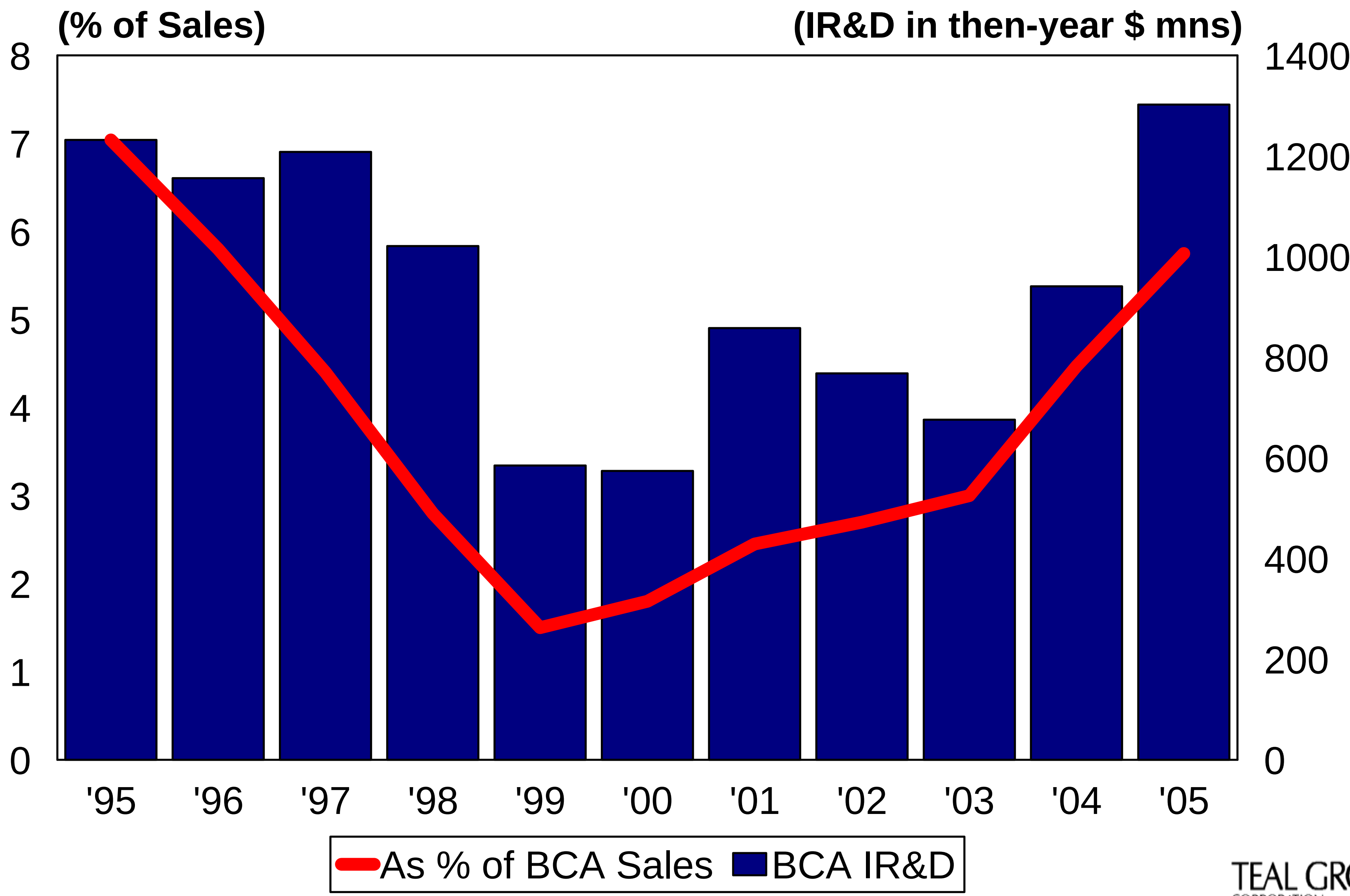
# Boeing Commercial Aircraft IR&D

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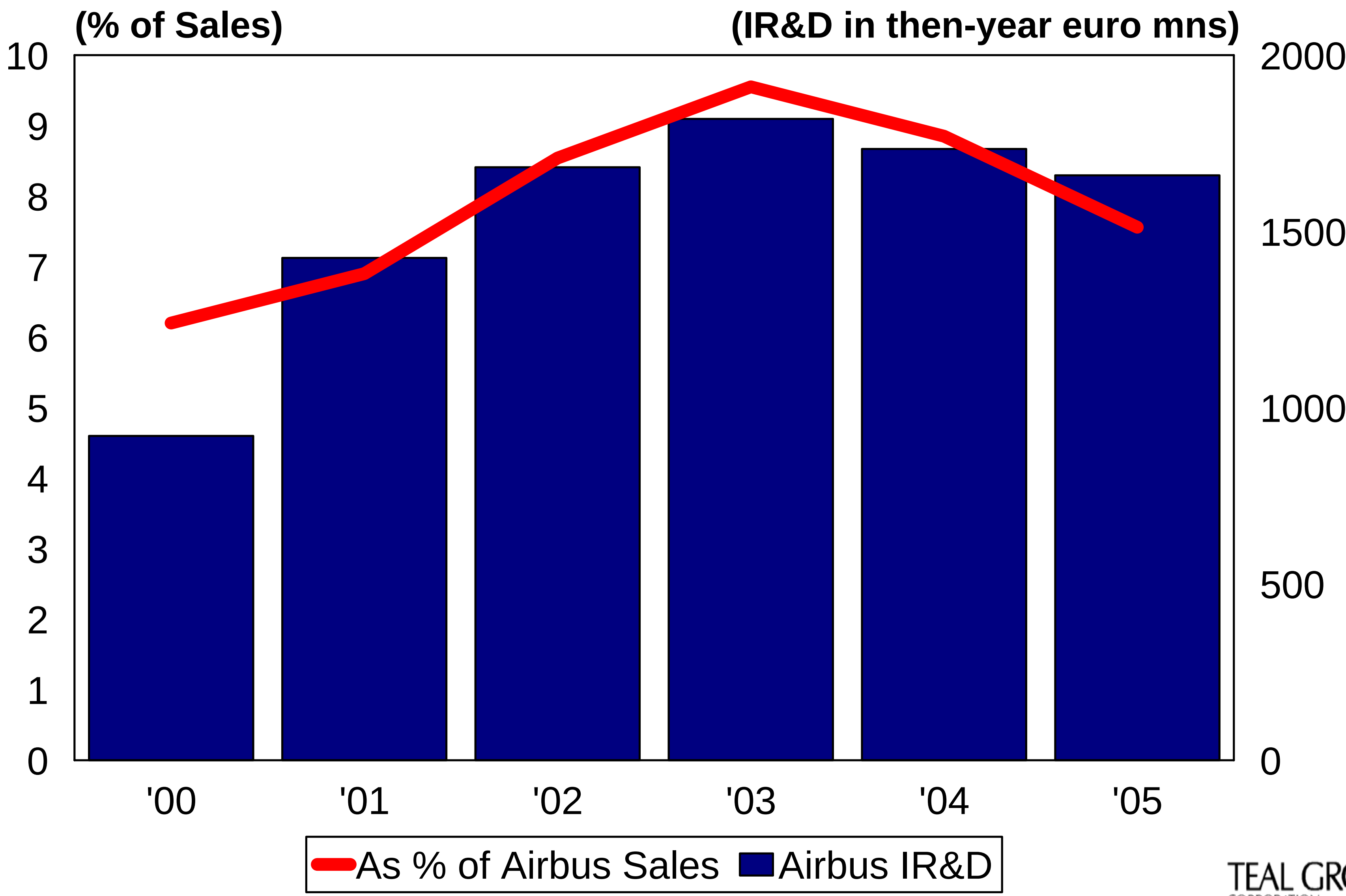
# Airbus IR&D

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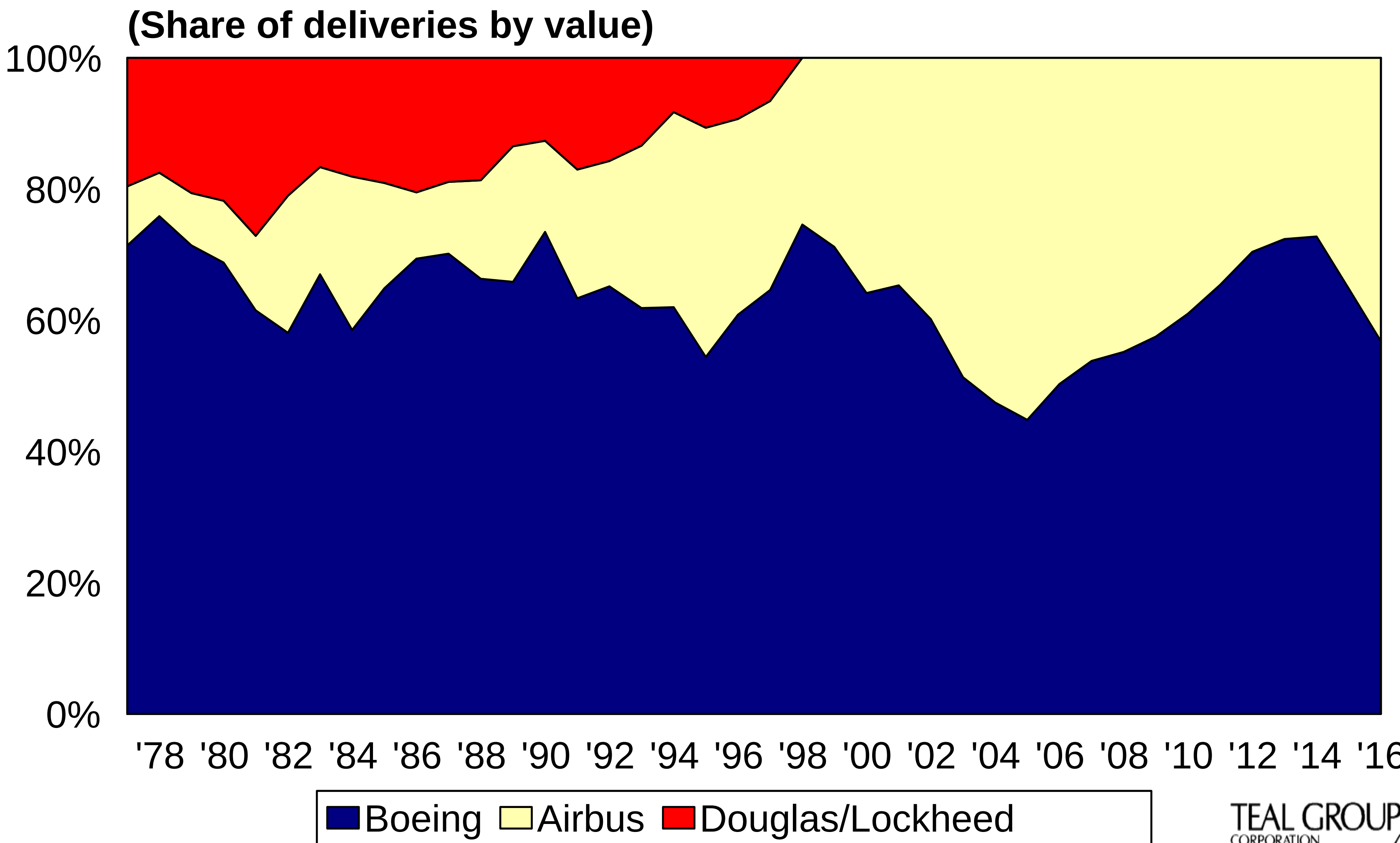
# Jetliner Market Share Outlook

## Assumes A350 XWB IOC In 2014

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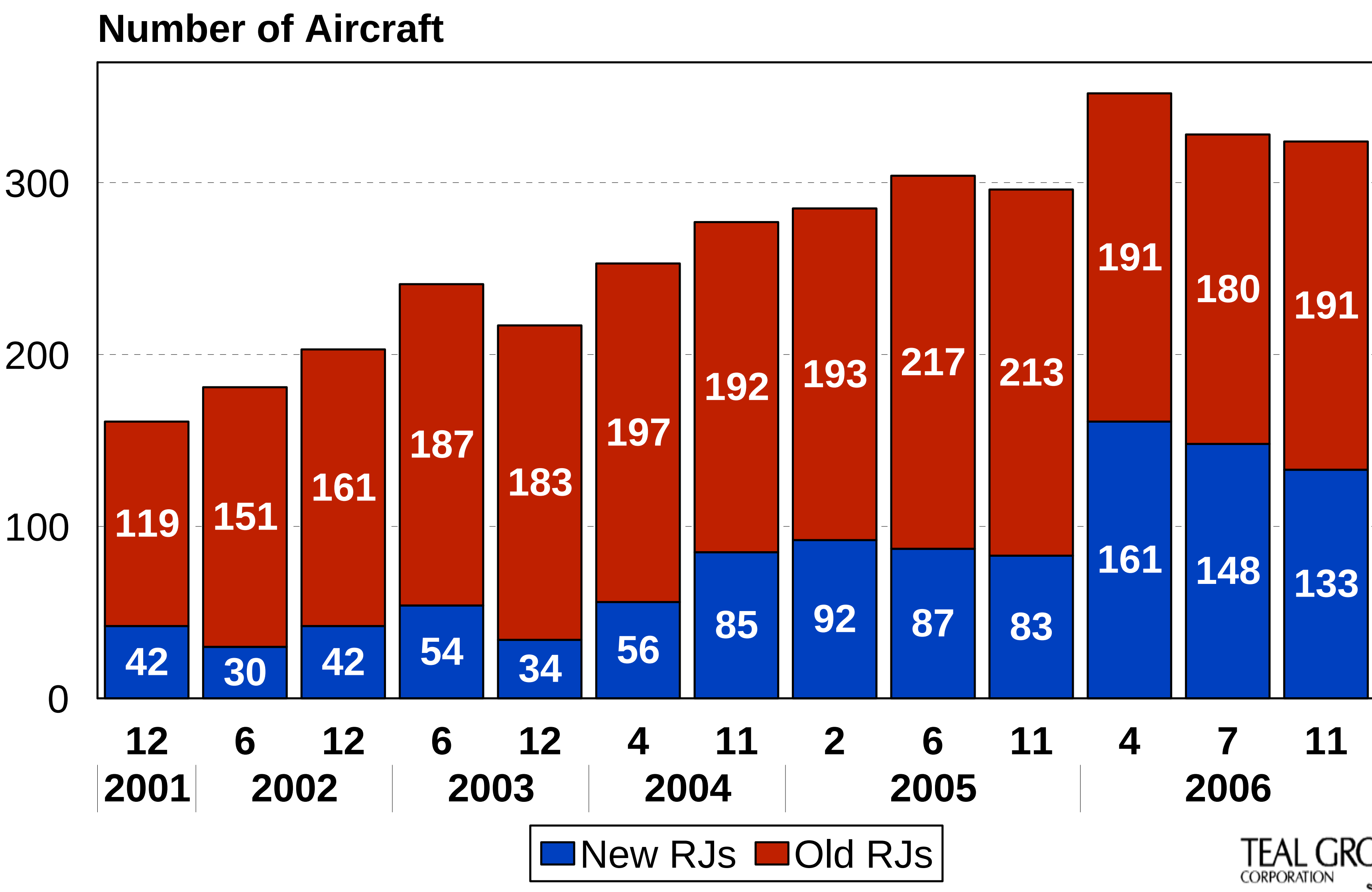
# Parked RJs

## Has The Time Of Danger Passed?

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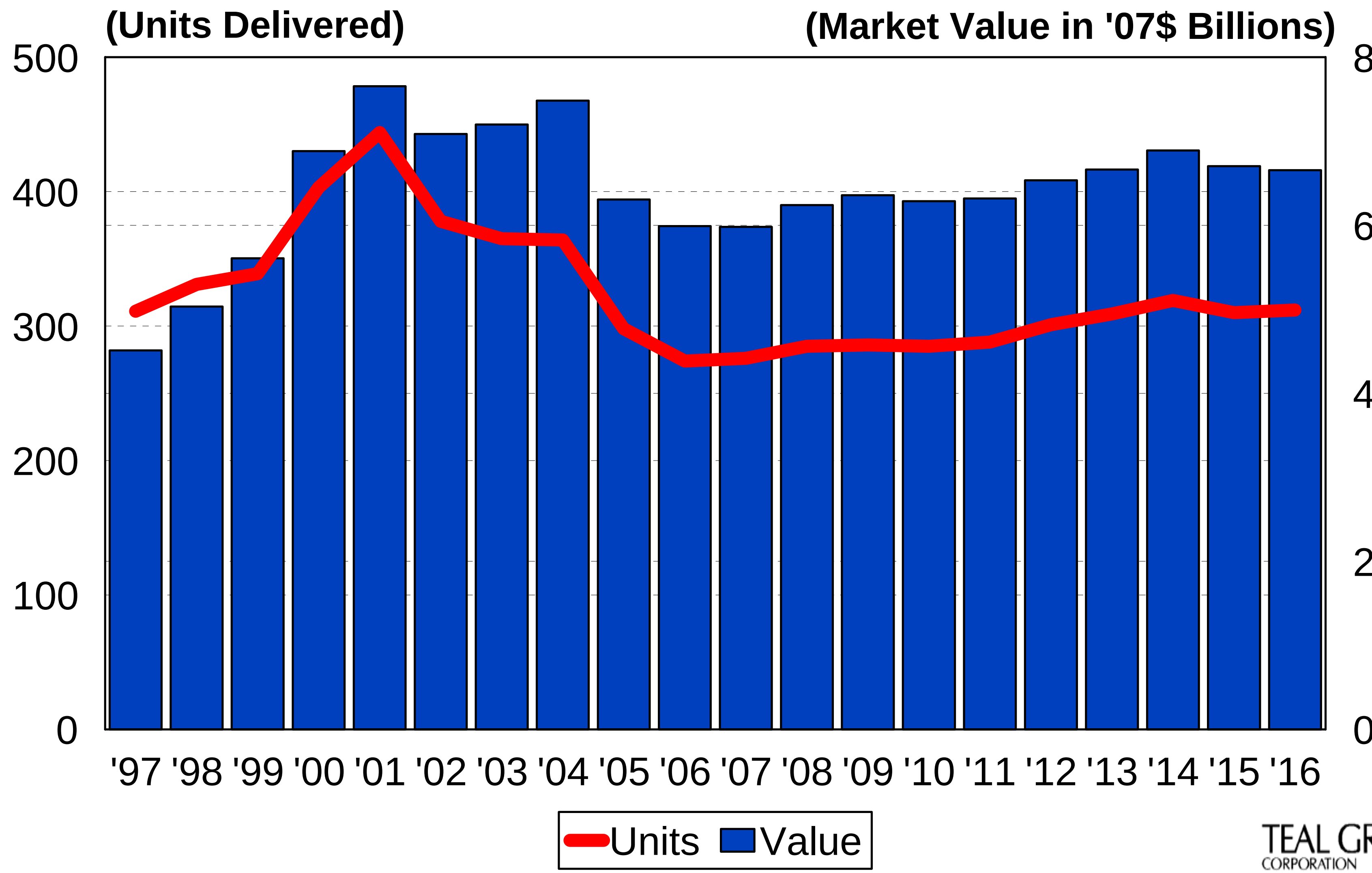
# Regional Aircraft History And Forecast

## A Nice Peak, While It Lasted

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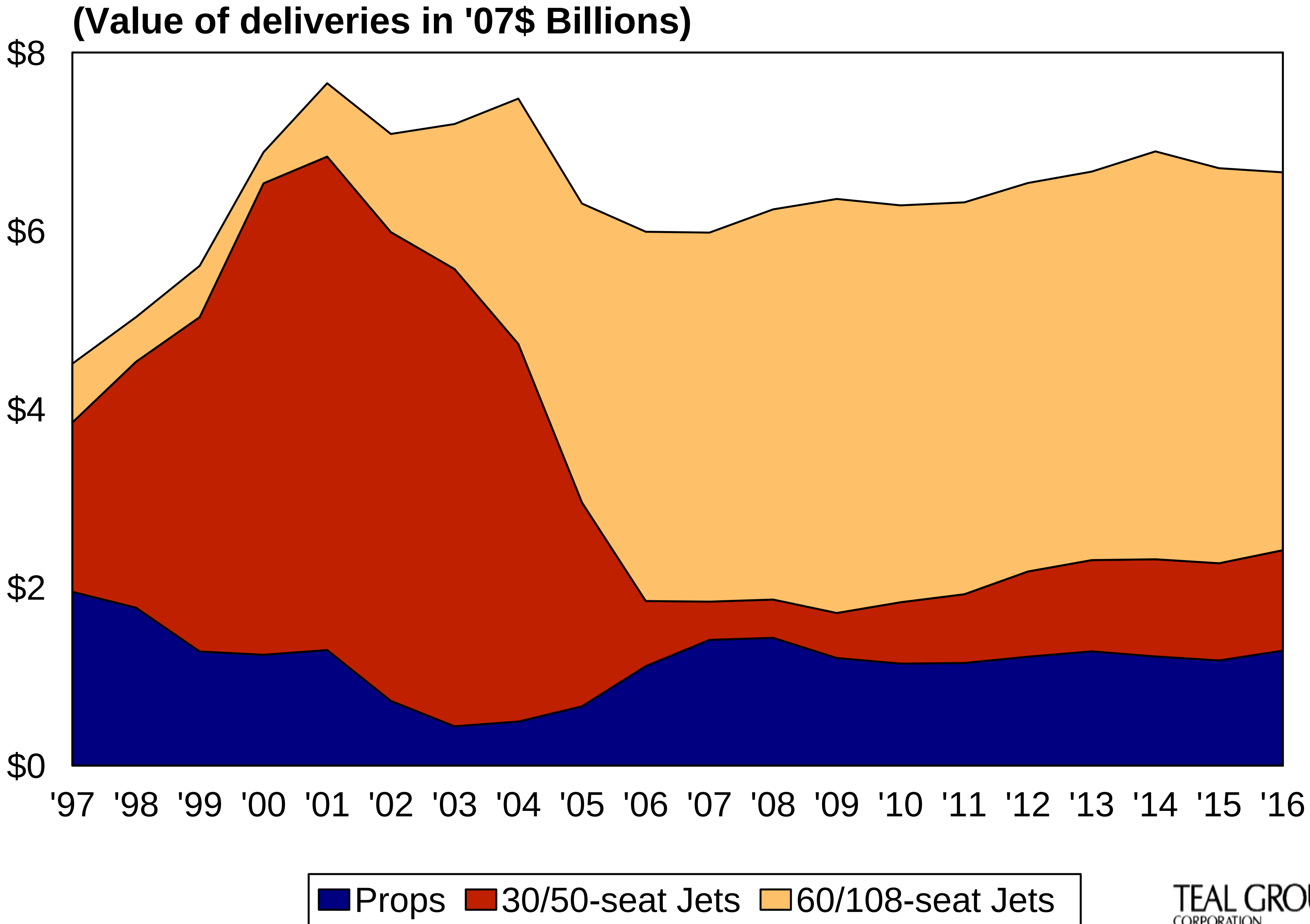
# RJ Deliveries: Not Quite A Second Wave

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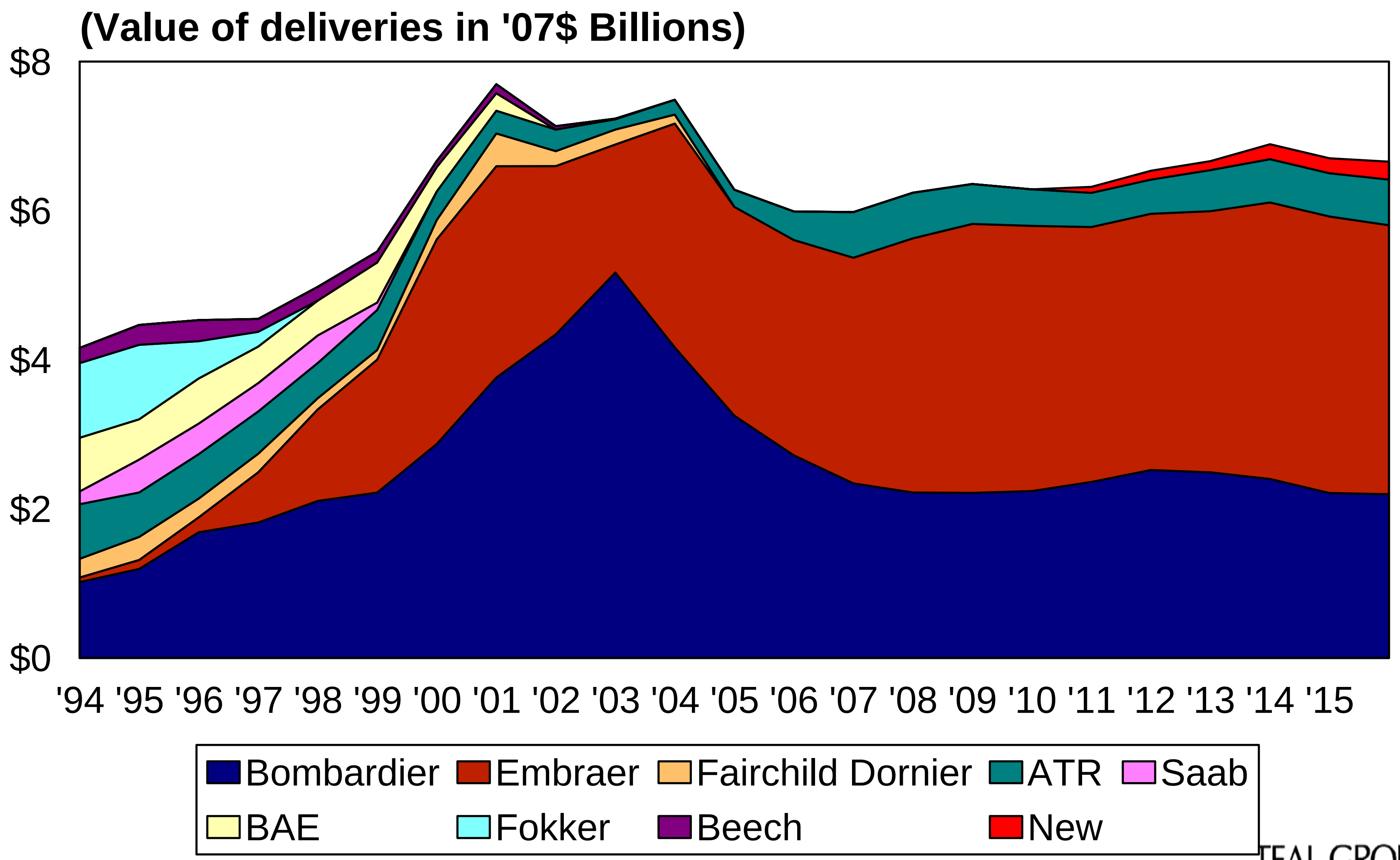
# How Things Got Simple

## Regional Aircraft Manufacturers Market Share

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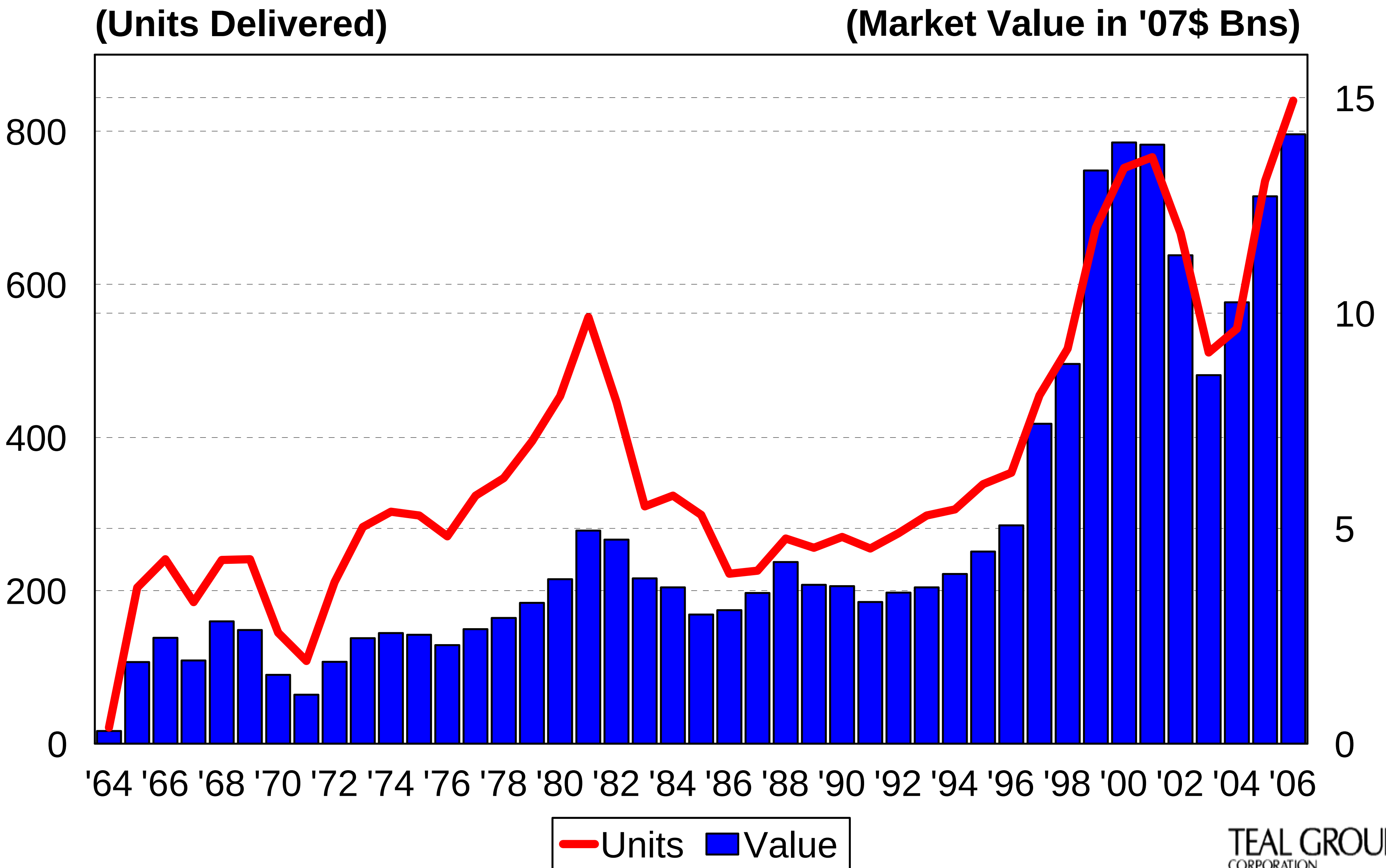
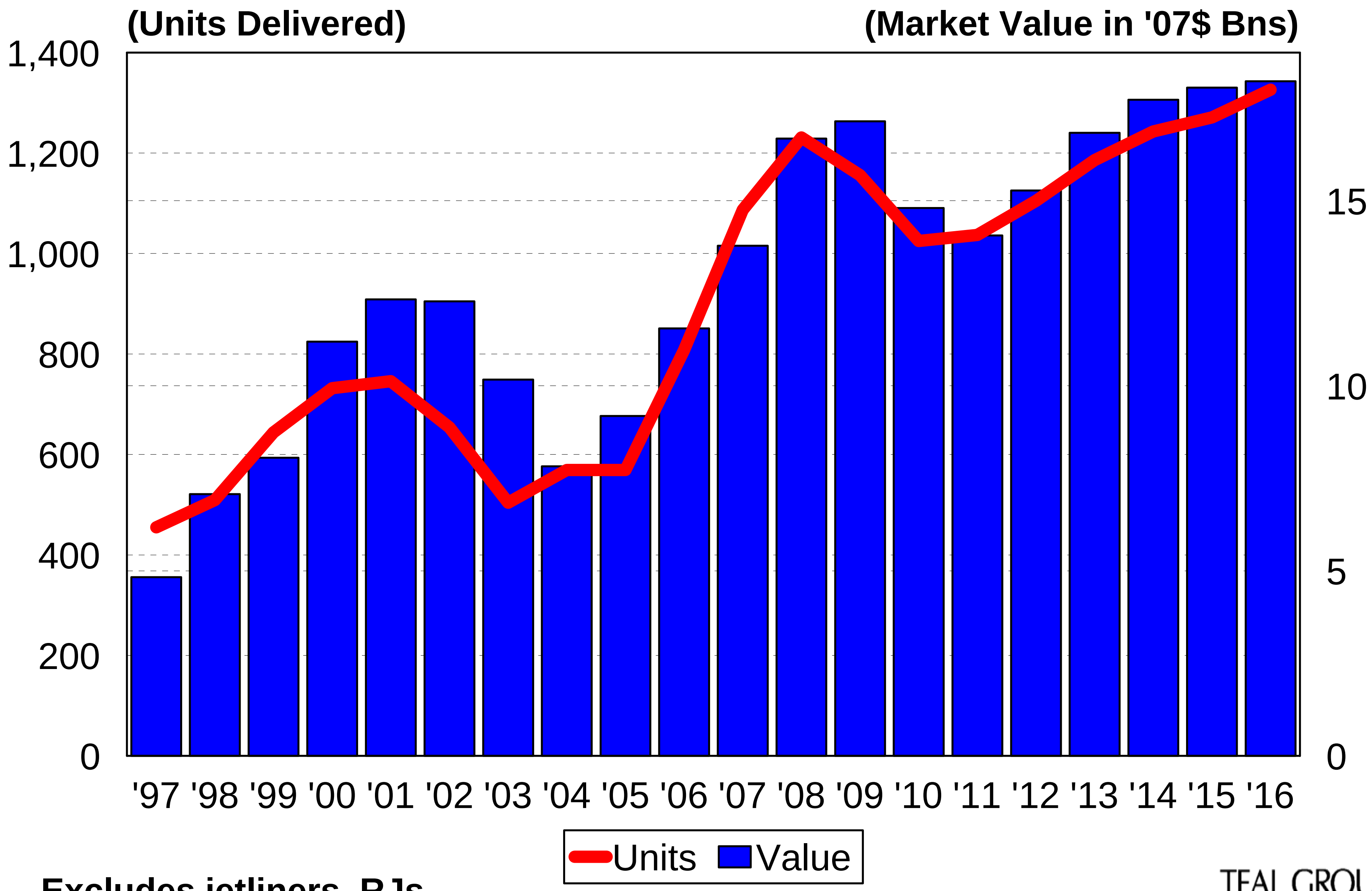
# Business Jet History (W/Jetliners+RJs)



# Business Jets: Peak In 2009 (Or Beyond)




**Excludes jetliners, RJs**

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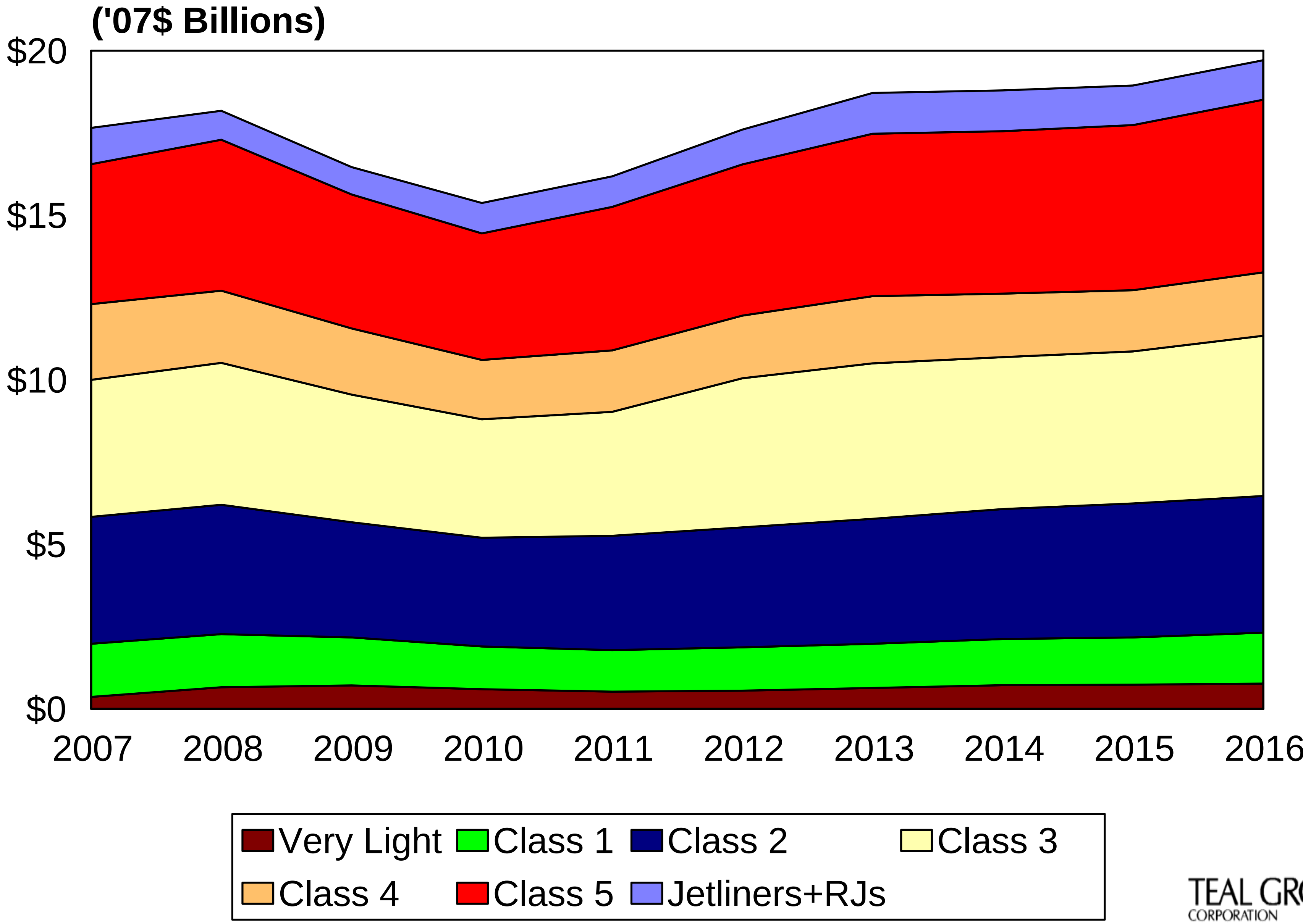
# The Market By Aircraft Class

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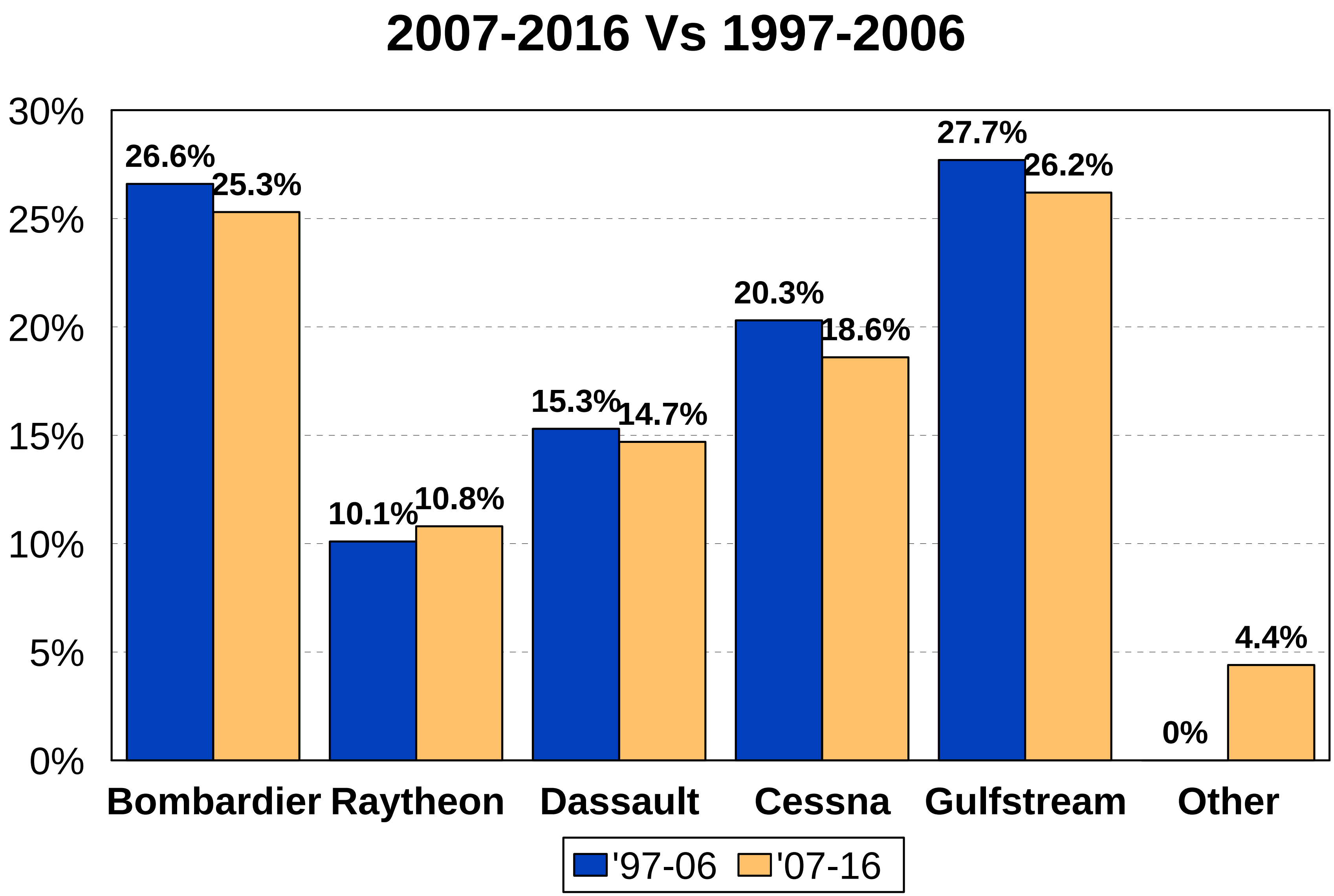
# Business Jet Manufacturer Market Shares




History includes '07 components; excludes jetliners, RJs

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# Top Civil Aviation Issues In 2007

1. US airline restructuring/new orders.
2. European carrier orders.
3. A350 (V 6.0) market acceptance.
4. A380 introduction and performance.
5. Business jet market peak in sight?
6. What's doing at Bombardier?

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# The Military Market

## Misplaced Pessimism

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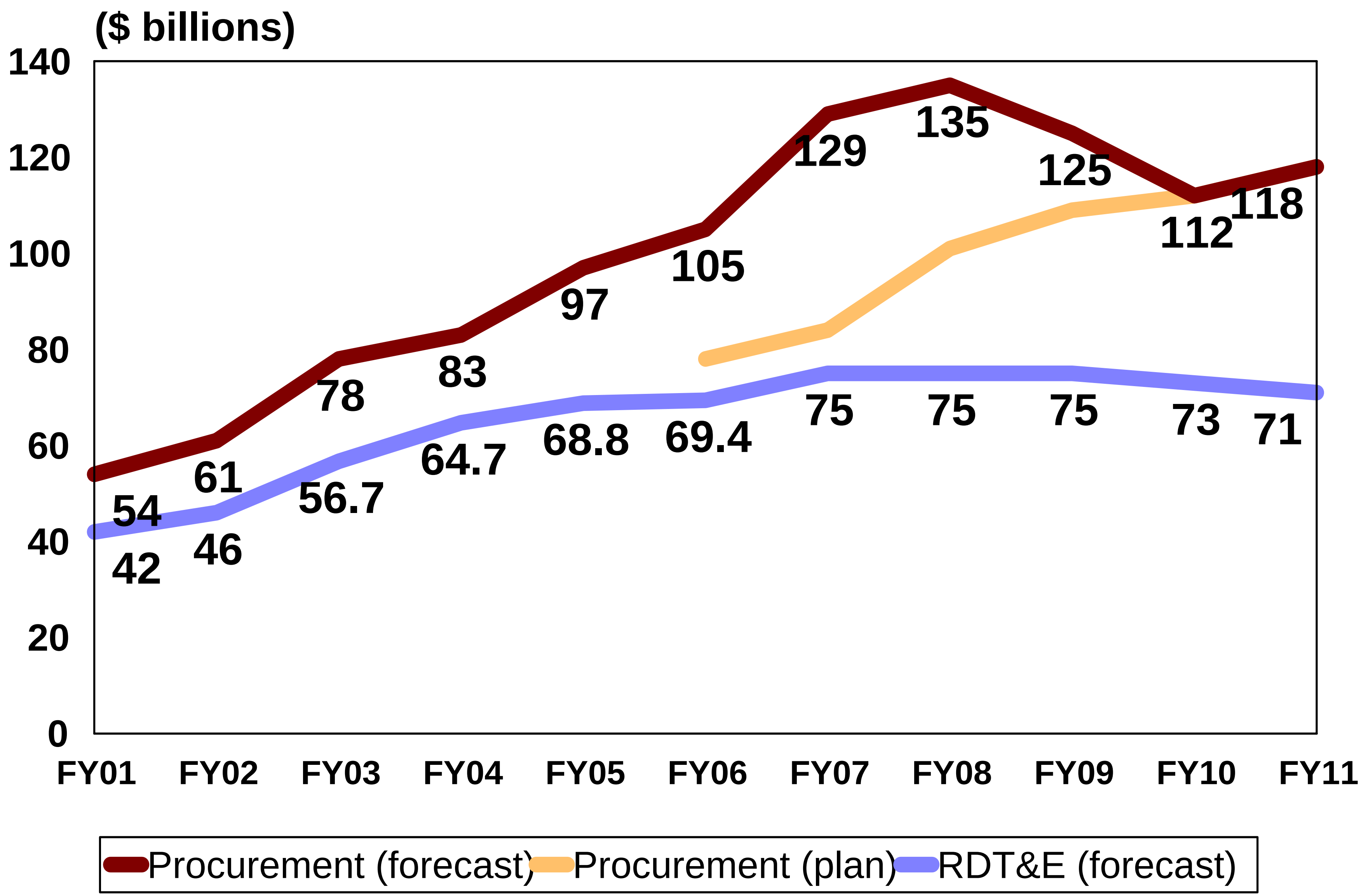
# DoD Total Procurement And RDT&E




Budget Authority; Includes supplementals

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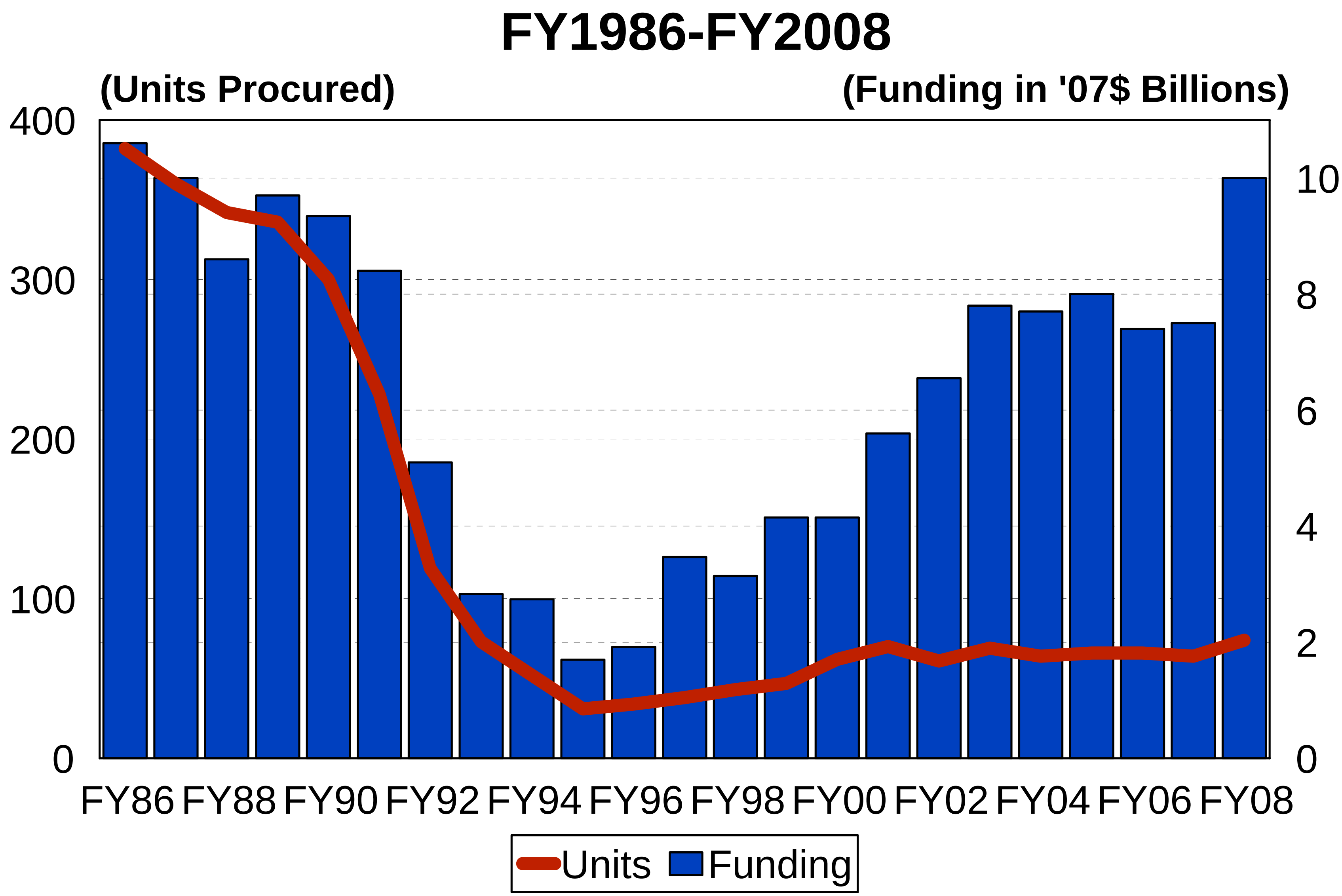
# DoD Tactical Aircraft Procurement




**With major rebuilds.**

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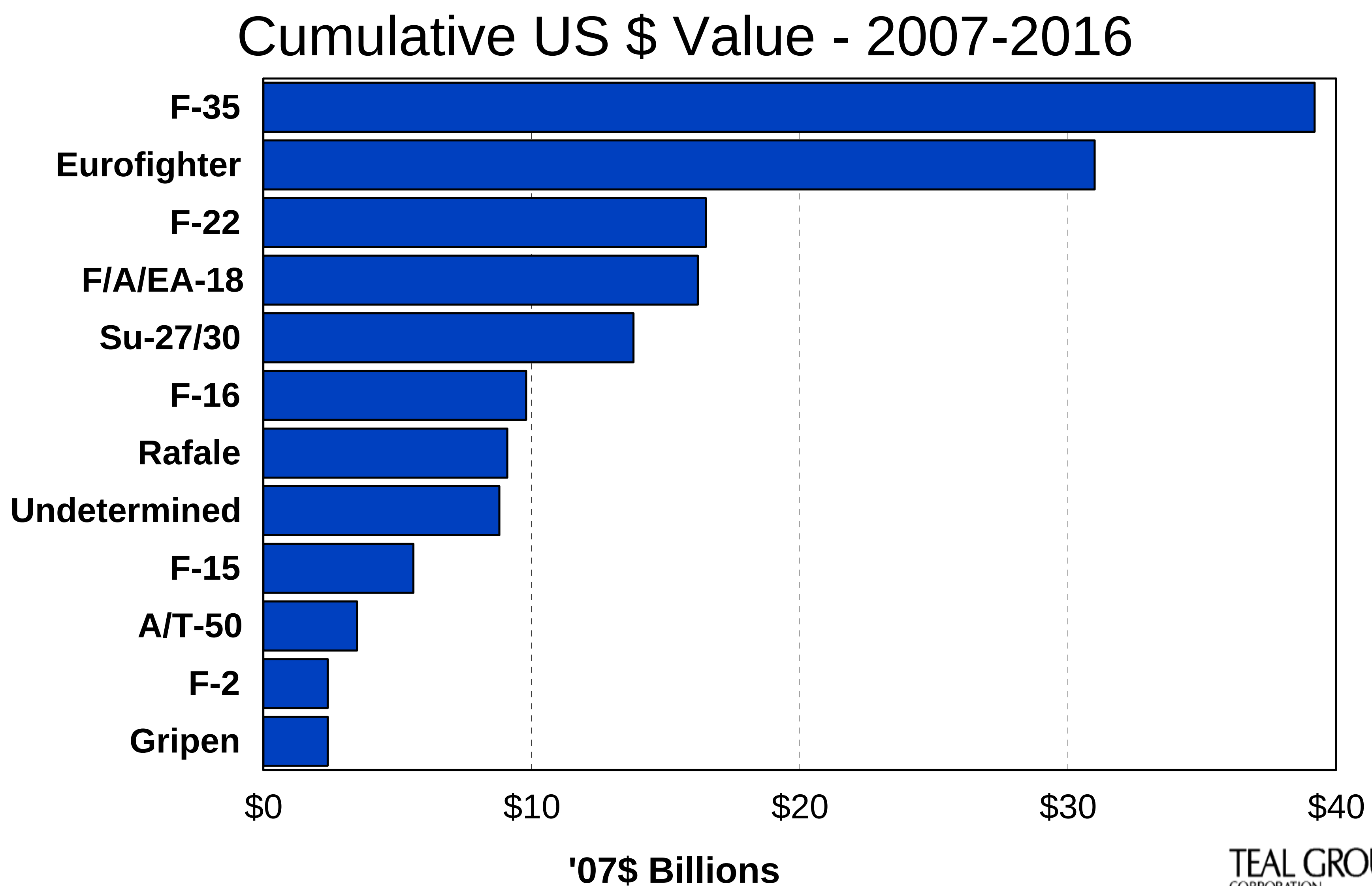
# F-35, Eurofighter, F-22: Highest Value Programs

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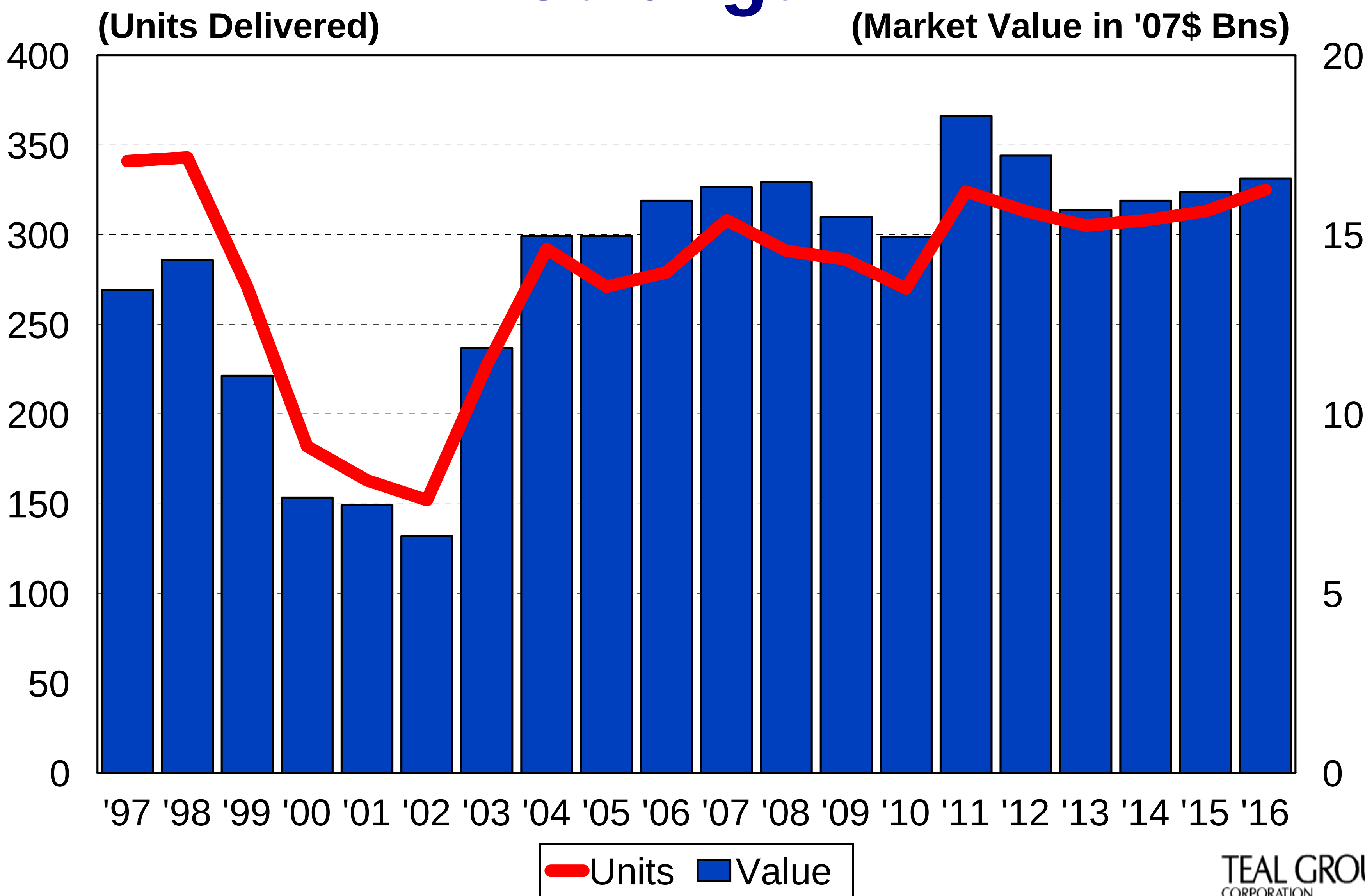
# The Fighter Market: Continued Strength

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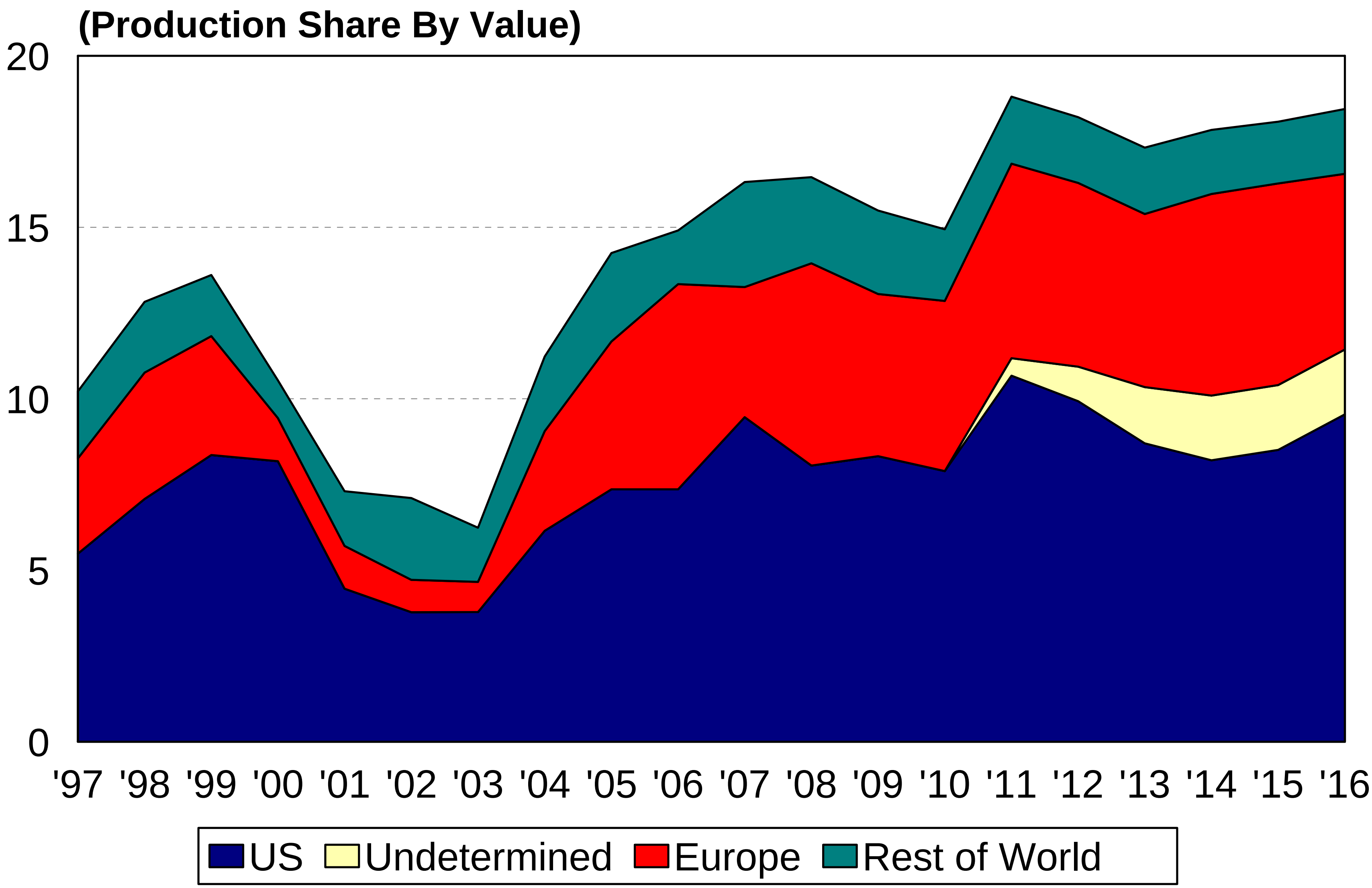
# World Fighter Production Shares




**"Rest of World" includes Russia, Japan, Taiwan.**

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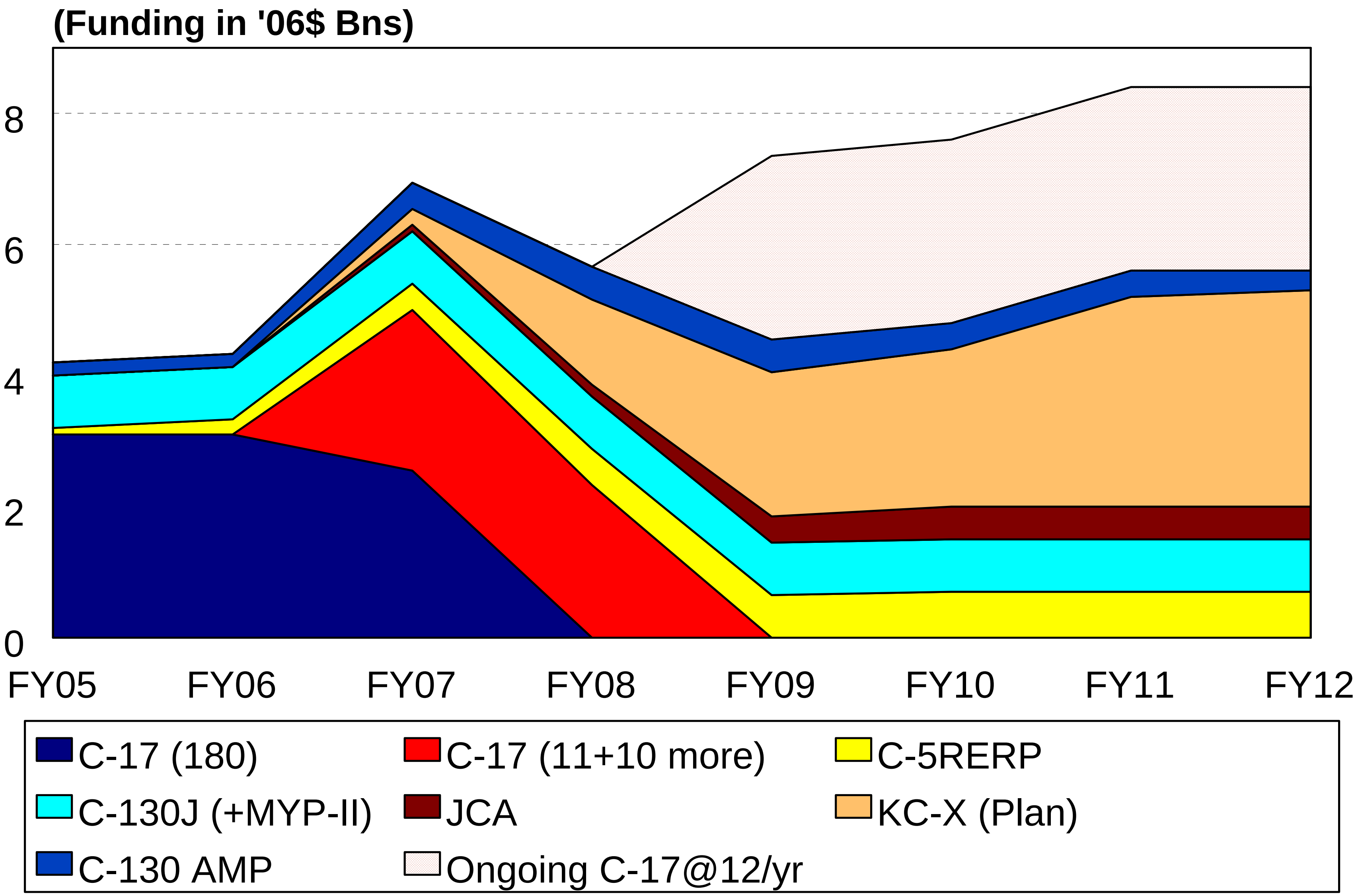
# US Military Lift/Tanker Procurement (In Theory)

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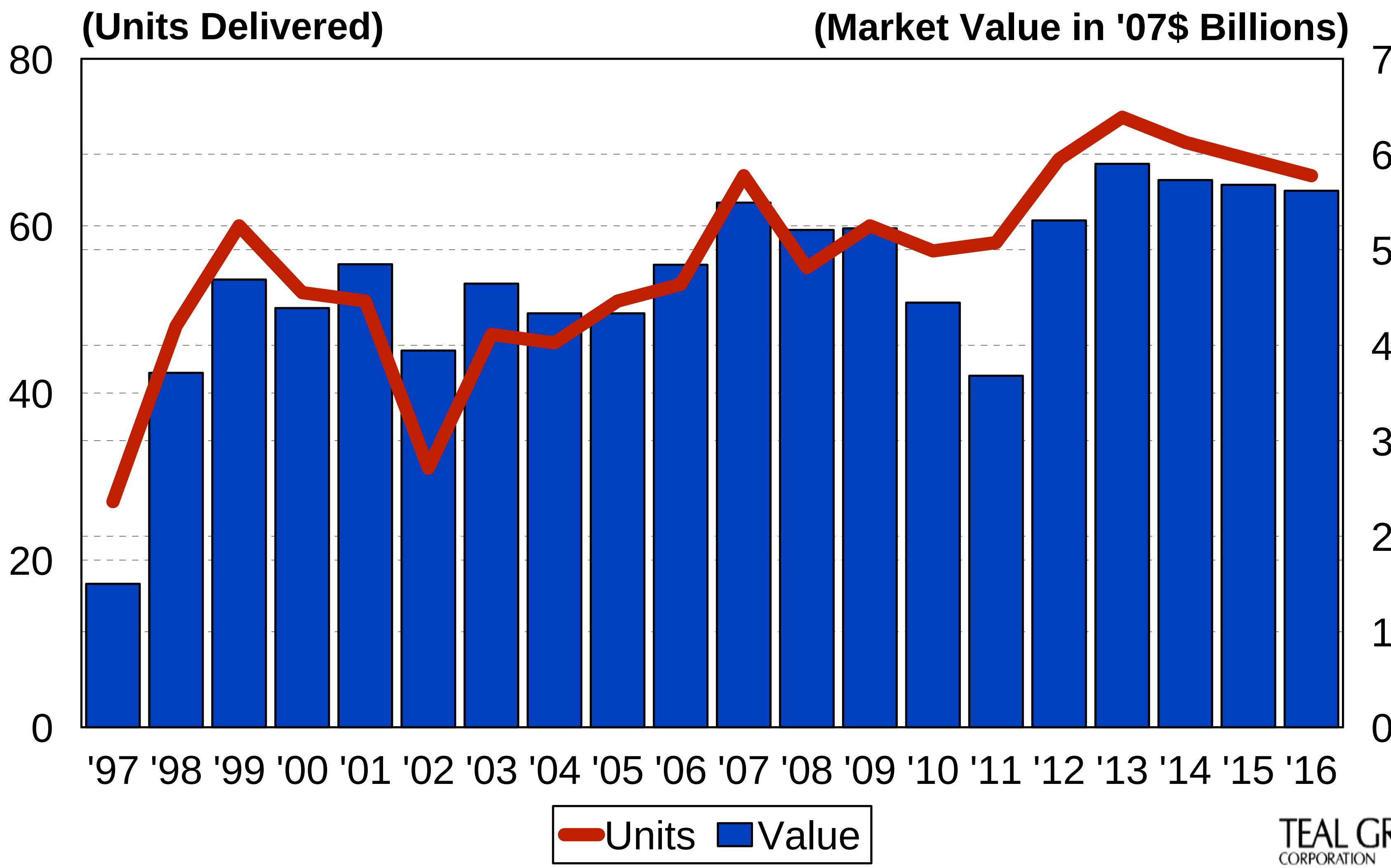
# Military Transports: Past & Future

## A Transitional Market

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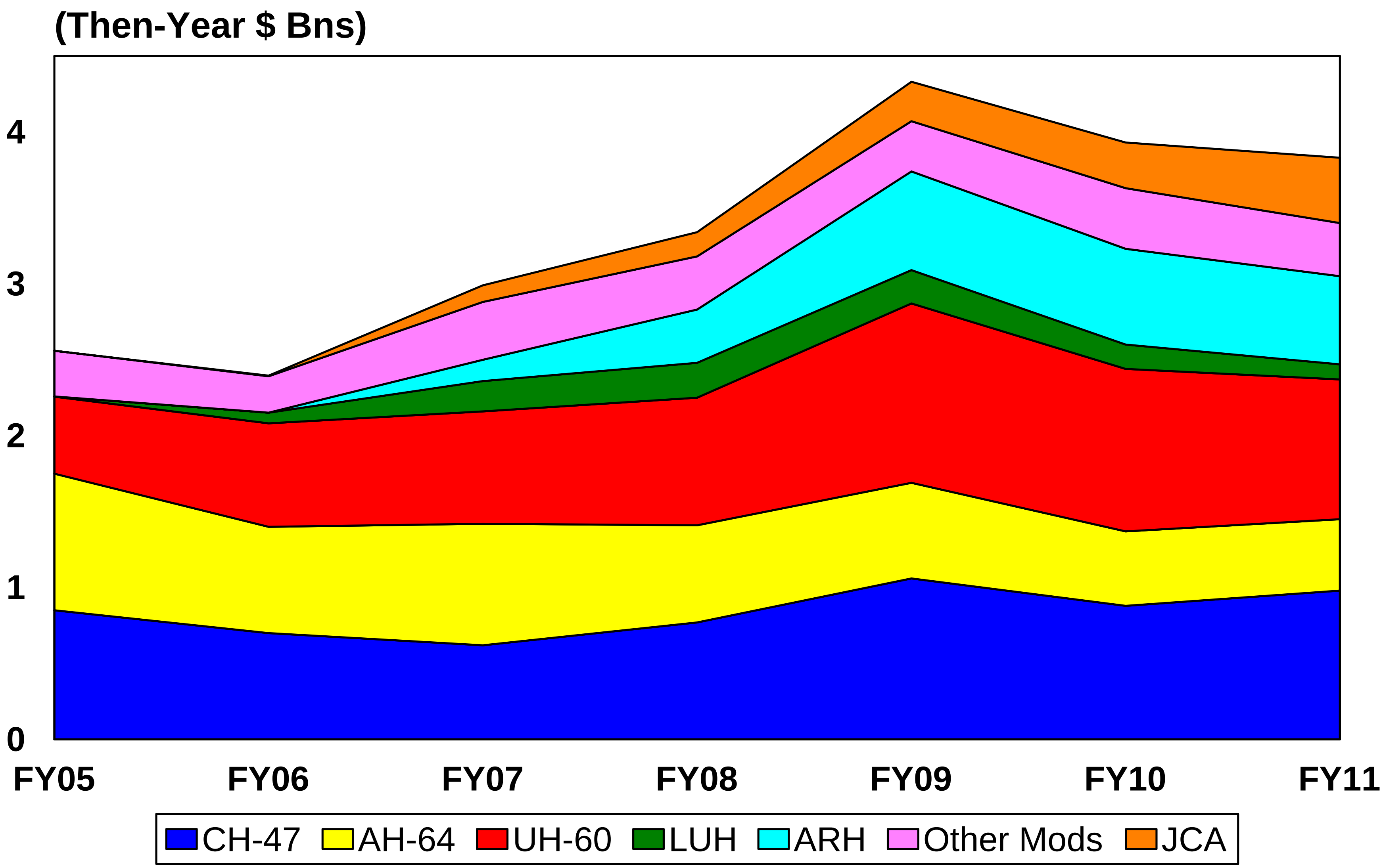
# Army Aviation Funding FY2005-2011




**P-1 only; excludes O&M, add-ons**

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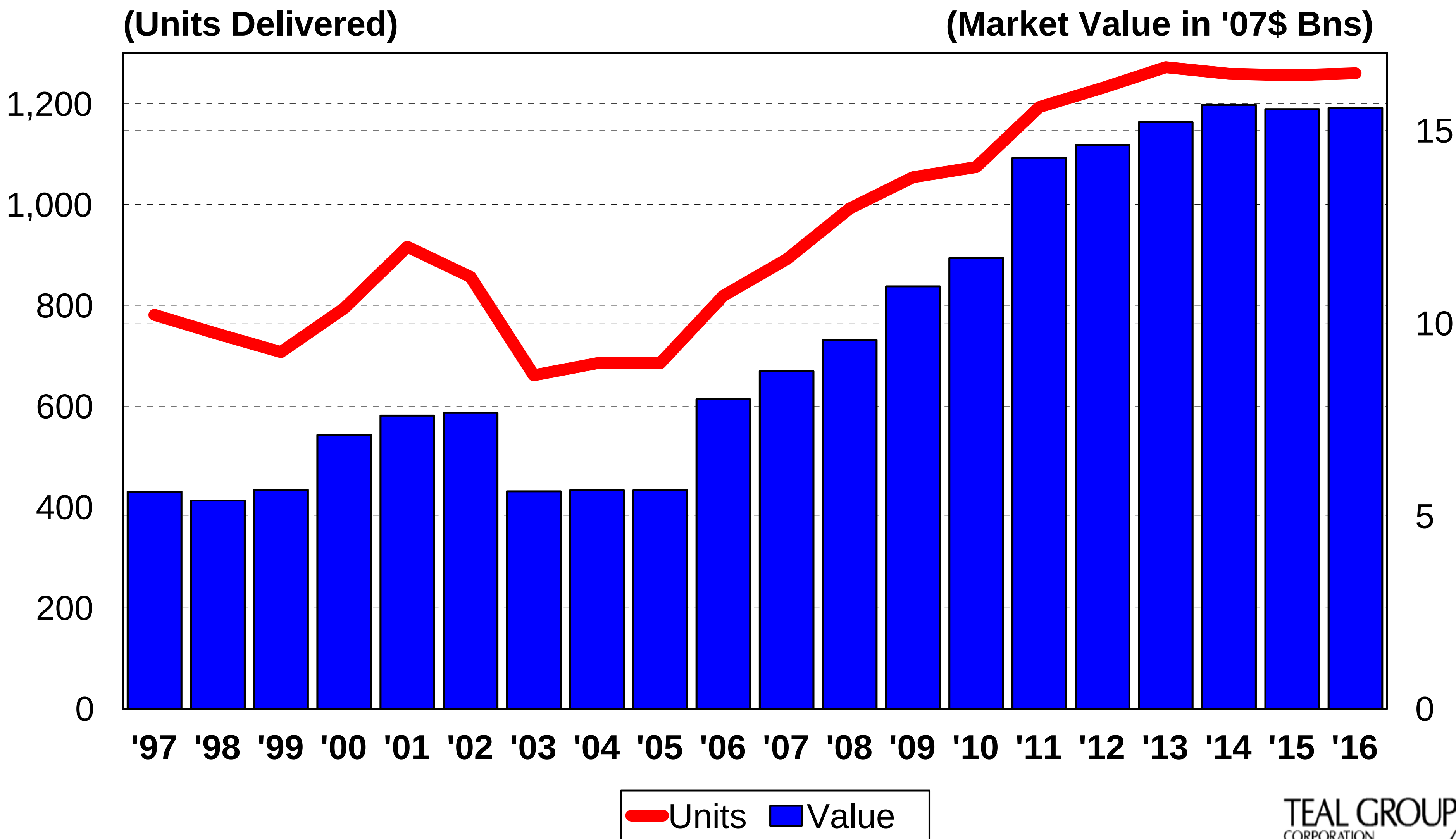
# The World Rotorcraft Market

## Steady Growth, Led By Military Segment

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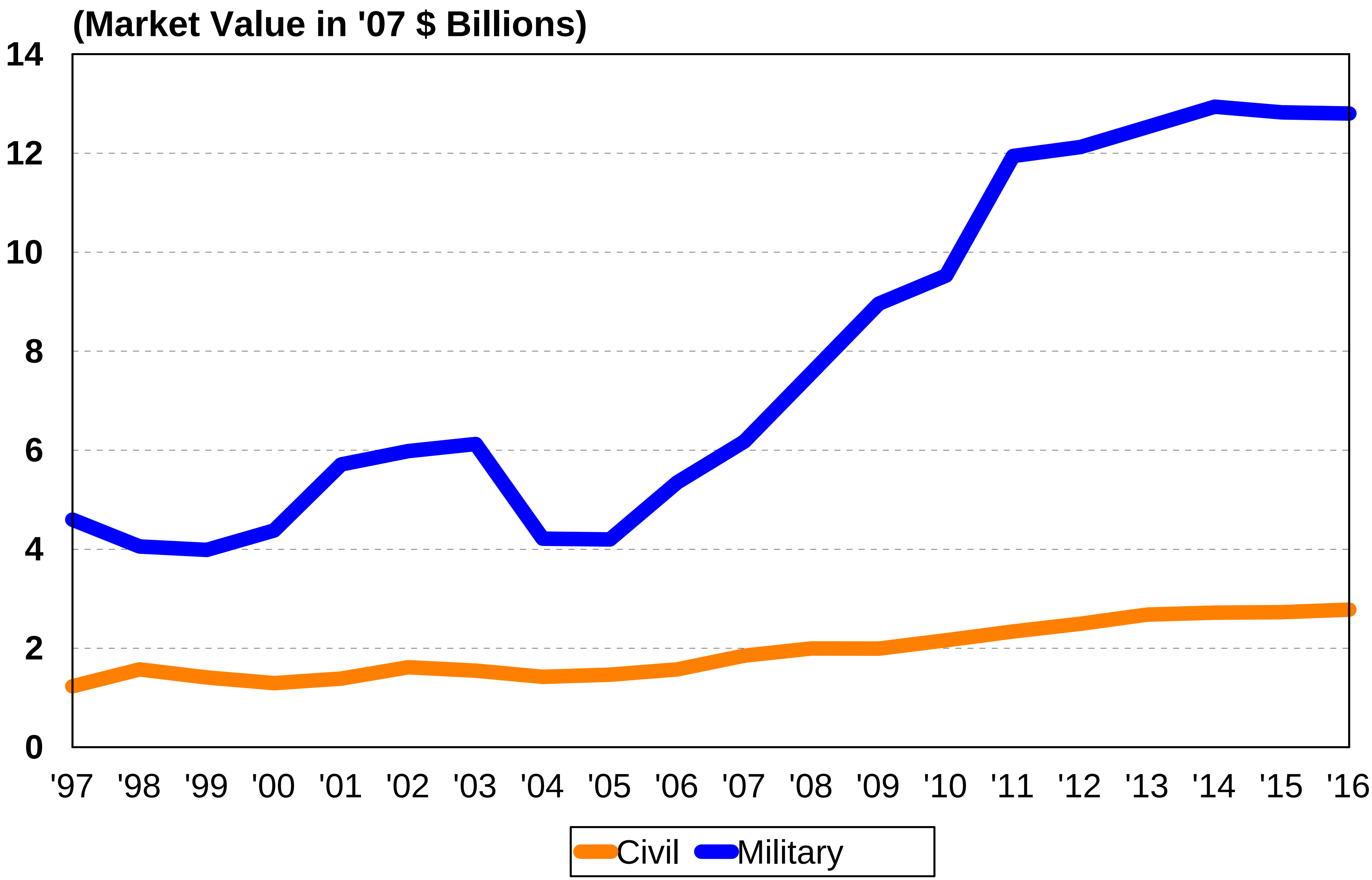
# The Military Market: Bigger And Quirkier




**Civil market includes some tiltrotors**

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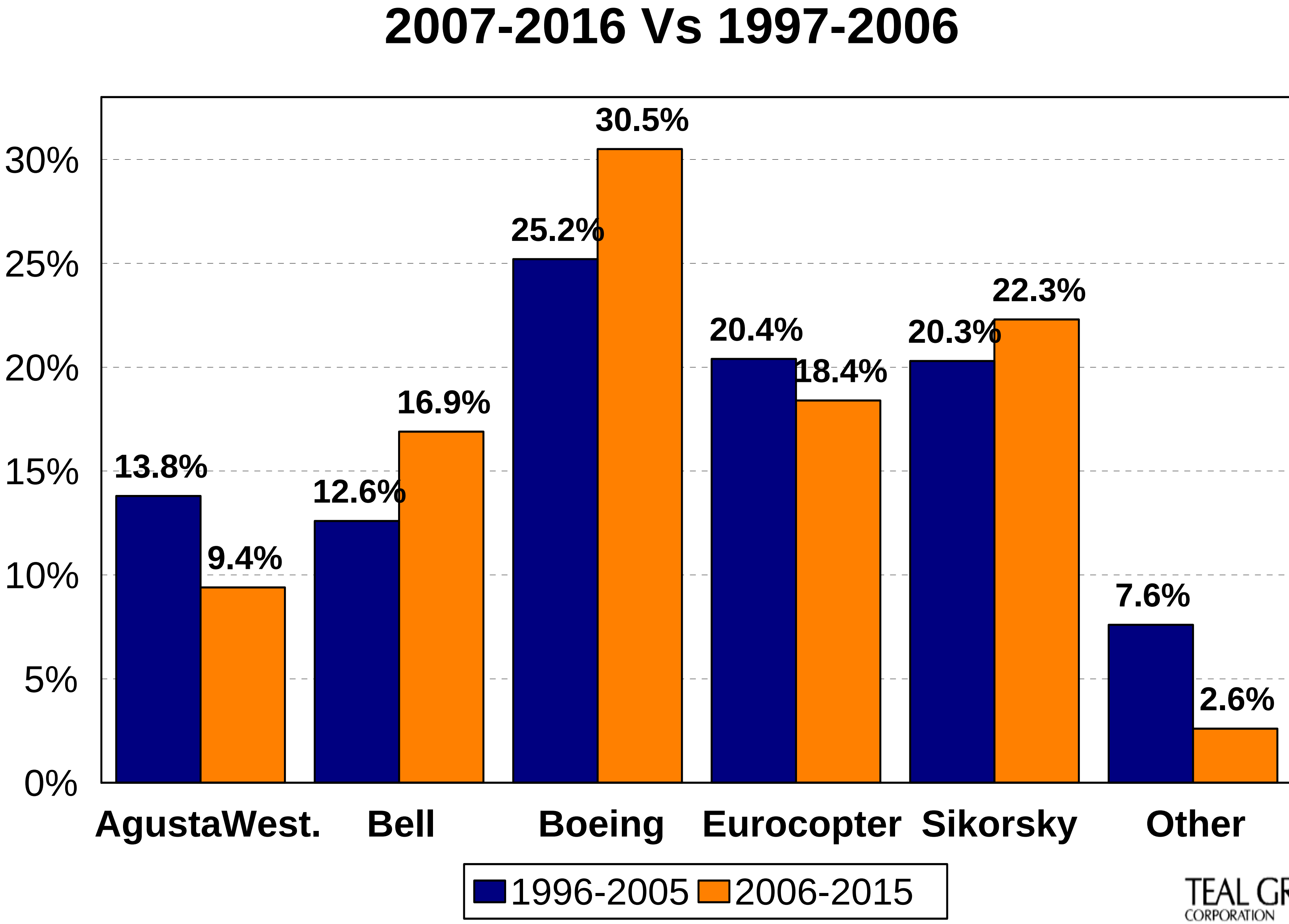
# Rotorcraft Manufacturer Market Share

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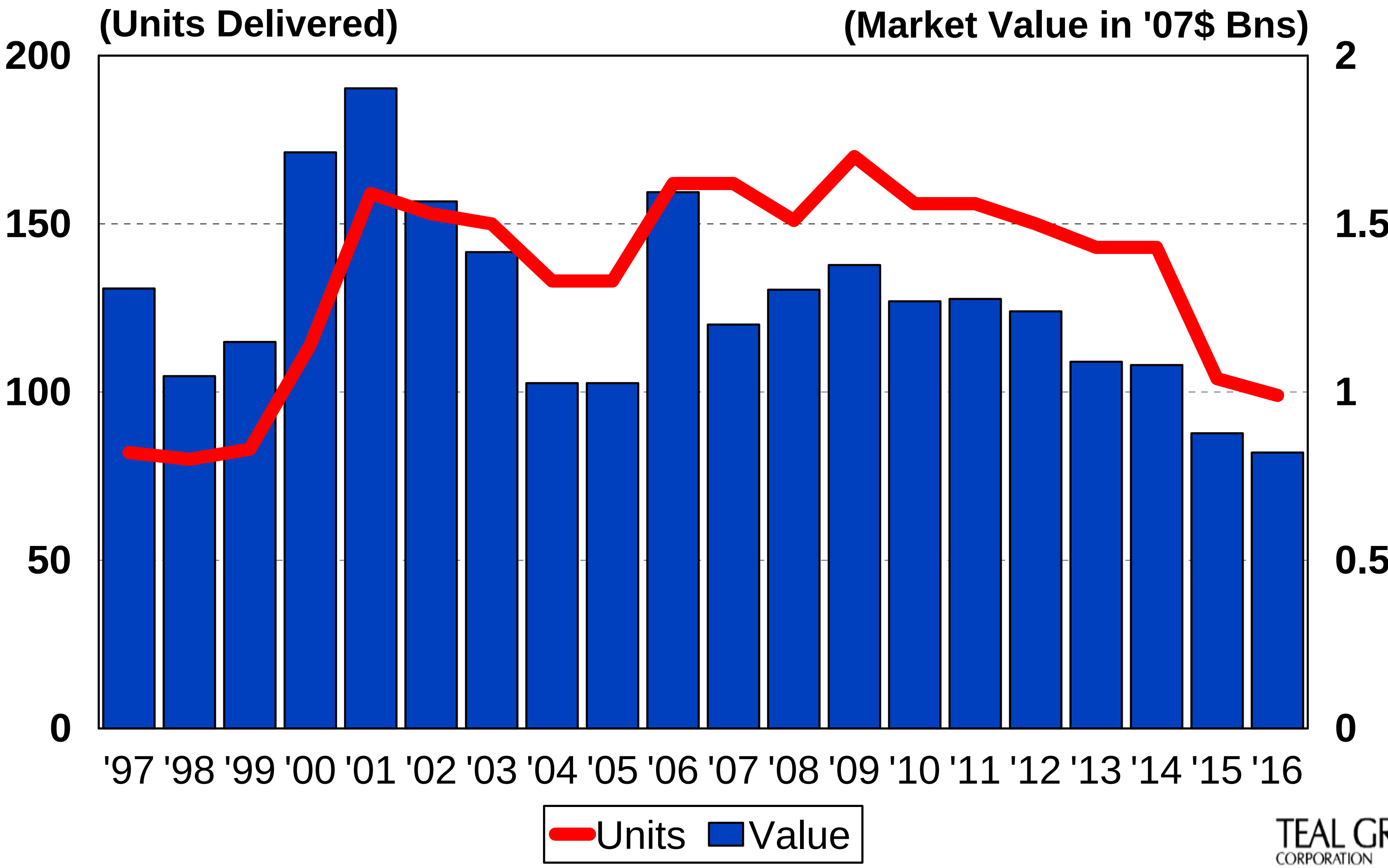
# Trainer/Light Attack History And Forecast

## High End Jets Lose Their Appeal

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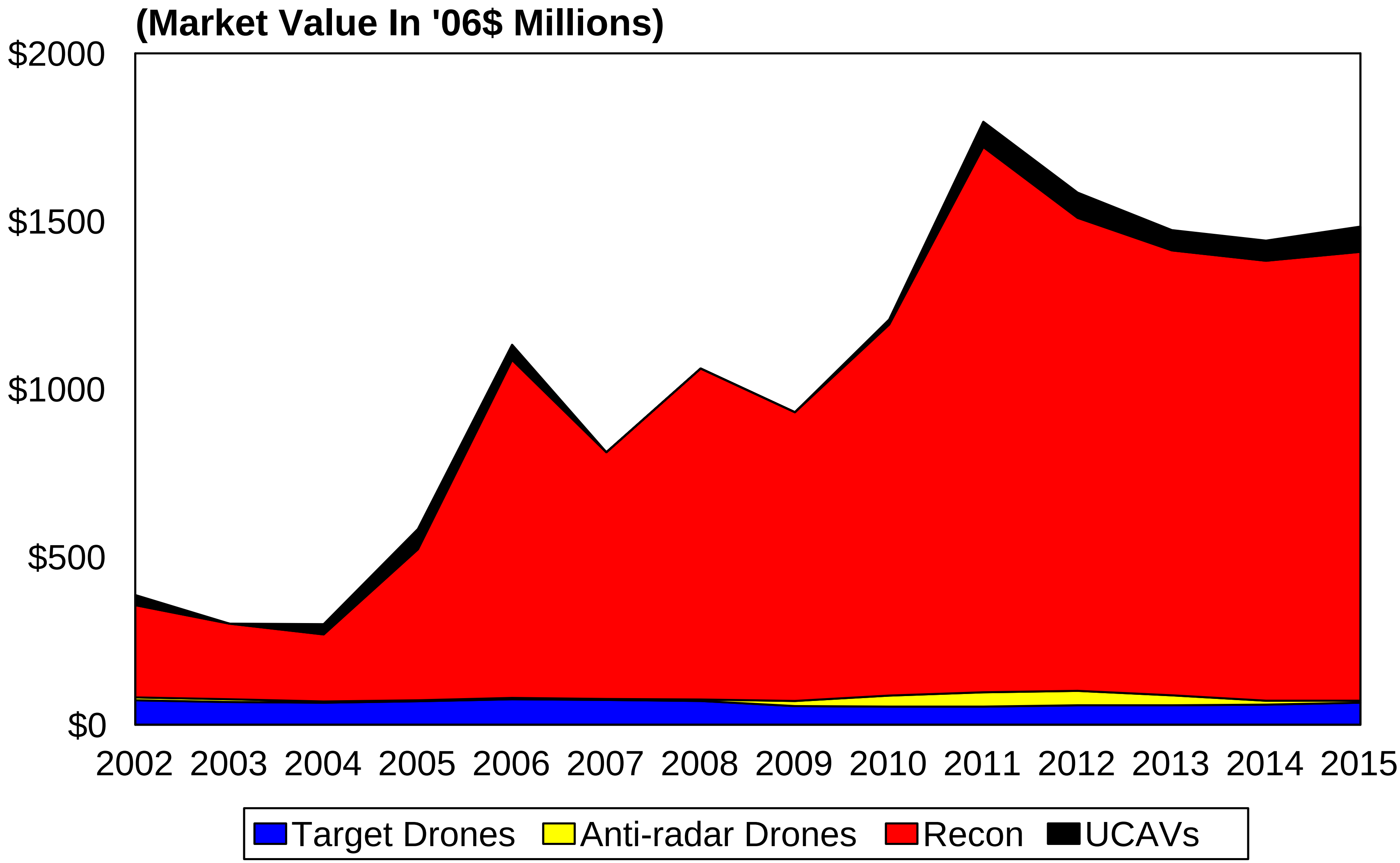
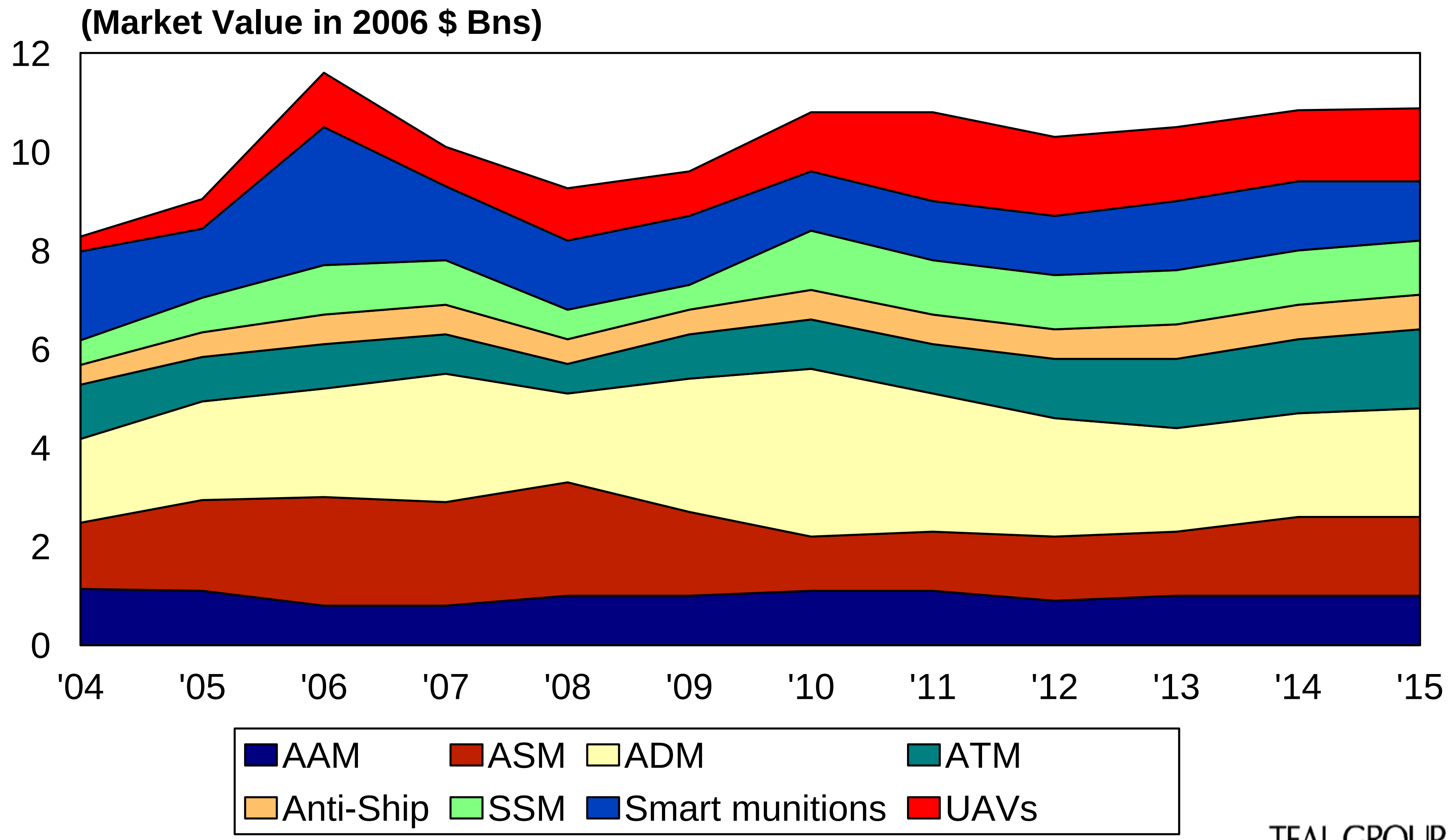
# The UAV/UCAV Market By Vehicle Class




**Includes prototypes, but not R&D.**

# Missile/Munition/UAV Forecast 2004-2015



# Top Military Aviation Issues In 2007

1. **Defense budget growth, and the supplemental question.**
2. **Recapitalization v. new capabilities.**
3. **KC-X.**
4. **C-17 survival.**
5. **JSF: budget, schedule, sign-ups.**
6. **Rotorcraft ramp-up resolution?**